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TV TECHNOLOGY

Serving the Broadcast, Cable, Production, Post Production, Business and New Media Markets

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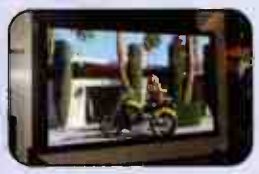
WHAT'S INSIDE



Dirty Words Cost

FCC levels sweeping indecency fines

by Deborah D. McAdams

WASHINGTON

Actors playing soldiers can swear, but bluesmen in a documentary cannot, or at least not without eliciting a fine from the FCC. Last month, the commission issued a $15,000 Notice of Apparent Liability to PBS affiliate KCSM in San Mateo for airing "The Blues: Godfathers and Sons," a profanity-laced documentary about blues musicians. Similar vulgarities were allowed in the film, "Saving Private Ryan."

"For somebody trying to program a radio or television station, or trying to advise a programmer, the world is much less certain today," said Andrew Schwartzman, president and CEO of the Media Access Project in Washington. "The FCC purported to issue some decisions that would clarify these obligations. In fact, what the FCC put out is fraught with contradictions."

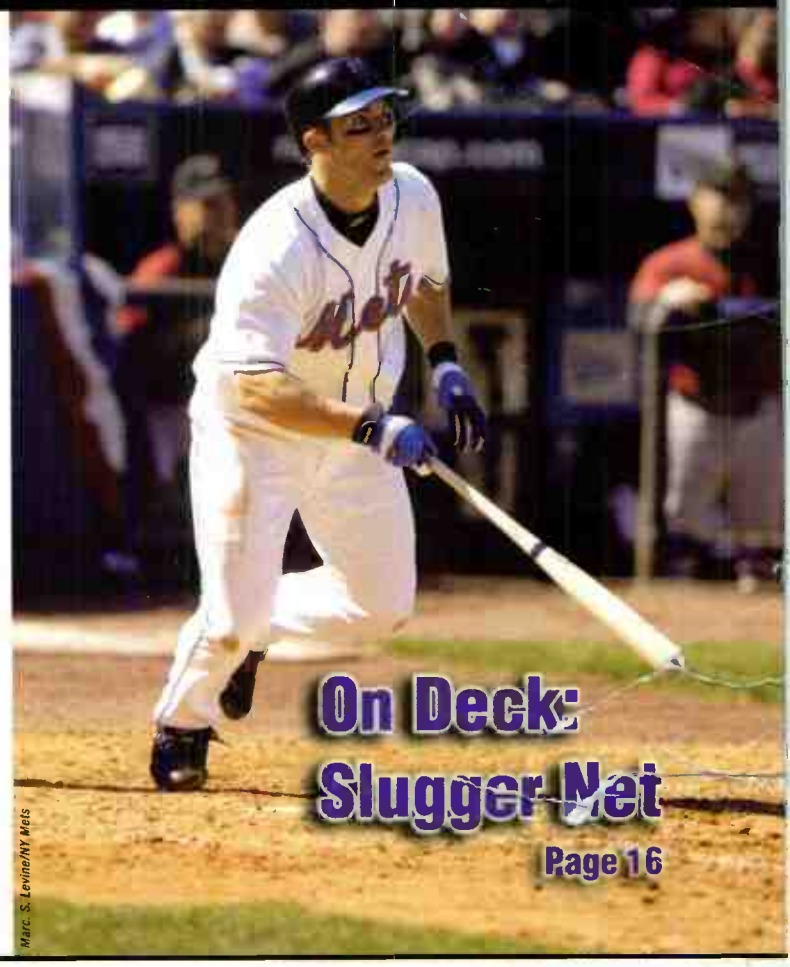
FCC Chairman Kevin Martin said the discrepancy regarding the language hinged on "an assessment of how integral it was to the show."

In "Ryan," the FCC determined that "deleting offensive words would have altered the nature of the artistic work and diminished the power, realism and immediacy of the film experience for viewers."

The same was not true of "The Blues."

"While we recognize here that the documentary had an

SWEARING, PAGE 18



Marc S. Levine/NY Mets

Hi-Def DVD Race Is On

Toshiba goes to market with HD DVD players

by John Merli

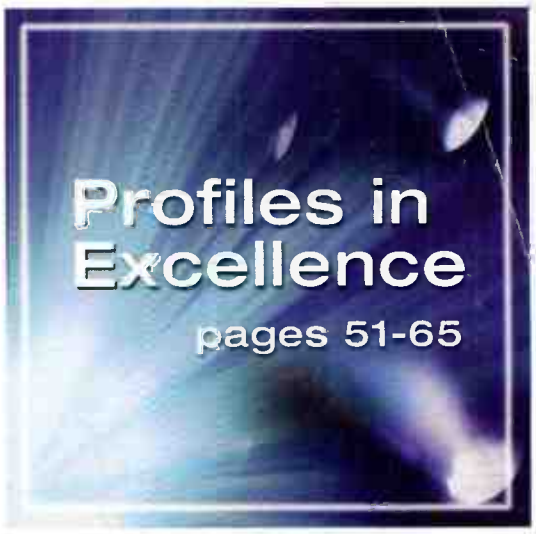
FAIRFAX, VA.

Toshiba HD-XA1 HD DVD player

The hot and heavy format wars between Toshiba's HD DVD and Sony's Blu-ray to capture the hearts and wallets of the next generation of home movie viewers have gotten a bit more interesting this spring as both sides have signaled delays in their respective ramp-ups of DVD players, movie titles, and one popular game console. The temporary setbacks are about the only thing both sides have in common.

Blu-ray chief proponent Sony recently announced a six-month delay in launching its PlayStation 3 (PS3) game console to November. At

TOSHIBA, PAGE 22



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HDTV: MAKE IT HAPPEN

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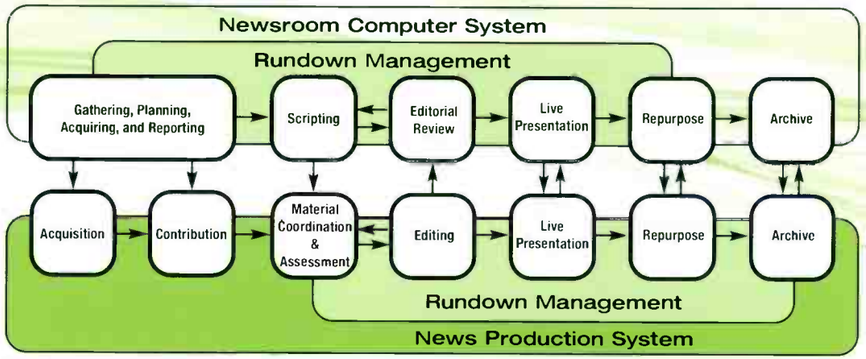
Demand for HD news is rapidly growing and is quickly becoming a requirement. Fortunately, Grass Valley is leading the industry in providing cost-effective, multi-format solutions to take your audience to new heights.

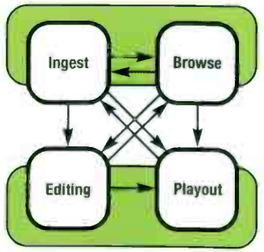


Grass Valley digital solutions bring maximum efficiency to even the most complex operation—eliminating the roadblocks and bottlenecks of your current news production workflow.

The Grass Valley™ line supports a complete, integrated workflow for newsgathering, from acquisition through production to play-out—and provides the most comprehensive and cost-effective HD and multi-format choices available. Even as new distribution methods such as IPTV and mobile TV are changing the way news is packaged, we provide solutions that help you make the most of all your markets, whatever they may be.

The groundbreaking Grass Valley Infinity family of camcorders and digital media recorders bring all the power and efficiencies of IT-immersed technology to your news organization.

Grass Valley high-performance, integrated news applications are easy to use and easy to get great results.



In the field

Our Infinity™ Series of ENG camcorders and recorders open up a whole new world of acquisition. Completely IT-immersed, they eliminate workflow roadblocks by offering your choice of recording formats, compression, connectivity, and media.

No other technology provider comes close to delivering such a comprehensive, integrated, newsgathering solution. From acquisition to playout you're assured of producing the highest quality—and fastest—news content available.

In the newsroom

Our integrated digital news production solutions which support leading Infinity, XD-CAM, P2 acquisition systems, span capture and ingest, feed management, file browsing, quick-turn SD/HD editing, craft editing, playout control, and more. These powerful, uniquely capable, modular applications seamlessly interconnect with leading newsroom computer systems. They eliminate workflow bottlenecks, and they allow users to manage the integration of digital archive systems, allowing retrieval of any specific assets required to complete the story.

Infinity gives you the power of choice:

Choice of Format
- 1080i 50/60
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- 625i 50
- 525i 60

Choice of Compression
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- JPEG 2000 SD/HD
- MPEG-2 SD/HD*

Choice of Connectivity
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- Gigabit Ethernet
- FireWire
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Choice of Recording Media
- REV
- REV PRO
- CompactFlash
- USB Sticks
- External Hard

* option

Further reducing bottlenecks is the Grass Valley REV PRO™, which extends the nonlinear workflow from field acquisition right to the editor's or journalist's desktop in the newsroom.

Our applications use standard PC platforms so there's no need for proprietary hardware. Their scalable design supports low-resolution proxy and high-definition video. And they all offer an intuitive user interface that makes it easy for everyone on your staff to get up to speed and be more efficient.

The Grass Valley NewsEdit™ line is our premium platform for SD/HD quick-turn editing. As the fastest nonlinear editing technology available, NewsEdit products let editors record source material directly to the timeline—saving time when seconds count. They seamlessly connect to our ingest, browse, and playout applications so you can create a collaborative solution that matches your workflow.

Edius

Complementing the NewsEdit platform is the EDIUS™ family of nonlinear craft editors. The EDIUS line provides real-time, multi-track, multi-format editing with high-level compositing and effects. It is an ideal craft editing system for organizations needing extra production value or more creative horsepower.

The Grass Valley EDIUS Broadcast nonlinear editor offers broad mixed-format support on the same timeline for multiple video formats today, and will expand support going forward:

- DV
- DVCPRO
- MPEG-2
- SD lossless
- SD uncompressed
- DVCPRO 50
- DVCPRO HD
- DVCPRO P2
- HDV
- Infinity
- VariCam
- XDCAM
- Windows Media

In the control room

Our Ignite™ control-room solutions and robotic cameras let you air SD and HD newscasts with only one or two operators. The Ignite platform uses an integrated timeline to create on-air events from preprogrammed rundowns. Directors have complete control over the timeline at any time and can easily navigate through the rundown list, advancing through one or more events, or making last minute changes. The Ignite platform takes care of the tedious so you can focus on the things that matter.

Our Ignite line of integrated production solutions is the first and most complete link between the control room and newsroom. The innovative timeline control of the Ignite platform makes it an ideal choice for live production, 24-hour news, or late-breaking news.

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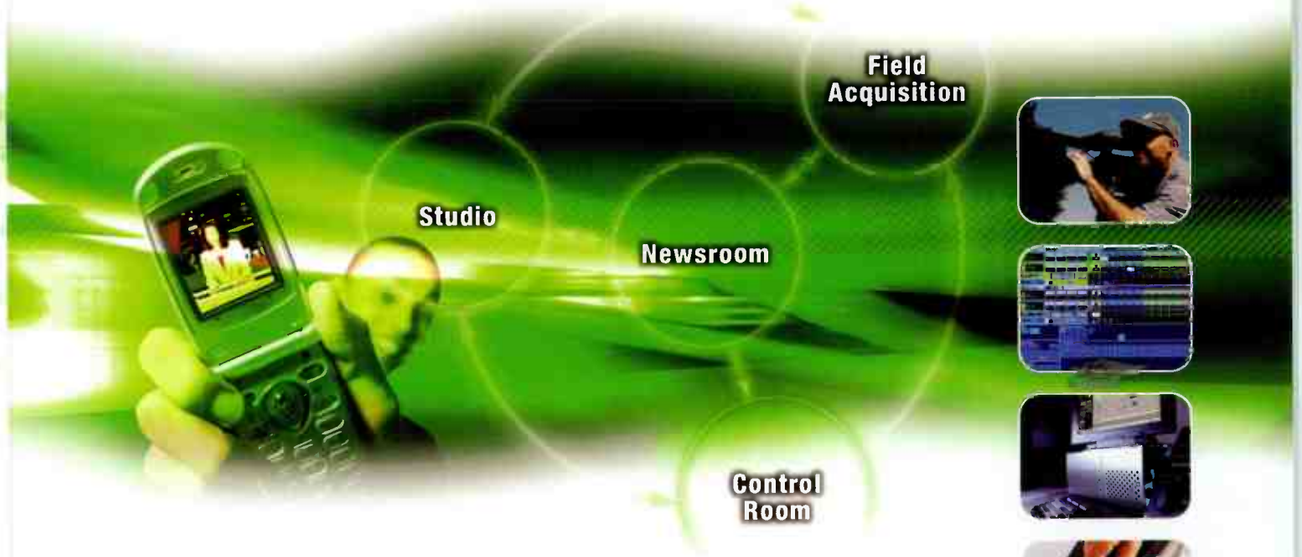
Your News Operation Goes Beyond the Newsroom



Not every technology provider understands the intricacies of the complete newsgathering process. Fortunately we do. We believe technology should be designed to support collaboration—not hinder it.

An effective news operation hinges on the succesful collaboration between those in the field, the newsroom, the studio, and the control room. But in the overall newsgathering process some tasks occur linearly, others take place concurrently, and many happen independent of each other. No matter how or when the task is performed, our integrated acquisition to playout products eliminate unnecessary steps and maximize your output. They work together to create a synergistic production and streamline your workflow, 24 x 7 x 365.

A THOMSON BRAND

grass valley

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EQUIPMENT

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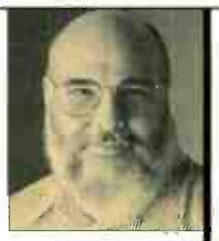
Frank Beacham

Net Soup

Back in 1849, Henry David Thoreau astutely addressed the issue of content on information delivery systems. "We are in great haste to construct a magnetic telegraph from Maine to Texas... but Maine and Texas, it may be, have nothing important to communicate... Page 68



Andy Ciddor

Let There Be Lighting

Among the eclectic collection of things I do in lighting, I get involved with construction and upgrade projects varying from broadcast and training studios, to dance and drama spaces, retail, hotel, gaming and convention facilities, and all the way around... Page 72

Walter Schoemkmecht

Inside Production

Scene: A small manufacturing firm, circa 1906. The owner speaks with an employee:
"Ellsworth, I'm afraid I'll have to let you go... looks like Mr. Edison's invention has pretty much ruined the market for oil lamps... Page 80

FROM THE EDITOR

Context is King

When it comes to technology, broadcasters are constantly being warned these days about becoming dinosaurs; that we run the risk of becoming obsolete in an age of IPTV, video blogs and video iPods. But when it comes to content, broadcasters are still king, as the FCC recently reminded us.

The commission showed that it wasn't in a forgiving mood last month, imposing fines of more than $4.5 million on broadcasters for airing what it considered "indecent" programming over the last several years. Some of those receiving fines, including CBS, have indicated they intend to appeal the decisions.

The FCC is unique in government agencies in that it is one of the only institutions, outside of the courts, that has the authority to decide on cases that involve matters of taste. In a world that many see as becoming increasingly vulgar, the commission stands as a bulwark for upholding community values. Others, of course, see the commission as an outmoded enforcer of censorship.

We're not going to debate about what the FCC found objectionable; that's for the courts and the politicians to decide. However, inconsistencies in many of the decisions raise deep concern about the logic that the commission used in doling out the fines. For example, how many complaints does it take before the commission decides to take action? Do complaints from certain areas of the country count more than others?

Another issue of concern is context. A station was fined for airing a documentary on the blues that included vulgar language, yet the airing of similar vulgarities in the movie "Saving Private Ryan" was OK with the commission. The only apparent difference is that one film (which was fact-based) was considered obscene and the other (which was fiction), passed commission standards.

Prior to these decisions, broadcasters were rightly confused and apprehensive about what the commission deemed to be considered indecent. These fines have done nothing to alleviate these concerns.

* * *

We like to mark milestones at **TV Technology**, and as you'll read on pp. 26-28, a major birthday is being celebrated this month: the 50th anniversary of the VTR. An unabashed fan of broadcast history, Technology Editor James E. O'Neal details the events surrounding the introduction of videotape five decades ago. Were you there in Chicago in 1956? If so, drop us a line!

Tom Butts
Editor
tbutts@imaspub.com

ERRATUM

In the article, "Host Broadcaster Helms HD Coverage" (Feb. 8), it was erroneously reported that Vistek had recently acquired Pro-Bel; Pro-Bel acquired Vistek in 2005.

In the article "Lip-Sync Errors Dog Digital TV" (Feb. 22), the caption on p. 15 indicated that "LipTracker" is manufactured by Pixelmetrix; the product is manufactured by Pixel Instruments.

LETTERS

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

Secondary Consideration

Dear Editor:

Kudos to Bill Hayes for pointing out an apparent discrepancy in television engineering that glamorizes the big beautiful picture and nearly forgets that tiny little speaker down in the corner of the typical receiver ("DTV Moves Audio Monitoring to the Fore," Digital Journal, Feb. 8).

Anyone who has migrated from radio to the visual medium experiences the withdrawals that this phenomenon produces. To quote Mr Hayes, "we as an industry [in television] have made audio such a secondary consideration that we have begun to make decisions regarding the handling and processing of audio that are based on outmoded values rather than on the factual conditions."

It is suggested that television engineers should be required to pay occasional visits to radio studios and transmitting facilities to gain a true appreciation for this simple observation.

Rick Crandall
Paxson Communications
Clearwater, Fla.

Dear Mr. Hayes,

I read your article and I am afraid to report that, like everything else being broadcast via satellite or cable, compression has taken the teeth out of 5.1 audio, especially the .1 part. Low frequencies on the newly released TNT HD station on DirecTV are not present. Now, some programming does a great job and 5.1 can sound great but performance, as you mentioned, is far from consistent.

I hope the new birds, new MPEG-4 receivers, and dishes will provide the bandwidth necessary to do it right but I doubt it. Greed seems to be the driving force in programming, not picture or audio quality.

Brad Westcott
League City, Texas

Technical Understanding

Dear Editor:

Kudos to Randy Hoffner's article "Hi-Def DVDs Are Finally Here," (March 8). Being a "production" type doing video, 3D animation, and graphics/interactive presentations, this article gives me a fighting chance of understanding what's technically different between the competing products. (I liked Betacam better than VHS for quality audio years ago, and also wished Macintosh let manufacturers clone their platform way earlier than they finally did—too late for many as we are forced to buy/use Windows for the most part at the workplace...)

I see from earlier "Letters to the Editor" that Randy gives clear and detailed explanations in his articles, and this one exemplifies a current confusing new technology. Keep up the great stories! I'll keep looking forward to learning more from such a knowledgeble professional!

Steven Croft
Hopatcong, N.J.

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Deutsche Taps Microsoft for IPTV

BONN, GERMANY; REDMOND, WASH.

Bonn, Germany-based telco operator Deutsche Telekom AG is using Microsoft's IPTV software to deliver Internet Protocol television services to consumers across Germany.

Microsoft's IPTV software to view sports events from different angles

Microsoft TV IPTV Edition software platform will be used to deliver a range of entertainment products over Deutsche Telekom's broadband networks. The two companies will also embark on a joint marketing campaign as well.

Subscribers will be able to view regular TV programs and advanced TV services including HDTV, digital video recording and VOD. It will also enable viewers to interact with TV programs, which could include voting, accessing sports scores and league tables, and participating in competitions.

IPTV services will be delivered through a new VDSL network, which is currently being extended by T-Com. The network is expected to permit bandwidths up to 50 Mbps and is planned for launch in 10 major German cities including Berlin, Hamburg, Co-logne and Mu-nich starting mid-2006.

"Working together, Microsoft and Deutsche Telekom will help create a revolution in TV entertainment for consumers across Germany and France," said Steve Ballmer, CEO of Microsoft.

Microsoft said the agreement reached between the two companies is its largest IPTV contract in Europe to date and its second largest worldwide.

IPTV

Corning Launches Green LCD

CORNING, N.Y.

Staying one step ahead of environmental restrictions Corning Inc. has launched its Eagle XG, a new liquid crystal display (LCD) glass substrate that is free of all heavy metals. The company showcased its new environmentally-friendly LDC during the DisplaySearch US FPD Conference in San Diego, Calif. in March.

Corning said the Eagle XG is completely free of heavy metals, including arsenic, antimony and barium, as well as halides such as chlorine and fluorine. These materials, if added during the manufacturing process, can produce potentially harmful manufacturing byproducts.

"Eagle XG is an environmentally friendly glass that is the first of its kind. The value it provides to our customers will continue to increase as future environmental regulations are introduced," said James P. Clappin, president of Display Technologies.

Companies must be ready to comply with the European Union's new directives on electronic products that use hazardous substances by this summer. It is believed that the United States, China and Japan will soon follow.

"The quickly changing technical landscape of the LCD industry and the increase of ubiquitous, large, high-performance displays require the continuous evolution of LCD glass substrate," said Dr. Pete L. Bocko, division vice president and director of commercial technology at Corning Display Technologies. "We believe the environmental area is an opportunity to enhance the value Corning offers to our customers."

Corning is one of the largest suppliers of glass for LCDs and has manufacturing facilities in the United States, Taiwan, Japan and Korea.

LCD

World Cup Advances HD Worldwide

ANTWERP, BELGIUM; LONDON; NEW YORK

European and American broadcasters will be using their televised coverage of the FIFA World Cup this summer to promote HDTV.

The BBC says it will broadcast its 2006 World Cup coverage in HD for European viewers that have HD services from satellite or cable providers. The coverage is part of the Beeb's 12-month HD trials, and will also include the broadcaster's first HD coverage of the Wimbledon tennis championship in June. The trials start on May 15; high-def broadcasts of the World Cup will begin June 9.

Euro1080, the Antwerp, Belgium-based satellite provider, which has been transmitting HD programming in Europe for the past several years, has acquired the non-exclusive broadcast rights of HD transmissions of the World Cup in Germany for theatrical venues or cinemas on a pay basis.

The deal with Infront Sports & Media entitles the company to pick up the HDTV live feed at the International Broadcast Center (IBC) in Munich and distribute it to cinemas in 23 European countries. Cinemas in turn can make a deal with Euro1080 and charge a fee for the public to view the matches live in HD from its establishment.

Infront handles the global sales of all broadcast rights for the 2006 FIFA World Cup worldwide. Its wholly owned subsidiary, Host Broadcast Services (HBS), will produce the multilateral signal for the tournament in the HDTV 16:9 widescreen format.

Research from London-based consultancy, Screen Digest show there are only about 100,000 households throughout Europe likely to watch the 64-game sporting event in HD primarily because of delays further developing and manufacturing MPEG-4 technology needed for TV set-top boxes.

Although those STBs are now becoming available, the report suggests it's already too late to sell and install enough boxes to make significant inroads for HD coverage.

Euro1080 has started talks with 2006 FIFA World Cup Official Broadcasters to bring this competition in selected markets also to home viewers in HD quality. At this stage, the majority of households in Europe will receive the signal only in standard definition.

In the U.S., ABC Television said it plans to televise all 64 scheduled World Cup matches to its viewers in the United States—including 12 in HD—from a dozen stadium sites throughout Germany. Disney's ESPN on cable will broadcast 21 games, while ESPN2 will televise 31 matches of the world's most widely televised sports event.

Univision has the U.S. Spanish-language broadcast rights.

The FIFA World Cup runs from June 9 to July 9.

HDTV

Yahoo! Gets '60 Minutes' Stream Deal

SUNNYVALE, CALIF., NEW YORK

CBS has partnered with Yahoo! to bring its "60 Minutes" video content and news packages to the Yahoo! Web world.

This fall, Yahoo! will officially launch the new service where subscribers will have access to the show's content throughout the Yahoo! Web site, including a newly created "microsite" dedicated exclusively to "60 Minutes" content.

Each week following the Sunday broadcast, the microsite will be updated with two news packages: one will expand on a segment featured that week, the second will be based on a topical news theme for that particular week.

Internet

Industry Endorses IP Video Principles

WASHINGTON

AT&T, BellSouth, Verizon and the Consumer Electronics Association have agreed on a number of principles necessary to ensure commercial availability of IP-enabled video networks.

The principles were unveiled during CEA's "Entertainment Technology Policy Summit," held last month in Washington, D.C. In summary the principles provide for:

- Nationwide compatibility of home networking standards
- Open standards
- Reasonable licensing terms
- Reasonable testing and certification procedures
- Reasonable terms of service for consumers

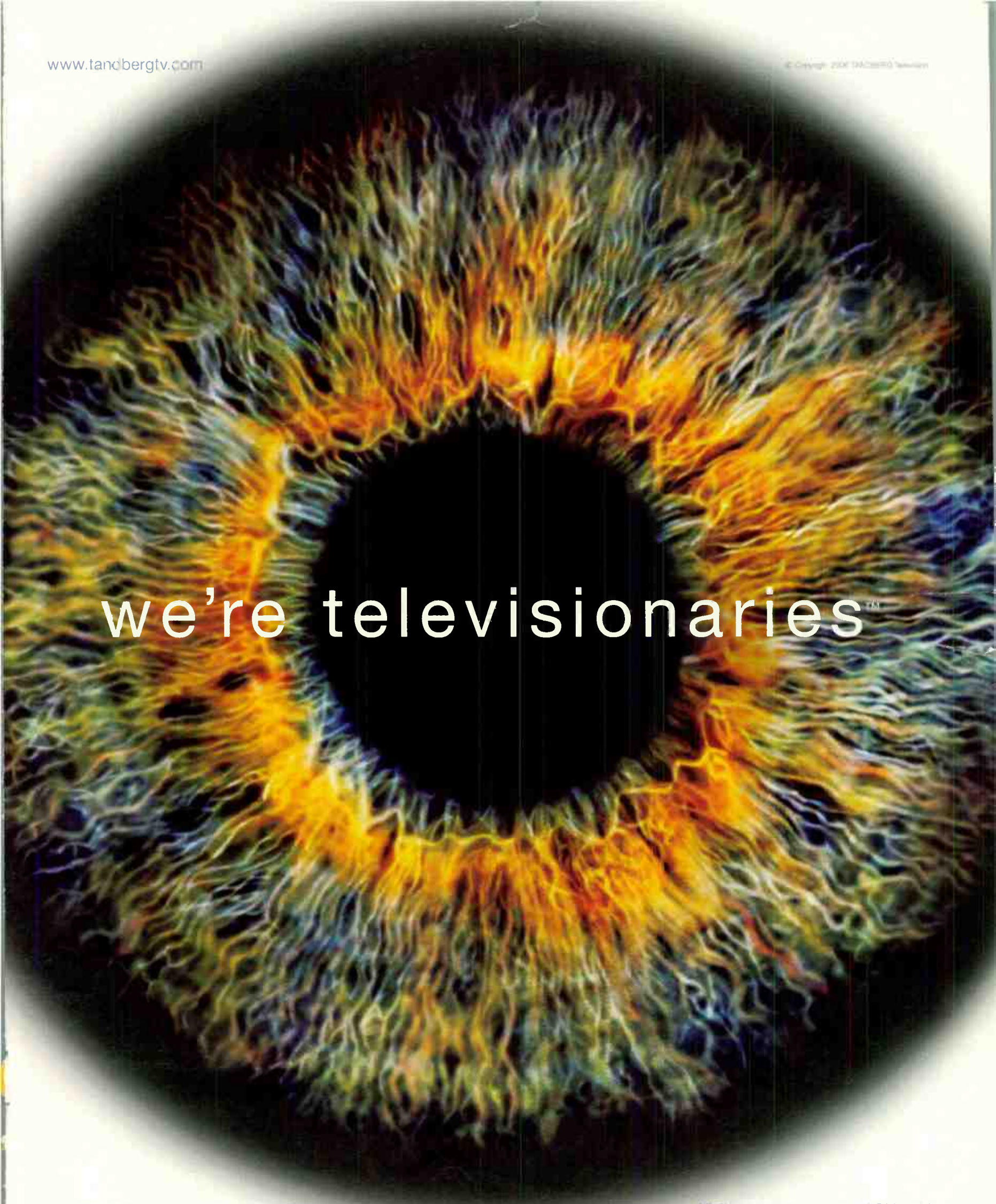
"IP-enabled video networks will provide consumers across the nation with a revolutionary new way to access their favorite video programs when and where they want. We believe these principles will provide solid guidelines and help support an environment in which IP can flourish," said Gary Shapiro, CEA president and CEO.

"We look forward to bringing a new entertainment experience to our customers by delivering programming that consumers want while protecting the rights of our partners in the content community," said Dorothy Attwood, AT&T senior vice president.

"This is a key step toward assuring consumers that the electronic devices they buy will work seamlessly with advanced, IP enabled services now being designed and deployed," said Susanne Guyer, Verizon senior vice president of federal regulatory affairs.

IP Video

www.tandbergtv.com



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TANDBERG television

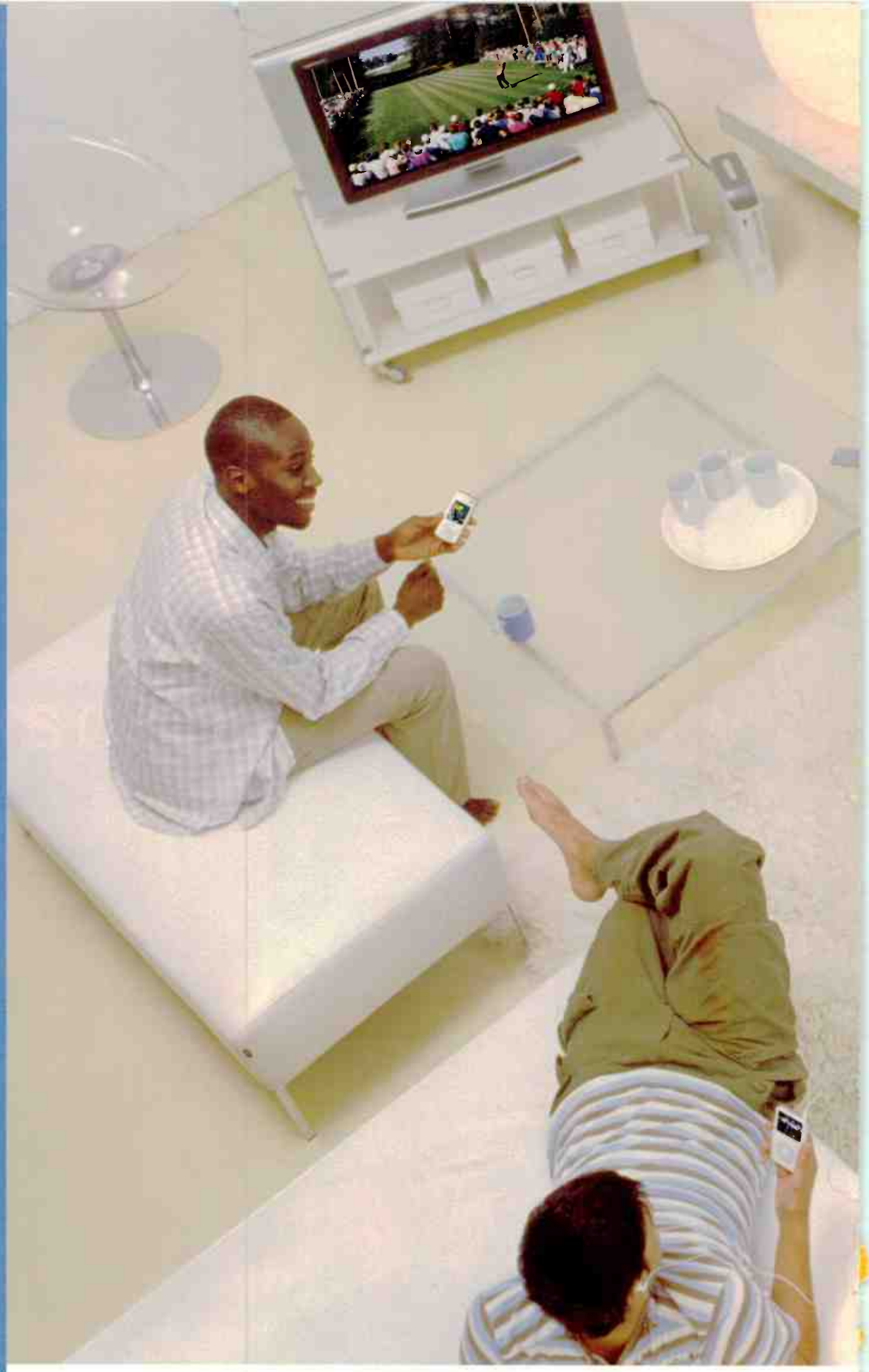
snellwilcox.com/nab

HD, IPTV, mobile TV – the broadcast digital media world is rapidly evolving with new formats and new ways of creating, packaging and delivering "content everywhere."

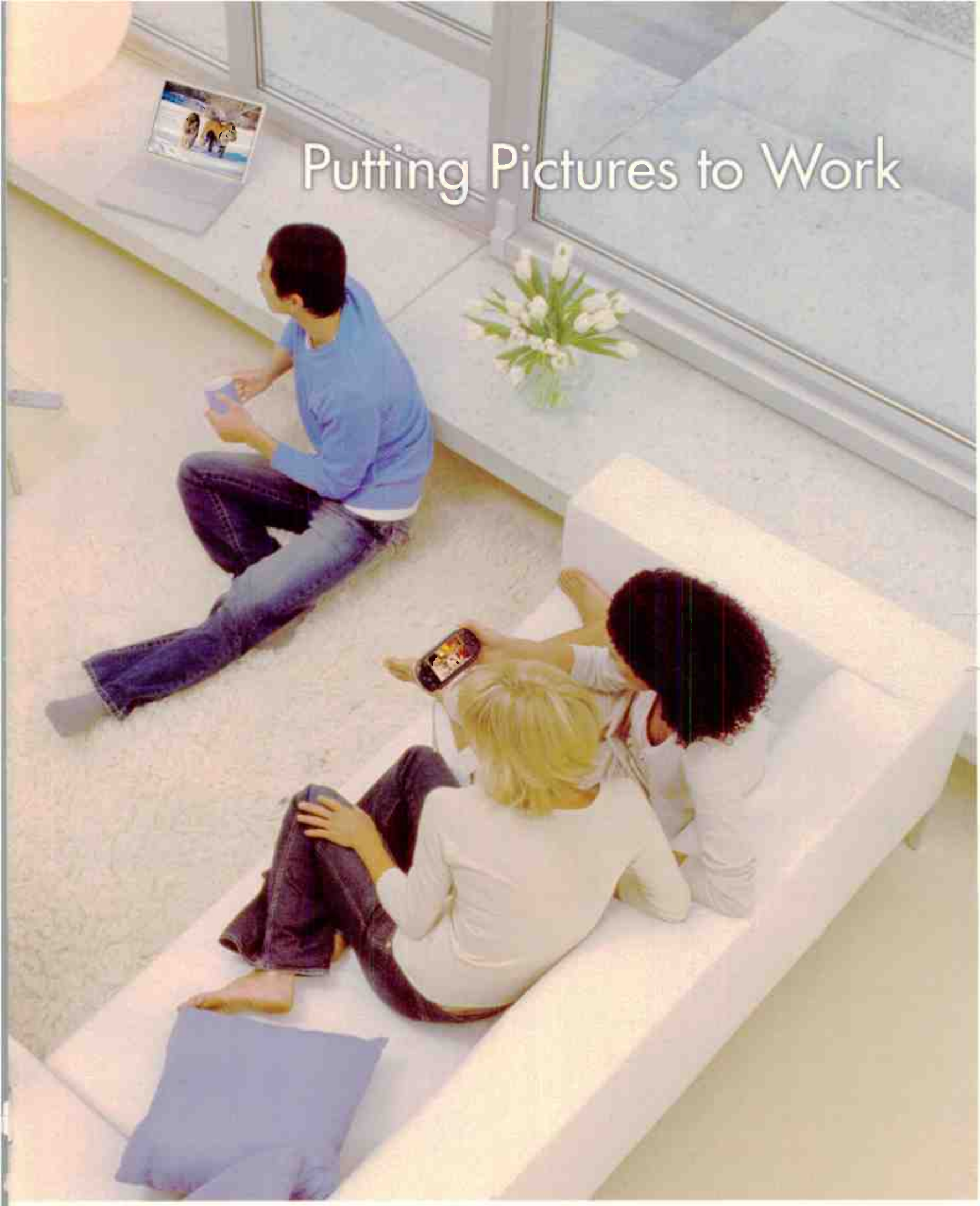
Increasing consumer choice means new opportunities for broadcasters and content owners to put their pictures to work and generate extra revenue.

The challenge is to make evolving technology work for you profitably and in harmony with your existing plant.

At NAB we're demonstrating how you can meet that challenge – with new, cost-effective solutions for live production, playout and mastering and repurposing.



Watch us putting pictures to work on Booth **#SU156** at **NAB** and find out more at **www.snellwilcox.com/nab**



Putting Pictures to Work™

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CEI Supports WETA Digital Upgrade

ARLINGTON, VA.

WETA-TV has selected Communications Engineering Inc. to support the transition from analog to digital at its production center in Shirlington, Va., as well as the re-modernization of the channel's master control play-out facility. The scope of the project includes consulting, planning, systems design, installation and testing.

CEI engineers have already been working with WETA to prepare a comprehensive specification and multiphase project plan that will serve as the blueprint for converting WETA to an all-digital HD-SD broadcast center.

According to CEI Senior Project Manager Joe Strobel, uninterruptible service is a key feature of the plan.

"This is exactly the sort of project that differentiates CEI as a leading Systems Integration company," Strobel said. "We understand what it takes to deliver a seamless transition in a complex broadcasting environment."

Strobel's team has already started phase one of the technology transition plan, which includes: Grass Valley Trinix/Apex digital routing switcher upgrade; Evertz analog-to-digital and digital-to-analog conversion equipment; RTS Digital Intercom Matrix upgrade; Evertz Sync and Reference Generation upgrade; Ortonics category 6 certified structured cabling infrastructure; Evertz SNMP monitoring and control system; physical renovations and additions to the overhead cable tray system; abandoned cable removal; power and lighting modifications; and isolated technical ground upgrade.

Ed Kennedy, WETA director of engineering and technology, said CEI was selected because of the nature of the assignment.

(L to R) Ed Kennedy, director of engineering, WETA and Joe Strobel, CEI senior project manager

"This is a highly complex project, so it's impossible to cover the full depth and breadth of the technology as well as the many different ways it can be applied," he said. "You need an agile and reliable technology partner like CEI because they simply think of things that I can't."

Digital

SES Americom Protects With NDS Tech

COSTA MESA, CALIF.; LONDON

SES Americom will support IP-Prime IPTV distribution with Synamedia from NDS, the pay-TV tech arm of News Corp.

The deal will enable telecom companies to offer premium TV programming over broadband connections with a level of content protection and security.

"Telecommunications companies have shown great interest in the delivery of television services to the home, and we are very happy to work with SES Americom to help bring the IP-Prime solution to telcos of all sizes," said Dr. Dov Rubin, NDS Group vice president and general manager of NDS Americas.

Rubin said security is a main concern of telcos, and this system will provide a turnkey approach to protect their revenues and to enable them to deliver high value content to subscribers.

Synamedia is integrated with NDS VideoGuard content protection and digital rights management, offering SES Americom a secure platform for the delivery of multichannel pay-TV and video-on-demand services to customers using a broadband IP connection.

SES Americom will deliver up to 300 channels encoded into MPEG-4/H.264 via IP-Prime, a centralized, satellite-delivered IP television distribution system that permits telcos to bundle traditional standard and HD programming on a single line with voice and Internet services.

"NDS is a recognized system security provider, enabling us to deliver a protected vital link in the long anticipated triple play for telcos and markets beyond," said Alan Young, chief technology officer for SES Americom.

SES Americom's IP-Prime platform can either be delivered to the telcos for their distribution to consumers or directly to subscriber homes via secured set-top boxes.

Technology

FCC Creates Public Safety Bureau

WASHINGTON

FCC commissioners voted in March to create a Public Safety and Homeland Security Bureau within the agency to help it respond faster to terrorist attacks, natural disasters and other emergencies. Functions now spread out among seven locations would now be consolidated into the new bureau.

Responsibilities of the new bureau include public safety communications, EAS, 911 emergency calling rules, disaster management and network security.

The changes are subject to congressional notification.

"The new Public Safety and Homeland Security Bureau will enhance the commission's ability to continue ensuring public safety priorities are met and that consumers have access to reliable communications during emergencies and crises," FCC Chairman Kevin Martin said.

The commissioners said the need for better communications during a disaster are essential, and given where the United States stands right now, more coordination must be done.

Commissioner Michael Copps said, "It's been almost five years after 9/11 and America is not ready," in case of another terrorist attack. The new bureau can help coordinate first responders, he said.

He also suggested coordinating communication between hospitals nationwide in light of disaster such as Hurricane Katrina. While some hospitals have made progress in emergency planning, others have not.

"Why should every hospital have to travel down this path as if nothing had been done before?" he said in his statement.

Another area that needs consideration, according to Commissioner Jonathan Adelstein, is the speed of first responders. One example he gave is to incorporate other languages and new technologies into the EAS system.

"I want to achieve a higher standard of emergency preparedness and not get bogged down in bureaucratic distractions that have plagued other agencies in their ability to react," he said.

Melissa Sullivan

Federal Frequency

WDAY Adopts JVC ProHD

FARGO, N.D.; WAYNE, N.J.

ABC affiliate WDAY-TV in Fargo, N.D., has upgraded its old MII format and purchased 18 JVC GY-HD100U Pro HD cameras and 15 BR-HD50U VTRs for ENG.

"We went with the GY-HD100U because the camera can record in SD or HD. That was extremely important to us since we're planning to upgrade the entire station to HD in the very near future," said Jeff Nelson, WDAY news director.

WDAY captures footage from the GY-HD100U using Focus Enhancements portable FS-4 recorder as the main acquisition format. Then the footage is transferred directly from the hard drive into Final Cut Pro editing systems. As a backup, the station also records onto tape and can access the taped footage with a JVC BR-HD50U recorder/player.

Nelson said the new cameras complement the station's current editing workflow and the transition was "seamless."

The JVC GY-HD100U

JVC also conducted a three-day end-user training session on site at WDAY to help acclimate the crew with all the features on the GY-HD100U.

HDV

Canon's 3-Chip PTZ Camera System Adds A New Dimension To Quality Production.

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Wireless HD: Ready for Primetime?

Technology Forum showcases latest in HD wireless camera systems

by Claudia Kienzle

RYE, N.Y.

The fifth annual Technology Forum—held at the Doral Arrowwood Resort in Rye, N.Y. last month—drew an impressive crowd that can be described as the "Who's Who" of broadcast network sports.

Invitation-only guests representing ABC, ESPN, NBC, CBS, HBO, Fox Sports, WGN, The Golf Channel, OLN (Outdoor Life Network), PGA Tour Productions, TNT, NBA Entertainment, College Sports TV Network; MTV Networks, NHK Enterprises America; Comcast SportsNet, Clear Channel Mobile, the YES Network, HD VOOM, Rainbow Sports Network, NFL, and other high-profile networks, all wanted to learn how best to use cutting-edge wireless HD camera technology.

The annual conference was organized by Jerry Gepner, a five-time Emmy Award winner and chief technology officer of Vitec Broadcast Group, who chose wireless HD camera technology as this year's topic. A former president of National Mobile Television, Gepner also helped launch systems integration company Venue Services Group, as well as Chicago-based Sportvision, which develops and markets innovative computer-generated graphics displays for live sports telecasts.

The annual event provides an opportunity for key decision makers to discuss new technologies with the manufacturers who develop new and innovative applications.

"The people we invite are responsible for selecting, purchasing or using the technology," Gepner said. "The key driver for this is learning; there's a classroom aspect to the meetings. And the sponsors get some very valuable feedback."

The event is held at this time every year just prior to NAB for a reason, Gepner said.

"[The event] serves, in some respects as a filter for people on a particular topic."

At the conference, several vendors demonstrated new technologies, including: Link Research, a Watford, England-based company with an office in Los Angeles; Global Microwave Systems in Carlsbad, Calif.; and Thom-son Grass Valley. This year's event was produced and sponsored by Bexel, the Los Angeles-based video rental and services company, along with National Mobile Television, an established provider of mobile production facilities providers in the US.

Randy Hermes of Aerial Video systems keynoted the Vitec Technology Conference.

Total RF (a division of RF Central) and Aerial Video Systems, or AVS, leading providers of wireless HD camera production services, also gave presentations of their technical expertise and proprietary solutions designed to maximize and enhance the capabilities of today's HD wireless camera systems.

> **"There's no doubt that HD wireless camera systems will be widely adopted for both live sports and news production."**
>
> **—Randy Hermes, AVS**

A BIG HIT

Randy Hermes, president and owner of AVS, and a 25-year veteran of innovative wireless camera systems, keynoted the event, discussing the significance of new, breakthrough HD wireless camera solutions—which have only been on the market for about four months now.

"There's no doubt that HD wireless camera systems will be widely adopted for both live sports and news production," Hermes said. "It's going to be a very successful technology."

AVS uses the Link HD wireless camera system due to its superior picture quality and low latency, which means minimal signal delay. AVS has provided HD wireless camera systems and RF technicians to many high-profile live event telecasts, including the Academy Awards (for E! Networks); "Monday Night Football" for ABC; Super Bowl XL; TNT "NBA All-Star Game;" and "The World Baseball Classic" on ESPN.

"Deploying this technology is very complex," Hermes said, "We make a proprietary system that remotes the signal from the antennas via fiber-optic cable back to the receivers at the production truck where they can be mixed in with other camera feeds. This makes it easier for the technicians to access the receivers to better control the cameras."

For football games, the antennas can be mounted in the bucket camera positions. At that point, AVS places a proprietary converter that converts the antenna signal directly to optical signals that can go over fiber.

"By placing the antennas strategically within the arena, cameramen can roam freely to obtain the best camera angles," Hermes said. "While this is a brand new technology, we are seeing very strong demand and are dedicating significant resources to this end."

As a provider of wireless broadcast camera production services, Total RF was the fourth presenter at the Bexel Forum, following demonstrations by GMS and Link.

Both the GMS and Link HD wireless camera operators managed to walk an impressive distance, leaving the conference room, and making their way down the hallways and outside of the building before experiencing any picture breakup.

Following this was a demonstration of the RF Central HD wireless system, which is based on the GMS low-delay transmitter, as well as the Total RF camera control. Jim Malone, RF Central chief technology officer, directed his cameraman to follow the same path the previous cameraman had taken. But Total RF's cameraman was able to walk farther than the GMS operator had—making his way to the far side of the conference center's adjacent golf course with no picture breakup.

"While we were using the same HD wireless transmission system as the previous camera operator, we demonstrated the true value of marrying this technology with the experience, understanding, and techniques applied by skilled RF engineers. This includes knowledge of RF propagation; as well as strategic placement of antennas and receivers," said Fred Fellmeth, chief operating officer of Total RF, in Bensalem, Pa. "Our proprietary techniques of engineering an on-site broadcast for wireless application enables us to maximize the performance of any HD wireless camera system."

CHOPPER TEST

The Total RF presentation included a "live test" of a helicopter relay of the HD signal from a car located several miles away.

"Once the helicopter received take-off clearance, the HD video that was transmitted was absolutely rock solid and the test car drove around the airport with no break-up in the signal at all," Fellmeth said. "Malone then asked the pilot to fly the helicopter offline from the car by a quarter mile so that the audience could see some breakup in the video; but the pilot radioed back that he was already at least a quarter mile offline and the picture was still robust."

Total RF, which provides RF services for all the major networks, sent RF engineers and technicians as well as wireless HD camera equipment to cover the Winter Games in Torino for NBC; the State of the Union address; the Academy Awards; and ESPN's World Baseball Classic. Total RF manufactures a wireless camera control system that was also used in the GMS wireless HD camera demonstration at the Bexel Forum.

"We had a 100 mW digital transmission of HD pictures that were gorgeous at unprecedented distances," Fellmeth said.

He added that there are many exciting, dramatic uses for wireless HD camera systems, such as following a fighter as he makes his way through the arena to the ring, or following the host of a show as he walks around to interview people in

WIRELESS, PAGE 32

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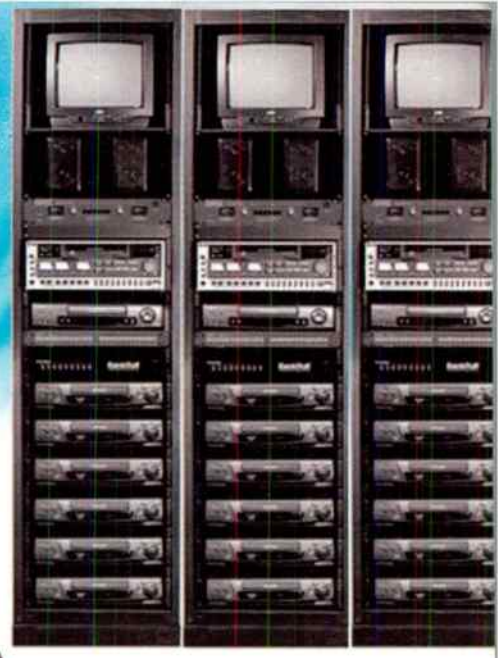

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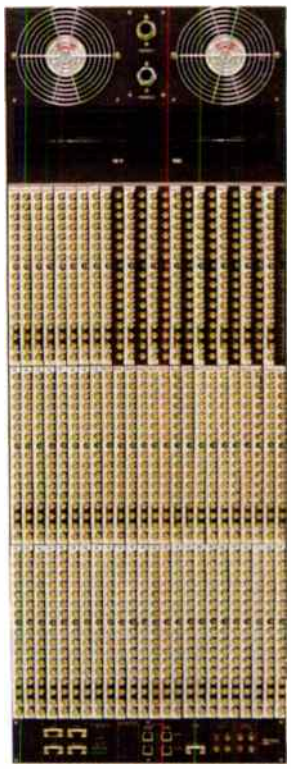

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IPTV Makes the Grade at Cornell

University expands IP video services

by Claudia Kienzle

ITHACA, N.Y.

In an effort to bring affordable TV entertainment to students in all of its residence halls, Cornell University opted to deliver video content via IPTV (Internet Protocol TV) instead of traditional cable TV.

The IPTV solution was first explored when Campus Life—the administrative organization that oversees dining services, residential halls, conference services, and more—became determined to expand the availability of TV service on campus. Only eight of their 37 residence halls and two of the three apartment complexes on campus were wired for cable TV, which meant that only 1,300 of Cornell's 7,000 residential students could receive the service.

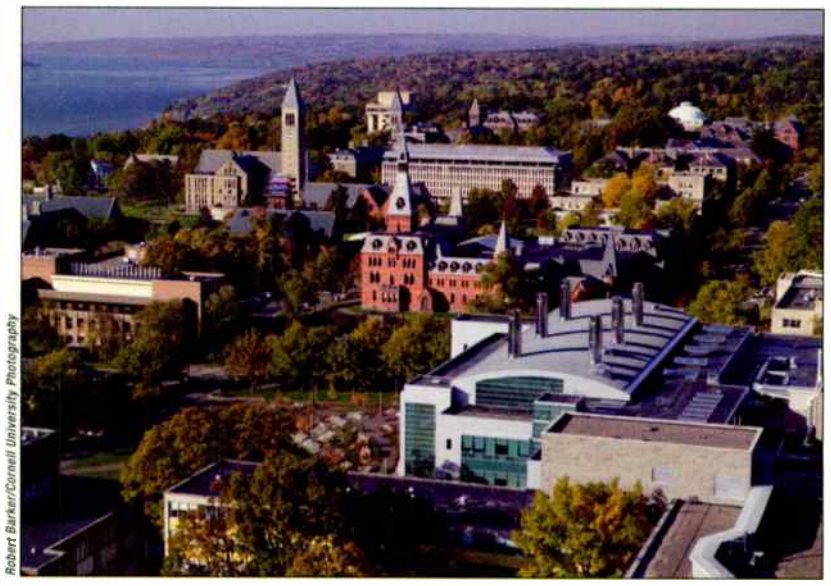
Today, CUTV (Cornell University Television) carries 50 channels of news, sports, and entertainment over the University's existing IT infrastructure to any student in any residence hall room. And planned expansion of CUTV includes making the service available to all locations campus-wide; expanding content availability; and supporting advanced applications, such as HDTV, VOD and podcasting.

While it's not the first university to adopt IPTV for video content delivery on campus, Cornell now has one of the most extensive IPTV installations, and a strong commitment for planned expansion of its CUTV service.

INNOVATIVE SOLUTION

"Initially, Campus Life issued several RFPs to see what would be involved technically and financially to extend cable TV to all of our students equally. But the numbers that came back were cost prohibitive. It's very expensive to modify older buildings, some over 100 years old, to retrofit them with the coaxial cabling that conventional cable TV requires," said Kevin Feeney, senior information technology engineer at Cornell Information Technology's Network Communications Services division.

"There was also the difficulty of finding a path for the local cable provider to reach the buildings in question. Most of the underground facilities in those areas are already filled to capacity with our IT infrastructure which supports the University's academic mission," he said. "Finding the funding to build additional underground facilities for an entertainment system wasn't going to be easy.



Robert Barker/Cornell University Photography

Prior to installing an IPTV system, only eight of Cornell University's 37 residence halls and two of the three apartment complexes on campus were wired for cable TV.

"Campus Life was immediately interested in IPTV as a means to meet its goal of making TV entertainment accessible and affordable to every student living on campus."

—Kevin Feeney, Cornell University

"We proposed to Campus Life that they explore delivering cable TV-type fare via IPTV, over the IT infrastructure which already traversed the entire campus including the residence halls," Feeney said. "Campus Life was immediately interested in IPTV as a means to meet its goal of making TV entertainment accessible and affordable to every student living on campus."

During the ramp-up, the most pressing business was to find a content provider. After lengthy negotiations with local cable TV company Time Warner, which in turn negotiated with many program suppliers, 50 channels were bundled into a package that would be MPEG-2 encoded and streamed over fiber to the campus. CUTV's channel lineup includes CNN, C-SPAN, The Discovery Channel, ESPN, The Food Network, The History Channel, Weather Channel, FX Network, MTV and A&E.

Working in partnership, CIT and Campus Life put the CUTV project in high gear, tackling every challenge in record time. And in August 2005, just five and a half months after they started working on it, CUTV was ready for students to start signing up.

SWITCHING TO IPTV

Relying heavily on technical expertise and technology supplied by Grass Valley, CUTV's infrastructure includes a conditional access system which encrypts the Time Warner media stream in real time, and distributes it via IP multicast over Cornell's (35,000 Ethernet port) switched IT network.

Delivering 50, 4 Mbps signals requires bandwidth of 200 Mbps, which is comfortably handled by the Gigabit Ethernet connecting CUTV's servers and routers.

Sending a single 4 Mbps stream on to the viewer is also not a problem. Newer residence halls equipped with CAT-5 wiring can support 100 Mbps; and older buildings with CAT-3 wire can support 10 Mbps, which Feeney said is more than sufficient to support receiving one video stream with bandwidth left over for surfing the net, e-mail, and other activities.

"In 2001 Cornell initiated a major rewiring program to standardize the interior cable plants and upgrade to CAT-6 wiring," said Sasja Huijts, assis-

CORNELL, PAGE 48

ASTRO

SC-2055
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The SC-2055A supports HD-SDI Dual Link, HD-SDI, SD/D1-SDI, DVI, Analog (RGB/YPbPr/YcbCr) and composite video signals, depending on the modules the user has connected to the unit. For these interface options, the user is provided with 2 input slots and two output slots. With Astrodesign's I/P conversion technology, "SNaP" (Super Natural Motion Picture), jaggy diagonal lines usually resulting from interlaced video signals can be significantly improved without the omission of frames. The SC-2055A performs an exceptionally smooth conversion of the frame rates and resolution of the video signal as well as producing excellent scaling results. This unit also functions as a line doubler, converting interlaced signals into progressive signals. With its 3:2 and 2:2 pull down functions for film/CG imagery, the SC-2055 presents a very realistic feel / look to image conversion even when not in its original form, which is essential for large venue display systems. We have also included the amazing original animation search feature as well as image compensation. Additionally, it carries functions such as noise reduction and edge enhancement. This unit also supports outside reference synchronization through all the output modules.

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Dual Link HD Ouput Module

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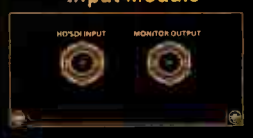
RGB/YPbPr/YCbCr Input Module

D1/SD-SDI Input Module

HD-SDI Input Module



DVI-D Input Module

Dual Link HD Input Module

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Mets, Jets and a Promising New Network

SportsNet New York debuts

by Robin Berger

NEW YORK

SportsNet New York, the metropolitan area's newest 24/7 regional sports network, debuted last month with a Mets versus Atlanta Braves pre-season slugfest from Port St. Lucie, Fla.

Owned by Time Warner, Comcast and Sterling Entertainment Enterprises, the new network will telecast up to 125 regular season Mets games in 2006.

All home games will be broadcast in 1080i, as will at least 25 to 30 away games, thanks to the new Supershooter 14 truck supplied by NEP Broadcasting in Pittsburgh.

The network also has a three-year deal with the Jets for more than 230 hours of team-related content, broadcast rights for up to 30 college football games and up to 85 college basketball games, out-of-market National Hockey League face-offs (thanks to Comcast-owned OLN), and a contract to air the National Lacrosse League's Game of the Week. Two days after its first Mets telecast, SNY broadcast the NLL's Rochester Knighthawks-Philadelphia Wings match.

SportsNet NY's main studio on 51st Street is across the street from Radio City Music Hall.

Unlike fellow Manhattan sports channel YES Network, SNY has a full, sports news and information lineup built on the Comcast SportsNet model. It features three "SportsNite" shows, a daily "SportsRise" morning report, pre- and post-game shows and in-game updates from around the league. On-air talent includes former Mets stars Ron Darling and Keith Hernandez, and play-by-play announcer Gary Cohen.

deal with DirecTV were circulating but not verified, but last month, Verizon signed a deal to carry SNY on its fledgling FiOS TV service, which is currently offered in several communities surrounding New York City.

CLOSER TO THE GAME

Personal ties with the network execs and the ability to fill the bill clinched the production contract for NEP, said Curt Gowdy, Jr., who came onboard last May as vice president of production and executive producer for the network.

The contract stipulated a Thomson LDK-6200 Super Motion (HD super slo-mo) camera for home games, an item that "doesn't necessarily come with the truck," according to Chris DeLauro, who heads NEP's New Jersey field office. Another extra is an EVS Xfile solution to move and archive media stored on the truck's 6-channel EVS-XT disc recorders, which can be readily networked, he said.

SS14 also houses nine Thomson LDK-6000 Worldcams with Canon 100:1, 86:1 and 22:1 zoom lenses, a Panasonic Varicam, and a robotic package of three Sony HDC-X310 cameras with 18x Fuji lenses. A Grass Valley Kalypso HD Duo switcher manages distribution.

NEP's custom baseball effects base mic package was also a selling point.

"They put together a very intensive wireless microphone package for us," said Gowdy, who aims to "get the viewer closer to the game."

The package includes Sennheiser SK250-UHF body pack transmitters and Sennheiser MKE102 microphones tucked into specially made, hollowed-out bases. This particular arrangement should provide enough power to get from second base up to the press box, where the receivers will be located, and the agility to change frequencies in areas where there's "lots of RF stuff going on," said George Hoover, senior vice president of engineering.

"What you're looking at from our main set for SportsNite at 6:00 and 10:00 is Sixth Avenue and the great workings of the city of New York—a great backdrop.

—Curt Gowdy Jr., SNY

At press time, the network boasted a footprint on Comcast and Time Warner Cable systems in New York, Connecticut, most of New Jersey and northeastern Pennsylvania, as well as on Cablevision, the area's largest cable operator.

In January, the network also announced a three-year deal to broadcast up to 25 New York Mets games on Tribune Broadcasting's Connecticut WB affiliate, WTXX Channel 20. Rumors of an imminent distribution

Curt Gowdy, Jr. joined SportsNet NY last May as its new executive producer and vice president of production.

"It's actually transmitting on two separate channelsæthe receiver picks whichever one has the strongest signal," said Hoover.

But there are some limitations on enhancements—audio and otherwise.

"We have limitations on certain days of the week that we can't do different enhancements because of [Major League Baseball] obligations with ESPN and Fox contracts," Gowdy said.

On those days, "They have the right to be exclusive on any enhancements that might be done—a two-way from the booth with a manager or micing players," he said.

Verizon is handling transmission from Shea Stadium to the master control booth in Manhattan as well as carrying a large share of the transmission from away games, said SNY Director of Operations Nancy McKenna.

A new Shea Stadium will be built over the next several years and SNY officials are consulting on the new design.

"We are working closely with the Mets and the stadium architects regarding all camera positions and other technical issues as they relate to audio, fiber lines, and so forth," Fegyversi said.

VIBRANT NEWS

The mandate set from SNY president, John Littner, was to enhance the viewer experience with "vibrant, proactive news," Gowdy said.

So SNY's team acquired CNN's former "American Morning" studios at 51st Street and Avenue of the Americas (aka. Sixth Avenue) in Manhattan, across the street from Radio City Music Hall. Then they gutted the place and built two studios: a street-level prime studio and interview set surrounded by windows on three sides and a studio separated from the control room by a glass partition for pre-game shows and updates.

"We jettisoned everything and made it a complete glass environment," Gowdy said. "What you're looking at from our main set for SportsNite at 6:00 and 10:00 is Sixth Avenue and the great workings of the city of New York—a great backdrop."

SNY contracted Broadcast Design International and the Lighting Design Group to ready the glass masterpiece for broadcast.

Lighting Design Group previously windowed studios in Times Square for ABC's "Good Morning America," MTV and Reuters, plus comparable models in Manhattan for NBC's "Today Show," CBS' "Early Show" and former tenant, CNN's "American Morning." Windows in Studio A face east, north and south. When the sun sets, its rays bounce off all the buildings in Rockefeller Center into the main studio's eastern exposure.

"The directors and I have worked together to try and arrive at the best camera angles for the best times of day to show off the set, the environment and the talent," said Dennis Size, LDG vice president of design. To save on costs, LDG color-corrected the lights instead of the windows, which would have required custom-made panels since HD cameras can pick up off-the-shelf panel seams.

"All of the lighting instrumentation has been color-corrected to 'almost daylight'" about 4,000 to 4,500 degrees Kelvin, Size said. "That makes the faces a little warmer, a little richer. Three-quarter color temperature blue [gels], along with various grades of diffusion, have been put on all the instrumentation in the studio."

Size used a combination of Tough Spun and Hamburg Frost fabric diffusions, along with the color correction and "an inordinate amount of ellipsoidal fixtures" (Source 4 Lekos), to mitigate HDTV's tendency to show every flaw. The Lekos—theatrical fixtures that throw light 30 to 100 feet versus the standard TV throws of 16 to 20 feet—tightly focus on each anchor chair to accommodate various facial complexions.

And these fixtures are less costly alternatives to fresnels, he said, plus you can "make a Leko into a softlight by putting a silk in front of it." Precise placement precludes shadows often associated with the Lekos.

Size also ordered three roller shades—vinyl netting in ND6, ND9 and blackout densities—per window to correct for light intensity. All the blackout shades have silk-screened SportsNet New York logos.

Filling the control room is an SSL audio board, Chyron HyperX, plus four NewsCutters and two Adrenaline integrators from Avid, said McKenna. Solutions run on the Avid equipment include sports graphics packages from Vizrt.

Like most debuts involving a high level of technology, last month's first televised game on SNY had its share of production glitches, as the network reportedly lost its signal several times.

"We experienced some technical difficulties, and we addressed the issue as soon as we could," said SNY spokesman, Andrew Fegyveresi. ■

FCC

CONTINUED FROM PAGE 1

educational purpose, we believe that purpose could have been fulfilled and all viewpoints expressed without the repeated broadcast of expletives," the NAL stated.

The expletives in question are specific—the "F-word" and the "S-word," in FCC parlance.

To be deemed indecent, material must "describe or depict sexual or excretory organs or activities," according to the FCC, and "the broadcast must be patently offensive as measured by contemporary community standards for the broadcast medium."

Whether or not something is "patently offensive" depends on how explicit the verboten description or depiction; how long it goes on, and whether it appears to pander, titillate, or just plain shock. To be actionable, indecent material has to air between 6 a.m. and 10 p.m.—the so-called "safe harbor" when children are most likely to be watching TV.

ACHTUNG BABY

The F-word in "The Blues" was used as a sort of sobriquet in some instances and as a modifier in others. But in March 2004, the FCC determined that any use of the F-word described a sexual activity with its "Golden Globe Awards" decision. The commission originally dismissed the complaint over Bono's use of the F-word during the awards, but the decision was later reversed.

The final Golden Globe ruling was used as precedent for "The Blues," and for "The Pursuit of D.B. Cooper." Both programs were part of a $4.5 million package of fines issued last month by the FCC.

A previously proposed fine of $550,000 against CBS for the 2004 Super Bowl flashdance was unanimously upheld. The total represents individual fines of $27,500 for each of the 20 CBS owned-and-operated stations. Affiliates got a pass because they couldn't possibly have anticipated Janet Jackson exposing her breast during the halftime show, but Jonathan Adelstein disagreed.

Among the four FCC commissioners who voted on the ruling, only Adelstein dissented, in part because he thought all the affiliates should have been fined; in the case of several other NALs, only those stations directly targeted by complaints were fined.

"I cannot find anywhere in the law that Congress told us to apply indecency regulations only to those stations against which a complaint was specifically lodged," Adelstein wrote in his comments. He went on to say that fining individual stations contradicted the FCC's $1.2 million NAL two years ago against Fox stations for an episode of "Married By America."

"The commission simply inquired who aired the indecent broadcast and fined all of those stations that did so," he said.

The commission took a similar approach to an episode of the CBS crime drama, "Without a Trace," which depicted a teen sex orgy. The 111 CBS affiliates and O&Os in the Central and Mountain Time Zones that ran the show during safe harbor were each fined $32,500. At least three stations contested the NAL because they were erroneously assumed to be in the offending time zones.

("Without a Trace" was more costly than the individual Super Bowl fines because the maximum allowable fines were raised after the Super Bowl aired.)

Another $355,000 in fines were proposed for six other programs that drew complaints at specific stations. An episode of "The Surreal Life 2" depicting a porn star pool party drew a $27,500 NAL for the Washington, D.C. WB affiliate. A racy sex scene in the film "Con El Corazón En La Mano" drew a proposed $32,500 fine for KWHY, NBC's Telemundo station in Los Angeles.

"I cannot find anywhere in the law that Congress told us to apply indecency regulations only to those stations against which a complaint was specifically lodged."

—FCC Commissioner Jonathan Adelstein

WJAN, a station in Miami owned by Sherjan Broadcasting Co., received a $32,500 NAL for an episode of the "Fernando Hidalgo Show" in which a woman shook her mostly naked breasts at the studio camera. A third Spanish-language program, "Video Musicales," aired on WSJU in San Juan, Puerto Rico, racked up a total of $220,000 in proposed fines for 14 broadcasts of dirty music videos.

"The Pursuit of D.B. Cooper," about the legendary skyjacker, put KTVI in St. Louis down for a $27,500 NAL based mostly on the use of several variations of a vulgarity for excrement.

Four shows were found "indecent and/or profane," but received no fines because the programs were aired before the Golden Globe decision. Several more complaints against episodes of various sitcoms, dramas, cartoons, news programs, a Vikings-Packers game and a couple of commercials were dismissed.

A court challenge over the fines is expected. CBS said it would "pursue all remedies to affirm our legal rights" NBC also reportedly said it would fight the fine drawn by its Telemundo station.

IT HITS THE FAN

Schwartzman said the legal arguments will more than likely involve the inconsistencies in the application of indecency laws rather than a challenge to the scarcity doctrine. The scarcity doctrine holds that broadcast content regulation is constitutional because public airwaves are scarce.

"The principle of judicial restraint is what we're talking about here," he said. "The courts do not decide constitutional question unless they have to."

First Amendment expert Floyd Abrams disagreed. "I woulnd't be surprised if the ruling did lead to another go at both the 'scarcity' and the 'pervasiveness' doctrines. Whatever the Supreme Court's slim majorities in the American Mini Theatres and Pacifica cases intended, it surely wasn't this."

In its response to the Super Bowl fine, CBS hinted at a scarcity battle, saying the FCC's "indecency framework was unconstitutionally vague and overbroad, both on its face and as applied to the halftime show."

Several First Amendment attorneys, including Abrams, said the FCC's determinations about foul language were a bit shaky. In the D.B. Cooper movie, for example, the commission found the S-word equivalent of "blarney" to be indecent. In this instance as well, Commissioner Adelstein went with the opposition.

"The perilous course taken today is evident in the approach to the acclaimed Martin Scorsese documentary, 'The Blues: Godfathers and Sons.' It is clear from a common sense viewing of the program that coarse language is a part of the culture of the individuals being portrayed. To accurately reflect their viewpoint and emotions about blues music requires airing of certain material that, if prohibited, would undercut the ability of the filmmaker to convey the reality of the subject of the documentary. This contextual reasoning is consistent with our decisions in 'Saving Private Ryan' and 'Schindler's List.'" ■

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The 'Thursday Effect' at NAB

Some exhibitors join attendees to scope out competitors

By Craig Johnston

LAS VEGAS

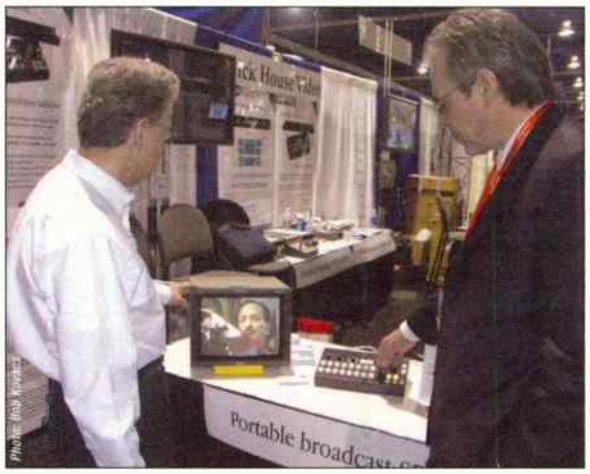
Thursday is traditionally the slowest day by far on the NAB exhibition floor. Some attendees are scurrying about to see vendors they've somehow missed, or to close last-minute deals. Booth traffic is visibly down.

But Thursday can be a bad day to try to find one particular salesperson in a company's booth, because he very well might be roaming the halls himself. Under their breath the vendors call Thursday "Spy Day." And they all do it, companies large and small.

NEW GUYS ON THE BLOCK

"We all know that we do that, we look for competition, new guys on the block," said Barry Rubin, director of sales and marketing at Schneider Optics. "These days manufacturers even have to be looking for clones and counterfeits."

Some vendors commentcomplain that the show has gotten too big to even do that effectively. "We used to do that," said James Crawford, president of Frezzi Energy Systems, "but when you have 12 companies making exactly the same thing, you can't get to them all."



Steve Krant (L) of Sundance Digital gets a demo from Paul Hiorns of Brick House on the company's Callisto field production switcher at NAB2005.

Steve Krant, vice president for sales and marketing for Sundance Digital said with the investment companies make exhibiting at NAB, if they've got a lot of time to wander the floor they've got a serious problem.

"For the most part, other than going to the restroom and taking a quick meal break, we're lucky to get out of the booth by Thursday afternoon to wander around a bit," he said. "When I can, I am looking for anything we haven't seen before, new technology and new implementations of things. Since I also do the marketing as well I look for interesting ways of setting up the booth and presenting the product."

It goes without saying that the fact the exhibition is spread over three and a half enormous halls, with some serious separation between them, it is difficult to fully see the show trying full-time for all four days.

But there are reasons to get out and about beyond competition:- intel. Sometimes it comes down to something as simple as shopping.

"We're actually in the middle of designing and building a new facility here on Fifth Avenue in New York," said Damon Hainoff, president of Media 3. "This NAB I'll be looking at all kinds of things because I've got to design and build a new facility from the ground up over the next nine months."

Another half of Media 3's business is its BureauCam system, a remote-controlled robotic camera station suitable for use out of a station or network's remotely located news bureau. Hainoff said the company shops NAB for BureauCam as well.

"One of the things that's always of interest to us is other cameras that we can integrate, other lenses," he said." "I know we always spent a lot of time looking at those up-and-coming, little vendors, because they had the gadget that fixed the problem, and that's always been my thing at NAB, finding some small guy who's doing something really cool."

Rubin's people at Schneider Optics will take to the floor in search of cameras as well, but not to buy them. Schneider and it's Century division make filters and adapter that fit on the end of camera lenses.

He said they may look for cameras they hadn't heard about from the manufacturers "that might have a new set of optics that would require us to be prepared to design new optics.," he said. "Sometimes we actually go and measure lenses on the show floor, with permission of those vendors."

"We're always looking for components and products, third-party collaborations that would enhance our products," said Craig Yanagi national marketing manager, creation products for JVC. He pointed to the Focus Enhancements hard- drive recording systems that combined with JVC's cameras to yield a tapeless camcorder.

"We look at the studio application components, look at accessories, anything that would enhance the operation of our products," he said. "We look at interface boxes for our decks, there's a whole myriad of products that we look at because you can't just think about image capture;, you have to think about interconnectability of the products to a system.

STRATEGIC ALLIANCES

Out on the exhibit floor there are deals to be made. "It's a great opportunity for us to develop strategic alliances," Rubin said. "We're also looking for other technologies and other products that have something to do optically, to see if we can adapt any of our existing technologies."

As an example, where the Century wide-angle adapters have traditionally been used on camera to capture a wider angle of view, Schneider found by working with projection display vendors that the same kind of device can be placed on a video DLP projector to allow it to project a wider image.

That kind of partnering goes on with the largest and the smallest companies at the show. As Russell Wise, vice president, world-wide sales for Volicon pointed out, "There's a saying that no man is an island, no product is an island either.

"Invariably if you're in that broadcast chain, you need partners, so we set meetings up with our partners in their booth or ours or both, and with the idea of how do we continue to evolve the product so it's more of a full solution to our customer's problem."

So Thursday is probably not really "Spy Day" like it once was, but you're still likely to see a lot of exhibitor badges on people walking the aisles then. ■

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Toshiba

CONTINUED FROM PAGE 1

almost the same time, Warner said it would delay the release of its early HD DVD titles from the format's official launch on March 28 until April 18.

For Sony, apart from its game wares, the first Blu-ray players and laptops from various manufacturers, and early titles are still on track for a late-spring launch. But PS3 was supposed to provide a big, early boost for the Blu-ray camp because the next-gen console will be equipped with Blu-ray technology, much like Microsoft's Xbox 360 launch in late 2005 boasted an HD DVD drive.

NATIONAL TOUR

As far as the war itself, few would argue that Toshiba has beaten Sony to the punch in some early battles, notably by bringing its first HD DVD players to market starting now. Toshiba is also concluding an ambitious nationwide demo tour to dozens of mostly suburban high-end electronics stores that began on the East Coast in early March and was to end on April 13 at the Tweeter outlet in Encinitas, Calif.

Judging from the specialist retailers tapped for Toshiba's tour and their locations (i.e., HH Gregg in Concord, N.C., Bjorn's in San Antonio, and Fry's Electronics in Phoenix), the campaign was designed to make initial contact with the early-adopter crowd. At a recent tour stop, in a viewing room near the back of a brand new Myer-Emco at a suburban Virginia strip mall outside Washington, D.C., Toshiba Senior Manager Maria Repole pointed to the massive 72-inch Toshiba DLP monitor with remote in hand.

At the halfway point of a two-hour lunchtime media-and-consumer event, three curious walk-in customers and two trade reporters were easily outnumbered by sales people and Toshiba tour reps. Suddenly from the dark silent screen, the HD DVD trailer for "King Kong" came roaring to life (literally) in vivid 1080i color and crispness, minus any signs of artifacting, with a near-3D depth of field in the jungle scene—a depth and detail most assuredly not apparent in the standard DVD disc of the box office blockbuster. (The Toshiba HD DVD tour content was mostly limited to a handful of these HD DVD-enhanced movie trailers.)

To the left of the DLP demo screen, with a 160-degree viewing angle, both of the Toshiba HD DVD players were on display. For tour purposes, discs are run on the pricier HD-XA1 (MSRP $799). The less pricey second model, the HD-X1 (MSRP $499), is slated to reach some mass-market retail outlets this spring, including Best Buy and Circuit City.

"We do guarantee the HD DVD players will be backwards-compatible," Repole said. "The DVD discs people now have at home will work on the new players."

Early content in either next-gen format will be sparse. Despite the films represented by several of the trailers used on the Toshiba tour, only a handful of recent mainstream releases (including the fourth Harry Potter film and "Charlie and the Chocolate Factory") are expected to be issued anytime soon on HD DVD or Blu-ray disc (and at press time, "King Kong" is not one of them).

EARLY TITLES

Some early HD DVD titles may seem like deja vu to industry observers: "Twister," the 1996 blockbuster, was also among the first films offered in the original DVD format only a few years ago. Besides Warner, early HD DVD content providers also will include Paramount and Universal.

"There will be big price differences between both formats that consumers will certainly notice if they compare them."

—Maria Repole, Toshiba

While many new technology innovations could not be shown on the Toshiba tour, the vastly improved storage capacity of HD DVDs over today's DVDs (albeit, still less than Blu-ray's) will allow more sophisticated applications of the special features elements on new discs, including navigation of the expanded menu without having to interrupt the motion picture. This will allow viewers some degree of interaction while viewing the main content.

Added features include superimposing a director's physical, moving image on the screen to allow him or her to literally point out details in various scenes. However, Repole cautions, any added content is ultimately up to the studios issuing the new discs—just as today's DVDs come with a variety of extra content, or a lack, thereof, depending on the studio. Toshiba plans U.S. shipments of 10,000 players monthly starting now, and will ramp up product output as the all-important holiday season approaches next fall.

"HD DVD is a natural transition, technically, from today's DVD standard," Repole said, "and consumers can easily recognize and embrace the new format."

Conversely, Blu-ray is an entirely new format, requiring manufacturing components and assembly line production quite different from today's DVD production schemes. Therefore, proponents contend, HD DVD products will be far less costly to manufacture. And Repole thinks price will play a big role in advancing Toshiba's format of choice.

"There will be big price differences between both formats that consumers will certainly notice if they compare them," said Repole. Sony's first stand-alone player, the BDP-S1, coming in July (and a Samsung player set to launch in late April), will be shipped at a suggested price of $1,000. Meanwhile, Toshiba's two early HD DVD players will be MSRP $500 and MSRP $800.

Actually, both format price tags may produce some sticker shock even for early adopters when they consider that mega-retailer Wal-Mart was recently selling a progressive scan, recordable DVD player for today's discs for $98. ■

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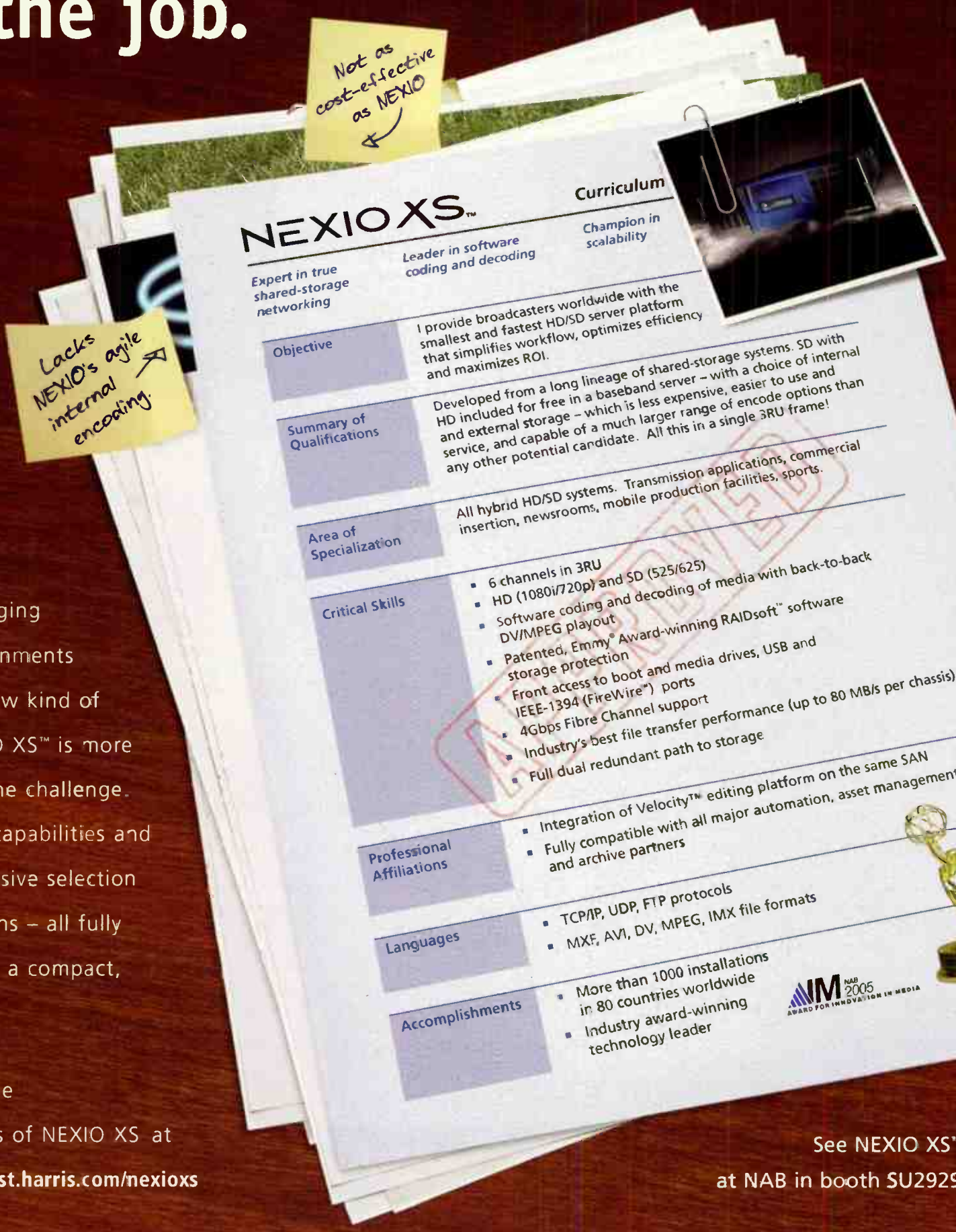

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Hollywood Makes Inroads With Telecom

MPAA hosts TelecomNEXT booth to showcase new P2P, security technologies

by Robin Berger

LAS VEGAS

In the past, Hollywood just didn't travel much in telecom circles. That's changing.

Walt Disney Co. CEO Robert Iger made a splash at the telecommunications industry's TelecomNEXT event last month when he weighed in against "network neutrality," a tenet stating the Internet is open to all at affordable, simple pricing. Telecoms are blocking legislation that would uphold this mode of operation, and were pleased by Iger's support. The gesture was more unexpected than his keynote announcement that Disney content was downloaded more than 4 million times since the company made some of its programs available for downloading on iTunes, beginning last October.

The Motion Picture Association of America joined Iger at the event, making its very first appearance at a telecommunications show. TelecomNEXT was the first of two events to replace the industry's annual SUPERCOMM confab following the split between that show's co-hosts, the United States Telephone Association and Telecommunications Industry Association.

The USTA, whose 1,200 member companies offer local exchange, long distance, wireless, Internet and cable television services, hosted the event.

"TelecomNEXT is a significant event for companies who want to see some of the latest in [the] business and technology of communications and entertainment," said MPAA Chairman and CEO Dan Glickman. "By giving these innovators an opportunity to demonstrate their advances, we hope to encourage them and others to continue their important work."

That said, the MPAA didn't just show up, it set up a booth to showcase technologies beneficial to the telecoms as well as the studios.

"It seemed like a great opportunity for us to show to the world the fact that we are aggressively embracing technology, and to work with the telecommunications industry," said MPAA Policy Director Dean Garfield. He was particularly impressed by that industry's priorities: deploying IPTV and broadband.

> "You can see how P2P and filtering devices would have particular resonance to the telecommunications community."
>
> —Dean Garfield, MPAA

"It's actually quite useful to talk to those companies... as we do our own strategic planning. Moreover, he noted, with TV a critical component of telecom's triple play, "it only makes sense that the folks who make that content available be part of the conversation," he said.

MPAA'S BOOTH

Garfield described his booth as a modest 10-by-15-foot space hosting six companies that had either clinched deals with a studio or studio-backed entity, or were working with them or the MPAA to do so. Four promoted peer-to-peer technology, two filtering solutions.

TelecomNEXT is one of several events replacing the annual SUPERCOMM convention.

"You can see how P2P and filtering devices would have particular resonance to the telecommunications community," Garfield said. "P2P is taking place on their backbone and, as a result, they're in a position to actually do something about the infringing conduct."

The peer-to-peer players were Wurldmedia, BitTorrent, Cachelogic and Red Swoosh. NBC Universal picked up Wurldmedia's Peer Impact last November, and Red Swoosh has a deal with studio-endorsed iFilm.

In November 2005, BitTorrent announced it was collaborating with the MPAA to fight piracy by removing links from its search engine that directed users to copies of pirated content owned by MPAA companies. This month, it will team up with Cachelogic Ltd. in a technical trial to evaluate ultra high-speed legal video downloads for U.K. cable broadband provider ntl.

At TelecomNEXT, Wurldmedia demonstrated Peer Impact applications for "Torino 2006," the official game of the XX Winter Olympics, and Vivendi Universal's "Fear."

"What impressed [visitors] was an actual application that married P2P with an efficient management system," said Wurldmedia President Kirk H. Feathers.

BitTorrent and Cachelogic were there "to show telcos that they can implement a caching system across their network to help free up traffic and mitigate loss," BitTorrent Spokesperson Lily Lin said.

"People were intrigued by the peer-to-peer services—the fact that there were legitimate services out there that were distributing content licensed by the studios," MPAA's Garfield. Said. "There was also interest from some of the telecoms about the filtering applications, and the fact that there's now an attempt to recognize television and motion picture content as well as music."

The filter providers of choice were Audible Magic and Thomson Content Security.

FROM THE FLOOR

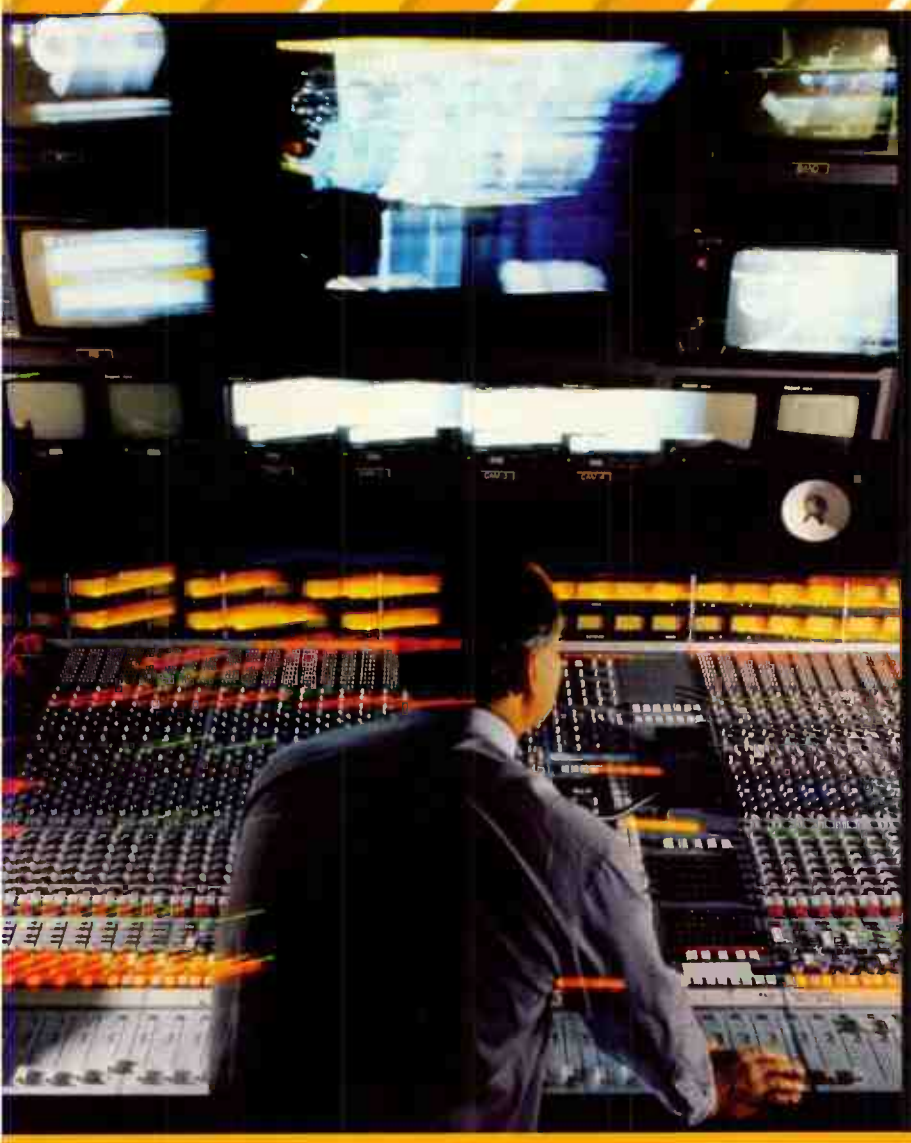
"We had tables with monitors for each of the companies that we hosted; also a big screen TV in the background, where we played trailers for movies that are coming up in the very near future," Garfield said. The visitors "suggested putting a couch there and actually showing the movies."

Putting a bigger foot forward was reinforced by a tour of the floor.

"There was a lot of creativity there," Garfield said. "People spent a lot of money putting those booths together. We'll obviously have to evaluate that and see what kind of resources we can dedicate to expanding our booth" in the future.

As it was, the MPAA lucked out in its floor placement: close to Microsoft, which provides the underlying platform for IPTV, and Hula Networks, a reseller of networking equipment and telephony products that hired ladies in hula skirts to hand out Fosters beer.

"It was a good location for us because it created a lot of foot traffic," said Garfield. "We're going to be working aggressively over the next few months to participate in as many of these shows as possible." ■



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The Videotape Recorder Turns 50

Routine NAB preview event showcased revolutionary technology

by James E. O'Neal

FALLS CHURCH, VA.

In an age when video cameras and recording devices are virtually everywhere, it's difficult to believe that it wasn't always possible to walk into a Wal-Mart or Best Buy store with $50 and leave with a new video recorder.

The science of magnetically recording video images is so mature today that it's taken completely for granted, but that was not always the case. Television broadcasting as we know it appeared in the mid-1930s. Video recording technology lagged by another 20 years.

BREAKTHROUGH

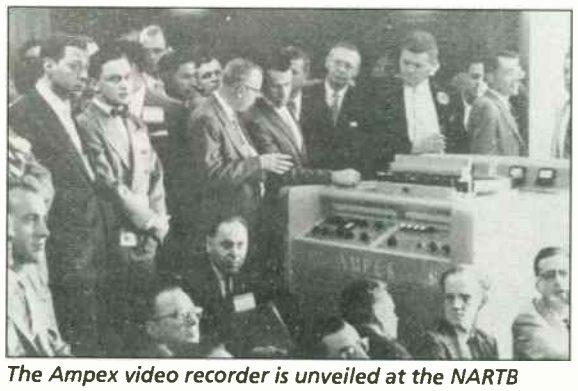
Imagine a large meeting room 50 years ago filled with 200 people assembled for a more or less routine briefing. The only thing slightly out of the ordinary is a video camera trained on the speaker and some monitors sprinkled around the room. However, television is no longer a stranger and the presence of even large tube-type cameras of that era had become fairly routine.

The event was a Saturday pre-NAB (then the National Association of Radio and Television Broadcasters) meeting of CBS affiliate owners and managers. The setting was the Normandie Lounge in Chicago's Conrad Hilton, the speaker was William Lodge, CBS engineering vice president and the date was April 14, 1956.

During his remarks, Lodge mentioned a new technological breakthrough, but was not specific. At the conclusion of his address, he remained at the podium. As the crowd began to murmur and break up, the video monitors went from black to an image of Lodge. Only this time, Lodge was still making his presentation, not standing silently.

This was a seeming impossibility, as the only means for preserving video images was kinescope recording, a process in which a special motion picture camera photographed a television monitor. When the recording was finished, the film had to be removed and sent away for developing. Under normal circumstances, this could take hours.

The crowd, realizing that they were experiencing something very unusual, became hushed and locked onto the monitors, viewing an image of Lodge that was indistinguishable from the video seen just moments before. Again, this was quite uncanny, as even the best "kine" had a distinctive look that set it apart from the live video it had captured.



The Ampex video recorder is unveiled at the NARTB show in Chicago, April 14, 1956.

Then a curtain opened, revealing a strange machine and four individuals hovering around it. The crowd couldn't restrain itself and amid cheers, whistles, back slappings and applause, began pushing and pressing in around the world's first video recorder and part of the team that had made it possible. Some even stood in chairs to get a better look at the device that was making this miracle possible.

That was the scene 50 years ago this month.

Practical video recording had been born. The machine was the Ampex Mark IV VTR prototype, which was to become the VRX-1000, the great-granddad of all video recorders. It was the star of the convention and even though Ampex had set a selling price of $45,000 for production models (more than $320,000 in 2006 dollars), orders were written that week for more than 70 machines. (Market research conducted prior to the show indicated that there would be a demand for no more than a dozen globally.)

CBS got the first delivery and put it on the air in late November that year to air the West Coast feed of "Douglas Edwards and the News."

This eliminated the requirement for

Edwards to have to repeat his broadcast for the Pacific Time Zone. However, as the video recording technology was so new, CBS made kinescope recordings as backup and had them at the ready "just in case" during the first month of the new machine's use.

Top: An early Ampex VTR installation at CBS; middle: The VTR design team, L to R, Fred Pfost, Shelby Henderson, Ray Dolby, Alex Maxey, Charles Ginsburg and Charles Anderson; bottom: The world's first videotape recorder assembly line at the Redwood City, Calif. Ampex plant

Recording of video goes back to the late 1920s when television pioneer John Logie Baird made recordings of his 30 line images on ordinary 78 rpm phonograph records. What was so special about the Ampex recorder and why did it take so long to come to market?

Those who can't remember a world without VTRs perhaps have little comprehension of the tremendous technical challenges involved in electronically recording television images. To put the problem in perspective, magnetic audio recording evolved over several decades and by the late 1940s was fairly mature when Ampex introduced its first audio machine.

To capture and reproduce high-quality audio, a recording device needs to have a passband of some 20 Hz to 18,000 Hz, or about 10 octaves. To record acceptable video, this had to be stretched to 18 octaves.

Other groups had been working on video recording schemes for at least five years prior to the success of Ampex. All relied on pulling tape past fixed heads at high speeds.

The BBC's efforts resulted in a machine known as VERA (Vision Electronic Recording Apparatus). It moved 1/2-inch tape at 16 *feet* per second, with a 21-inch reel of tape providing a mere 15 minutes of recording time. Video response was capped off at 3 MHz and heavy leather gloves to provide assistance with reel braking were part of the operator's toolset.

Another U.S. group established by Jack Mullin, the engineer who introduced audio tape recording to America, and funded by singer Bing Crosby, also devised a longitudinal video recorder. This machine spread the video across multiple tracks on a 1-inch tape running at a mere 120 inches per second. It made pictures, but as the response topped off at a bit over 1.5 MHz, it really wasn't up to broadcast applications.

Not one to be left out or outdone, RCA's David Sarnoff mandated that his R&D people build a video recorder. In a rather questionable move, the top audio engineer there, Harry Olson, was given the job. Even though RCA held a patent on rotary head recording, Olson simply tried to scale up a conventional audio transport to do the job.

His first machine used 1/2-inch tape pulled at 30 feet per second. It took 7,200 feet of tape to provide four minutes of recording time and the pictures were not much better than those of the other groups. As relatively crude as the kinescope recording process was, none of these video recording technologies could equal its quality, storage time and ease in handling.

Ampex engineers early on saw the futility of longitudinal recording for video and based their efforts on a rotating head design first patented for audio in 1938 by an Italian inventor. The Ampex work was kept under wraps, and due to changing economics, was actually terminated at one point. This group consisted of Charles Ginsburg, the team leader; Charles Anderson, FM expert; Ray Dolby, then an engineering student and later a household name in the audio field; Shelby Henderson, master machinist and model maker; Alex Maxey, the mechanical genius behind the rotary head design, and Fred Pfost, who solved the problem of making practical high-speed recording heads.

In addition to discarding high-speed longitudinal tape movement for achieving the necessary writing speed, the Ampex team also realized that FM offered some advantages not available with conventional recording technology, and could possibly help in squeezing those additional octaves onto tape. Research was started on an FM system that smacked of heresy—the carrier frequency was very near the highest modulating frequency and conventional wisdom dictated that the carrier frequency must be at least 10 times that frequency.

The carrier frequency was dictated by available tape head technology and this rather revolutionary FM system resulted in some mathematically interesting consequences (sidebands which could fold over into the desired signals). Nevertheless, the thing worked, and worked better than any AM signal system could have, producing a greatly improved S/N ratio and compressing the necessary 18 octaves into the space of three.

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BGAN Cuts Streaming Down to Size

Compact satellite terminals enhance field reporting

by Ken Freed

DENVER

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While BGAN video service is only a few months old, said Frank August, Inmarsat North American regional director, the small terminals already are in use by the networks covering the Iraq war, including ABC, CBS, NBC, Fox, CNN, BBC, and Al Jazeera.

BGAN terminals are the size of a laptop computer or smaller. When attached to a small field encoder, they offer data speeds from 64 to 256 kbps. Suitable for store-and-forward applications and live streaming, BGAN terminals also handle IP functions from Web access to e-mail to telephony.

"BGAN streaming video at 256 k is not studio quality," he said, "but you can send compressed full-motion video with the store-and-forward function."

When time is of the essence, he noted, field reporters also can gang two or more terminals together for speeds of a half megabit or better.

GLOBAL COVERAGE

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A reporter uses a Thrane and Thrane BGAN terminal from a remote location to transmit a news story.

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British Telecom Media and Broadcast first launched regional BGAN business data services in last June over Inmarsat 4F1, orbiting at 54 East to cover most of Europe plus all of Africa and Asia. Video services for broadcasters have been available since January.

August described each Inmarsat 4 satellite as the size of an English double-decker bus with extended solar wings almost the length of an American football field.

Broadcasters can buy a complete top-of-the-line BGAN system (multi-port field terminal and field encoder with a dedicated station decoder) for around $12,000, he said. Other systems with less capacity are available for as little as half that price.

Four companies are now making the five BGAN terminals already on the market, August said.

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In the middle is the 1.2 kg Wideye Sabre 1 from AddValue Communications, which can send IP data over USB, Ethernet or Bluetooth at 384 kbps, and receive at 240 kbps, and stream at either 32 or 64 kbps.

The smallest and lightest terminal is the 1 kg WorldPro 1000 from Nera SatCom, which can send at 384 kbps and receive at 240 kbps over USB or Bluetooth and Ethernet by this summer, streaming at 32 or 64 kbps.

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"I took myself out onto the patio of my hotel room, logged on in about 30 seconds, then spent the next 45 minutes answering e-mail, visiting Web sites and making VoIP phone calls. I transmitted about 4 megabits of data total and the entire session cost less than $30. I can only imagine how useful this would be for a reporter on deadline filing a story from such a remote place."

FEED FLEXIBILITY

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"Suppose you have the Hughes HNS 9201 terminal hooked into a basic router from someone like Cisco. If you're covering a major event, like a political rally or a sports event, you could gather wireless feeds from up to 11 reporters at once and send them by FTP over the satellite back to the station. You also could have the reporters stand by and then stream them live one at a time," he said.

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"I recommend the one from Streambox in Seattle, which lets you adjust for latency and the other parameters necessary for the satellite transmission," he said.

Live BGAN video streaming will never rival the quality from a satellite truck, according to Greg Smith, director of media services for integrator Agiosat Global Communications.

"But if you can afford a camera, a microphone, a terminal, an encoder, and a decoder, you can report stories that you never could before without a truck." ■

Edwards to have to repeat his broadcast for the Pacific Time Zone. However, as the video recording technology was so new, CBS made kinescope recordings as backup and had them at the ready "just in case" during the first month of the new machine's use.

Top: An early Ampex VTR installation at CBS; middle: The VTR design team, L to R, Fred Pfost, Shelby Henderson, Ray Dolby, Alex Maxey, Charles Ginsburg and Charles Anderson; bottom: The world's first videotape recorder assembly line at the Redwood City, Calif. Ampex plant

Recording of video goes back to the late 1920s when television pioneer John Logie Baird made recordings of his 30 line images on ordinary 78 rpm phonograph records. What was so special about the Ampex recorder and why did it take so long to come to market?

Those who can't remember a world without VTRs perhaps have little comprehension of the tremendous technical challenges involved in electronically recording television images. To put the problem in perspective, magnetic audio recording evolved over several decades and by the late 1940s was fairly mature when Ampex introduced its first audio machine.

To capture and reproduce high-quality audio, a recording device needs to have a passband of some 20 Hz to 18,000 Hz, or about 10 octaves. To record acceptable video, this had to be stretched to 18 octaves.

Other groups had been working on video recording schemes for at least five years prior to the success of Ampex. All relied on pulling tape past fixed heads at high speeds.

The BBC's efforts resulted in a machine known as VERA (Vision Electronic Recording Apparatus). It moved 1/2-inch tape at 16 *feet* per second, with a 21-inch reel of tape providing a mere 15 minutes of recording time. Video response was capped off at 3 MHz and heavy leather gloves to provide assistance with reel braking were part of the operator's toolset.

Another U.S. group established by Jack Mullin, the engineer who introduced audio tape recording to America, and funded by singer Bing Crosby, also devised a longitudinal video recorder. This machine spread the video across multiple tracks on a 1-inch tape running at a mere 120 inches per second. It made pictures, but as the response topped off at a bit over 1.5 MHz, it really wasn't up to broadcast applications.

Not one to be left out or outdone, RCA's David Sarnoff mandated that his R&D people build a video recorder. In a rather questionable move, the top audio engineer there, Harry Olson, was given the job. Even though RCA held a patent on rotary head recording, Olson simply tried to scale up a conventional audio transport to do the job.

His first machine used 1/2-inch tape pulled at 30 feet per second. It took 7,200 feet of tape to provide four minutes of recording time and the pictures were not much better than those of the other groups. As relatively crude as the kinescope recording process was, none of these video recording technologies could equal its quality, storage time and ease in handling.

Ampex engineers early on saw the futility of longitudinal recording for video and based their efforts on a rotating head design first patented for audio in 1938 by an Italian inventor. The Ampex work was kept under wraps, and due to changing economics, was actually terminated at one point. This group consisted of Charles Ginsburg, the team leader; Charles Anderson, FM expert; Ray Dolby, then an engineering student and later a household name in the audio field; Shelby Henderson, master machinist and model maker; Alex Maxey, the mechanical genius behind the rotary head design, and Fred Pfost, who solved the problem of making practical high-speed recording heads.

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Video

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York. In such cases, the video head was removed from the recorder and shipped along with the tape. Still, the convenience and video quality made the machine an instant success.

RCA saw the handwriting and scrubbed their longitudinal recorder R&D work, licensed Ampex technology and shortly rolled out their own quad machine, the TRT-1. RCA was the only other serious competitor to Ampex and in the years that followed, a tech war of sorts evolved between the companies.

Improvements were fast and numerous: air bearing heads, rotary transformers to replace slip rings, time base correction technologies, color recording, genlockable servo systems, high band recording, velocity compensation, electronic editing, better head alloys, low-noise tape coatings, vacuum column tape handling... the list of these "one-up-manships" continued right on up until the end of 2-inch recording developments in the 1970s.

Ampex's quad design endured for well over 20 years, until it was gradually displaced by 1-inch type "C" helical scan technology.

An incredible 50 years later, there are some quad machines out there still at work. According to Pat Johnston, director of project management for AheadTek, his company is rebuilding about 200 quad heads per year.

RCA is now just a dimming memory in the broadcasting landscape. Ampex continued to build new VTR models into the dawning of the digital age, but was essentially out of broadcast video recording by the end of the millennium. The company name still exists in connection with data recording and archival storage technology, but isn't seen much in television stations anymore.

With the advent of digital television and the DVD and hard-drive video recording that it spawned, videotape use is on the wane. Some of the biggest producers of magnetic tape pulled out of the market years ago. The phrases "tapeless television station" and "the end of tape" entered the vernacular at least 10 years ago.

With the exception of data cartridges for archival recording, these prognostications may well may come to pass. Even that application appears shaky, as data packing advances in optical disc recording methodologies seem destined to surpass what can be done with magnetic storage.

For decades, video recording quality has been such that it is indistinguishable from live video. Recording devices have become so reliable and commonplace that no one is excited in the least by the words "video recording."

Still there are a few remaining from that crowd, who, 50 Aprils ago, witnessed the first demonstration of real video recording and who remember the electricity and shivers of excitement that went with it. There are many more that recall their initial encounter with videotape and the fascination that came with it—the solid snap as the guide shoe engaged; the pleasing, almost musical "buzz" produced by that massive, yet very delicate, rotary head assembly spinning at its 14,400 rpm rate; and the smell of the tape coating as the heads literally tore into it.

An early video recording textbook described the rotary head recording process as one in which the head's pole pieces "created a localized dimple, moving across the tape." Actually, something far more profound happened as the heads moved. They froze time and left behind moving images for future generations to witness and enjoy. They also launched a business that has become the single largest element in broadcasting and a technology that has become an integral part of hundreds, if not thousands of other businesses. ■

What Was It Like?

There is a special kind of captivation or fascination that goes along with being witness to an event destined to have historic significance.

John T. Moore, the youngest witness to the Wright brothers accomplishment in December 1903 was reported to have run down the beach at Kitty Hawk yelling at the top of his lungs to anyone listening, "They done it! They done it! Damned if they ain't flew."

This atmosphere was certainly present that Saturday in April 1956 when Ampex showed the world it had perfected a video recorder.

If anyone should know what the situation was like in the Hilton's Normandie Lounge, it would have to be Charles Anderson, one of the Ampex VTR design team members who was there with the Mark IV machine. As Anderson described it:

"The (CBS) affiliates meeting was in the Normandie Lounge, the foyer of a ballroom. We were in an alcove there with the machine, behind a curtain. No one knew we were there. CBS had cameras and monitors scattered around the lounge, but that was nothing unusual.

"There were a lot of people in the room and on cue we started to record. Bill Lodge was explaining to the group that there was something new they wanted to show. On another cue, we rewound the tape and started playing it back.

"All of a sudden, there was a deafening silence.

"Did we screw up somehow?

"Then came a roar. The curtain was opened and people started to swarm back around the machine. Before we knew it, we were knee deep in people."

Anderson recalled that Charles Ginsburg, Fred Pfost and Phil Gumby were with him that day.

"That machine was demo-ed a lot. It was a very successful show for the network. That night, Ginsburg and I went out with Blair Benson from CBS to the Blue Angel to celebrate. Ginsburg was dancing on the tabletop."

Pfost also recalled the silence that initially ensued once the playback started.

"There was total silence for about 15 seconds. Then people began to realize what they were looking at. It made such an impression on me that I get tears in my eyes telling the story. People screamed and clapped for probably 10 minutes."

After that presentation finally ended, Ampex executives realized from the reaction of the crowd that the company had a hit on its hands. The CBS demonstration had been just that—a closed-door session for invited guests. It was hastily decided to rent hotel space to exhibit the VTR for the balance of the show. Anderson remembers that part of the experience as not being so euphoric:

"Very early the next morning [Sunday], the VP was on the phone with orders to move the videotape machine. We weren't at our best from the night before, but we went ahead and moved it there. From then on there was a steady stream of people throughout the rest of the show."

Pfost also recalled relocating the recorder.

"After the demo we took the machine up to the fourth or fifth floor in the hotel. For the rest of the show that room was totally full. At the end of the week, the orders for machines amounted to more money than Ampex had been doing in a whole year. We went back [to Redwood City] and had to figure out how to build all these machines."

Ray Dolby stayed behind in Redwood City to demonstrate video recording for members of the press and Ampex executives. The reaction was similar to that in Chicago, according to Dolby.

"Everyone was enthusiastic, there was a lot of applause and laughing and clapping... but on the other hand, you have to remember this was an engineering lab, not a plush hotel room, as they had in Chicago," he said.

Even so, sales orders were being written on an almost non-stop basis. According to one source, Ampex ran out of sales forms and was writing orders on any scrap of paper they had at hand.

James E. O'Neal

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Compact satellite terminals enhance field reporting

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Wireless

CONTINUED FROM PAGE 12

the studio audience.

"But to get the true value of these systems, combining experience and knowledge in their application is the key," Fellmuth said.

MINIMIZING DELAY

At Link Research, Newlin Warden, director of the company's Los Angeles office, says that one of the most pressing challenges when choosing and deploying HD wireless camera systems is the video and audio encoding and decoding delay.

"We've invested considerable research and development resources to design a system with the lowest possible delay," Warden said.

"At the Bexel Forum, we demonstrated how and why we strive for a throughput delay of about 45 milliseconds, which is less than one-and-a-half-frames delay. Many HD encoders on the market have a 100- to 180-millisecond delay, or anywhere from three to six frames. While a one-frame delay is acceptable, delays of over two or three frames are noticeable, resulting in lip-sync or other timing problems," he said

For this reason, Link focuses on developing encoding and decoding systems that produce ultra-low delays because this issue is critical to live TV broadcasting—their target market. Link also developed "Diversity Receive," an innovative technology that allows up to 64 antennas to be used with a single receiver network.

"The wireless HD camera operator can walk around between the antennas without worrying about picture breakup," Warden said. "When one receiver loses him; another picks him up, much like cellular technology."

In the 2 GHz BAS transition, as channel bandwidth shrinks from 17 MHz down to 12 MHz, Warden said that Link's digital HD wireless system has no problem compressing the picture to fit 12 MHz, and even 10 MHz channels (as in Europe), without compromising picture quality due to the highly efficient MPEG-2 compression technology they use.

INNOVATIVE SOLUTIONS

At the Bexel Forum, Global Microwave Services President Sam Nasiri, and Tom Meyers, engineering manager and chief engineer, demonstrated the GMS High Definition Messenger Transmitter and Messenger Smart Receiver.

"The HDMT/MSR link demonstrated rock-solid performance as the HD camera roamed the conference facility," said Dennis Burman, senior marketing manager for San Diego-based GMS. "It offers low latency resulting in a signal processing delay of less than two frames."

Burman says that GMS also presented its new Configurable Messenger Transmitter platform.

"Users can initially load firmware to configure the CMT for SD operation, and upload additional firmware later to upgrade to HD without having to replace any hardware," he said. "This product capability is ideal for customers during the broadcast industry's transition from SD to HD programming."

Thomson also demonstrated its new Grass Valley HD digital wireless system at the conference. According to Jan Eveleens, general manager for the Grass Valley camera product line in the Netherlands, this HD wireless adapter can be attached to many of their HD camera products, including the LDK-4000 and LDK-6000 Series, to modify them for wireless transmission.

"What's unique about our wireless HD system's design is that we have based the compression upon JPEG2000, as opposed to MPEG-2 which other competing systems on the market use. We chose JPEG2000 because it can produce 4:2:2 10-bit quality images, and picture quality was our chief concern," Eveleens said.

MISSING PIECES

"With JPEG2000, the picture quality remains very sharp even when the codec is overloaded with detailed picture information so you don't get those annoying blocks in the image," Eveleens said.

The Grass Valley HD digital wireless camera system also offers low latency, with less than a two-frame delay, which also ensures good picture quality.

"Until now, wireless HD camera technology has been one of the missing pieces for HD production," Eveleens said. "Wireless HD capability is something that the industry is really waiting for because it gives users greater creativity and freedom in their HD productions."

Gepner agrees, adding that wireless HD technology is ready now.

"Three to four years ago, people were saying it would be a decade before [wireless HD] would work, but now it's working better than anyone could imagine." ■

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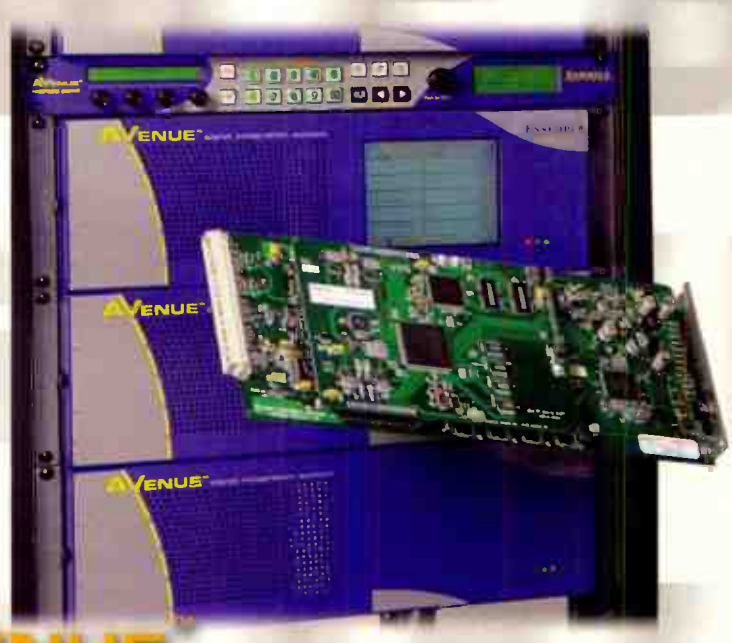

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Locals Battle to Keep Video Authority

Congress, states, moving to streamline franchise process

by Sanjay Talwani

WASHINGTON

For the cable and telecom industries, the battle over local video franchising is a matter of building and protecting cash flow. But for thousands of cities, towns and counties across the country, the battle strikes to the core of their ability to serve their citizens and protect local public resources, and they're fighting back to the FCC with examples of how they say the franchising process works just fine. And they don't want the federal government to take away their authority to negotiate with some of the world's biggest corporations.

A Verizon fiber technician connects the various components of the optical network terminal on the side of a home.

"Rights-of-way belong to local citizens, so the ability to allow private businesses to use those rightfully rests with that locality and the people elected to represent," said Christine Loftus, consultant with the National League of Cities, which has organized its 18,000 members and pegs the issue as one of its top three legislative concerns of the year.

Late last month, Rep. Joe Barton (R-Texas), chairman of the House Energy and Commerce Committee, which oversees legislation on video franchising, released draft legislation that would set up a national franchising process. The legislation would allow cable operators and telcos to file requests to introduce video services in communities through a national franchise. Cable companies could switch from a local franchise to a national franchise, but only after telcos applied for a local franchise in such communities. Both would pay a 6 percent fee on revenues to their local communities, up from the current 5 percent that cable operators now pay for their local franchise. Lobbyists for both cable and telco expressed guarded approval of the proposal.

"We are pleased that the national franchising scheme proposed in the House bill seeks to ensure all providers compete on a level playing field," said Kyle McSlarrow, president of the National Cable & Telecommunications Association.

Of immediate concern to local franchise authorities, however, is the prospect of being unable to collect such franchise fees they now get from cable. And the telcos want to limit requirements to carry noncommercial channels; the cities say such channels are one of the ways they reach their citizens.

Loftus asks about the long-term implications, the expectations of others who want to use the public rights of way.

"We just don't know the details," she said. "If there's a dispute over use of a right-of-way, would that now go to the FCC?"

The telcos say they're OK with the 5 percent fee and other demands, up to a point. But it's the city-by-city uncertainty, onerous local demands, and hostile actions from cable incumbents that they say requires a federal policy to streamline the process.

In filings with the FCC—which is considering new rules on LFAs, unless Congress passes new legislation—the telcos cited several examples of LFA conduct they say is stifling. Current franchising rules they say are better designed to regulate local cable monopolies, not foster competition.

Verizon spokesman Brian Blevins said franchising is the biggest barrier slowing the company's "quite aggressive" rollout, with 3 million homes passed now and another 3 million by the end of 2006. Though Blevins didn't address specific cases, Verizon's FCC filings describe numerous bad examples of delays and added costs in obtaining franchising agreements.

One such example arose at a field hearing in Keller, Texas—the site of Verizon's first IPTV rollout last fall. FCC Commissioners Michael Copps and Jonathan Adelstein called on Marilyn O'Connell, Verizon's senior vice president of Video Solutions, to name some names of LFAs that had denied Verizon a franchise for its FiOS fiberoptic service. O'Connell cited Montgomery County, Md., which she said asked Verizon to allow the incumbent cable provider "to regulate our entire fiber buildout."

That didn't sit well with Montgomery County, a large suburb of Washington, D.C., which responded to the FCC in writing and in person, and essentially accused Verizon of lying. The county brought timetables of its negotiations with Verizon, claiming the company—not

the county—caused delays, missing a key deadline and changing its lead negotiator late in the process.

"O'Connell's claims that the County was inhibiting Verizon's rollout of its FiOS services were unfounded, misleading and incomplete, and may be violative of commission rules," Montgomery County's lawyers wrote.

On the other side of Washington, in Fairfax County, Va., the county praised Verizon's respect for the franchising process and the resources it dedicated to the task. The franchise there was negotiated in just seven weeks and is an example of how things should be done, the county told FCC.

Verizon says going smoothly is not enough.

"Even assuming that the local franchise process worked smoothly, it would still take Verizon a considerable amount of time to obtain all the franchises it needed," the company's filing stated. "The franchise process does not work smoothly, however, but is fraught with needless delay and expense that is caused, in large part, by those LFAs that seek to extract as much as possible as a condition of awarding a franchise."

BREAKING IN

Louisville, Ky., offers an example of a telecom failing to get into the market after years of negotiations and court battles.

According an affidavit by Knology, a telco operating in the Southeast, it approached Louisville in 2000 to seek a franchise, noting that Insight "lagged behind industry norm." But a level playing field provision in Insight's franchise meant that Knology would be forced to meet requirements like those Insight met at its build-out. The city granted Knology a franchise, but it was held up in the courts, which eventually ruled largely in favor of Knology. But by that time, according to Knology, Insight had upgraded its network and eventually Knology dropped its bid for the franchise.

It's this type of delay—and this type of level playing field provision, which is the law in many jurisdictions—that rankles the telecom industry, and is the kind of thing they'd like eliminated from the playing field.

But a bill that removes local authority could face a brick wall in the Senate, where the Commerce Committee's top Democrat, Daniel Inouye of Hawaii, and Sen. Conrad Burns (R-Mont.) have come out against such a law. And some Congress-watchers say any major telecom bill this year is unlikely to pass.

The battle is also being fought in states. Texas last summer passed the most telco-friendly legislation in the country—Verizon received 21 franchises in one day—and Virginia and Indiana have passed similar legislation.

Consumer electronics manufacturers and broadcasters like what they see in revived multichannel competition, and they have little interest in protecting the turf of local governments. The CEA recently announced principles for telco-ready set-top boxes, and CBS and Verizon just struck an agreement for content distribution—another area where the telecoms are behind the cable incumbents.

"Giving consumers choice will spur consumer interest," said Veronica O'Connell, senior director of Government Affairs for CEA.

The cable industry, meanwhile, says there's plenty of competition, and has launched a blitz against the expected legislation. National Cable Television Association spokesman Brian Dietz said the telcos sat on the sidelines for 10 years, and now want new legislation to tilt the playing field.

Overbuilder RCN Telecom Services Inc., meanwhile, belittled the telco claim that LFAs are their biggest barrier to entry.

"The fact that Verizon and other late entrants need large numbers of franchises is simply a function of their vast scale," the company wrote. "They will also need more construction crews, more installers, and more customer service representatives than do their smaller competitors." ■

IPTV Venture Supports Vision With HD

Houston project sees boost from hi-def content

by Sanjay Talwani

HOUSTON

IPTV has its skeptics. Internet Protocol Television over fiber optics requires all that last-mile infrastructure to reach customers, and it's not clear the dazzling interactive features and massive channel selections the industry has promised will get viewers to abandon their cable and satellite systems. And there's the terrifying knowledge that AT&T, now even bigger with its purchase of BellSouth, is plotting an entry into television.

But Optical Entertainment Network, a privately held outfit, hopes to slide past the telco giants with its own 400-channel rollout in Houston, including 50 HDTV channels and phone and Internet service, using its proprietary FISION technology over the nation's largest privately held fiber-optic network. In support of that vision, and to help make those 50 HDTV channels worth watching, OEN is starting up its own all-HD production house, OEN Studios, with its own all-digital tapeless core, to create what the company says will be among the world's most pristine HD content when the facility goes full steam in 2007.

"We want to be able to show the world just how beautiful HD can be," said OEN Marketing Director Al Estrada.

The studio, rolled together from production houses Ardent River Productions and Video Street Productions, is now building its facility, including three HD edit bays, where the team of producers OEN has assembled can directly download their footage, said Glenn Fulce, executive vice president of OEN Studios. So far they have three JVC GY-HD100U cameras, which Fulce said were the most cost-efficient such product available.

Tom Overstreet, production manager for Optical Entertainment Network, aims the camera at a news anchor in OEN's Network Operations Center.

The cameras, with 16x Fujinon ProHD lenses, have a "dual media" option, meaning it can record to disk and tape simultaneously. Video, audio, timecode and control information are recorded onto brand new JVC DR-HD100 hard drives via FireWire, in the HDV/DV editing system's native file format. It can then be immediately edited on Final Cut Studio editors with Quad-Core G5 processors and Xserve RAID servers with up to 3.5 TB of storage each.

"The process is very simple but powerful," Fulce said. "We shoot with the GY-HD100U and record our files onto the DR-HD100. The files are transferred to our RAID storage where it is available to any of our editors and producers. ...The project then waits on our nearline server until it's needed for broadcast."

Then, it goes to the online FISION server at OEN's National Operations Center "where it can be placed in the program line up and sent to the consumers homes as pristine as the day we shot it," over the fiber-to-the-home network, he said.

A HIGH-FIBER DIET

OEN now has 15 HD programs in production and is developing other HD content, from commercials to sitcoms to feature films, the company says. OEN content will make up entire channels for the service starting in 2007.

With the Houston rollout now in a testing phase, and the first paying customers scheduled for the current (second) quarter of 2006, OEN notes that the fiber-optic network provides a market for the OEN Studios content, assuring some revenue down the road. On the other hand, the studio venture is comprised of market-tested producers and assures some cash flow for OEN right away.

Estrada said the company is going to hold off the general launch on the service until any bugs are ironed out, all three prongs—video, phone, and Internet—are available, and back-office systems are running.

OEN has partnered with Phonoscope, another privately held company, whose fiber network includes 1.6 million "homes passed," where the fiber gets within a few hundred yards of the home. In Houston, that can mean long, long runs down some of the city's famously sprawling boulevards. Of those homes, 250,000 have "fiber-to-the-easement," Estrada says, and Phonoscope's existing lines are 80 percent airborne, not buried.

OEN hopes that initially the massive video package—the company says it's the largest number of channels available to a single market anywhere in the country—along with 10 Mbps Internet service, will distinguish FISION from cable and satellite. In addition to the 50 HDTV channels, the package will include 50 channels in Spanish and another dozen non-English channels from Farsi to Filipino. The company boasts scores of carriage agreements with content providers, including GSN, Lifetime, Oxygen, The Tennis Channel, Univision and STARZ!.

The power of Internet Protocol—the ability for a single user to pull data from a theoretically unlimited pool of content—leads naturally to on-demand services. FISION will also include PVR service on the Amino set-top box, which Estrada said is the size of a sandwich.

A TOUGH FIELD

Time will tell whether OEN's massive channel selection, top-notch picture quality, and new interactive features will be enough to draw people from their cable and satellite operators, but OEN—and its investors, including Dallas and Houston backers—seem to think they can make a run for it. Estrada added that Texas' policy of handling video franchising on a statewide framework, instead of on the local level, makes for a more inviting atmosphere. ■

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DIGITAL JOURNAL

Bill Hayes

Timely Tips for the NAB Floor

Scrutinize service agreements, beware vaporware

by Bill Hayes

JOHNSTON, IOWA

Every year about this time I am asked to write in the Digital Journal about what I will be looking for while I am in at the NAB conference. This year, IPTV will begin final work on converting the studios and production facilities to HD, so I would like to say that I will spend most of my time looking at HD production equipment.

Unfortunately, like the philosopher Diogenes I will be looking for an honest man, or in our politically correct culture, an honest person. He was also referred to as Diogenes the Cynic and for better or worse, I find myself in that same philosophical group.

SERVICE AGREEMENTS

So while I am at NAB, I will indeed be looking at HD production switchers, cameras, character generators and all of the other fun stuff that goes into building an HD facility. However, the first thing that I will ask to see regarding any equipment is a copy of the software and hardware service agreement associated with the equipment. Doesn't that sound exciting?

Service agreements have become the catchall for explaining why things don't work correctly. Here is a quote from a service agreement that I have been asked to sign. I won't mention the vendor name since this is just an example and it is not unusual:

"The Customer acknowledges and agrees that: (a) software in general is not error-free, and agrees that the existence of such errors shall not constitute a breach of this Agreement..."

In this one statement, the vendor has eliminated any requirement that their product be finished before it goes to market. They can sell you an untested beta version with bugs and other undocumented features that they hope to fix down the road and the customer has to accept this. Pardon me, but when did the product working correctly become an option?

Another question I have is, why are bug fixes covered under the same document as software upgrades? Aren't the two different? A bug is a defect in the product that prevents it from working correctly or at all. An upgrade is an improvement that adds new features.

Bug fixes should be part of the warranty and not part of a service agreement. There are a number of systems at IPTV that are software-based that we have no service agreements on because we have corrected the bugs and the systems meet our needs. Now true, some of them are running on DOS 6.2 from 1980, but "if it ain't broke, don't fix it."

The scary part of this is that this "service agreement" philosophy is showing up everywhere. A few years ago, we noted that the high intensity strobe lights on one of our towers were becoming increasingly less reliable, and we were under notice from the FAA.

The philosopher Diogenes

We purchased new high-intensity strobes and had them installed and after three years, we have found that the new ones are less reliable than the ones we replaced. At last year's NAB, we met with the vendor to discuss this problem and their solution was for IPTV to purchase a service agreement and they would come out once a quarter and replace the defective units.

In essence, their solution was for IPTV to pay them more money to regularly repair the unreliable product that they sold us that had never worked as well as the previous unreliable product that was replaced.

I am told that I turned red while talking with this person and I had to walk away before I said something I'd regret. But to my point, the manufacturer is making no attempt to solve the problem because it is in their best interest not to. Service agreements are a source of regular income and quite frankly, I think they have their place, but not as a substitute for delivering a working reliable product.

Service agreements are a source of regular income and quite frankly, I think they have their place, but not as a substitute for delivering a working reliable product.

What about vaporware? Does anyone remember when you'd be in a conversation with a manufacturer at NAB and they would tout that their product wasn't "vaporware" like their competitors? When did it become acceptable for a sales rep to tell the customer that the capability exists and yet when the product is delivered, the customer finds out that the feature is in the planning stage but the code hasn't been written yet?

There are a few projects here at IPTV that have gone awry because we did our operational planning based on the capabilities that we were sold that were not in the delivered product.

Two projects of $1 million or more are top of mind right now, one that is more than two years late and has yet to be closed, and the other is so far off track that we may simply return it and let the lawyers sort out the solution.

From conversations that I have had with my peers, I know that I am not alone in my concern and frustration about the direction that we are headed. But what do we do about it? Over the last few years, I have become more involved in the industry. I sit on a number of standards groups at SMPTE. I am surprised and dismayed at how few end-users participate.

The committees for the most part are made up of manufacturers and my experience has been that they welcome the input of end-users; it helps them stay focused on the goal of developing standards for products that meet the needs of the customer.

I know that participating takes time but anything of value takes an effort, so get involved. Speak up; don't just accept the status quo. Service agreements were written by lawyers and therefore everything in them is negotiable.

Last year at NAB, I did a presentation on one of our unfinished projects and I mentioned by name how much a manufacturer was proposing we pay for a service agreement and that the amount was ridiculous. Immediately after the presentation I was told that the president of the company wanted to meet with me and right after NAB, that manufacturer came back to me with a new service agreement that is one-third the original proposed cost. Now if we don't send the complete system back, we may actually be able to do business.

So if you're looking for me at NAB, I'll be the person sitting at a table reading the pile of service agreements and determining if I can afford to go back and see a demonstration of the equipment. Stop by and say hello and we can compare notes.

Bill Hayes is the director of engineering for Iowa Public Television. He can be reached via ***TV Technology****.* ■

More Than Just Selling Equipment

Band Pro bridges the gap between film and video

When they write the history of electronic cinematography, making movies with video cameras instead of film cameras, the name Amnon Band and his Band Pro Film & Digital company will be noted for their critical role. Equipment makers made equipment, but they needed an evangelist in Hollywood, someone to pull the technology together, teach film people how to use it, and risk serious amounts of money to fill in the gaps.

Band Pro has been named Premier Reseller for the Sony CineAlta line of high-definition 24p acquisition and playback products, has ponied up R&D money for development of a line of Carl Zeiss HD lenses, and is a major sponsor of the Santa Fe digital cinematography workshops.

When Band Pro's "One World on HD" event, TV Technology's Craig Johnston talked with Band about his company and digital cinematography.

Band Pro Film & Digital Founder Amnon Band

Q&A

BURBANK, CALIF.

TV TECHNOLOGY: It seems like you put Band Pro in the middle of a group of major manufacturers who had this product and that product, but it took somebody to bring those products together and fill in the gaps.

BAND: I'd like to think that. In the past you used to be in the camera sales business. Today you're in the camera system integration business. It's a system integration, and there are no two packages alike.

TV TECHNOLOGY: In the case of the Carl Zeiss lenses you saw there was a need for an absolutely first-class set of electronic cine lenses.

BAND: My clients, or my to-be clients, indicated that in order for me to succeed with them, the glass has to be much better. Manufacturers in the past took an ENG high-def lens, took off the zoom housing, changed the ring pitch to a 0.8 instead of a 0.4 or 0.5, and called it a cine-style lens, meaning you need to drive everything with motors, you can put follow focuses, this and that. But was it really a cine-style lens? No. It was not. It was a video lens dressed up, appearing as a cine lens. With the Hollywood people who go to film-out, [i.e.] people who need a first-class picture, we hit a snag. We basically realized that we're not going to sell to a certain part of the market unless we make a better glass, and that meant better than Panavision as well.

TV TECHNOLOGY: Well you certainly put your money where your mouth is. [Band paid Zeiss to develop the DigiPrime and DigiZoom line of lenses.]

BAND: (laughs) Yes, we did. You know, you need to understand the Zeiss structure to understand what we do. Zeiss does not have a sales department. Zeiss partners with companies like they used to with Hasselblad, and they do with Kyocera, or they do with Sony on the digital cameras, or they do ARRI, the Ultra Primes and Master Primes. Zeiss finds somebody who is crazy enough to believe in something and put $2 million into a project. So I paid for the R&D, and it's sort of my product in a way. But there's no ownership. We share the copyrights and everything. We are business partners. I am in charge of marketing and selling, they are in charge of research and development and manufacture.

"In the past you used to be in the camera sales business. Today you're in the camera system integration business."

—Amnon Band, Band Pro Film & Digital

TV TECHNOLOGY: Is another part of what it takes to make the transition to digital cinematography work the education piece?

BAND: You can't go anywhere without know-how, you must train people. Half of the people out there are using about 10-percent of what the Sony F900 can really

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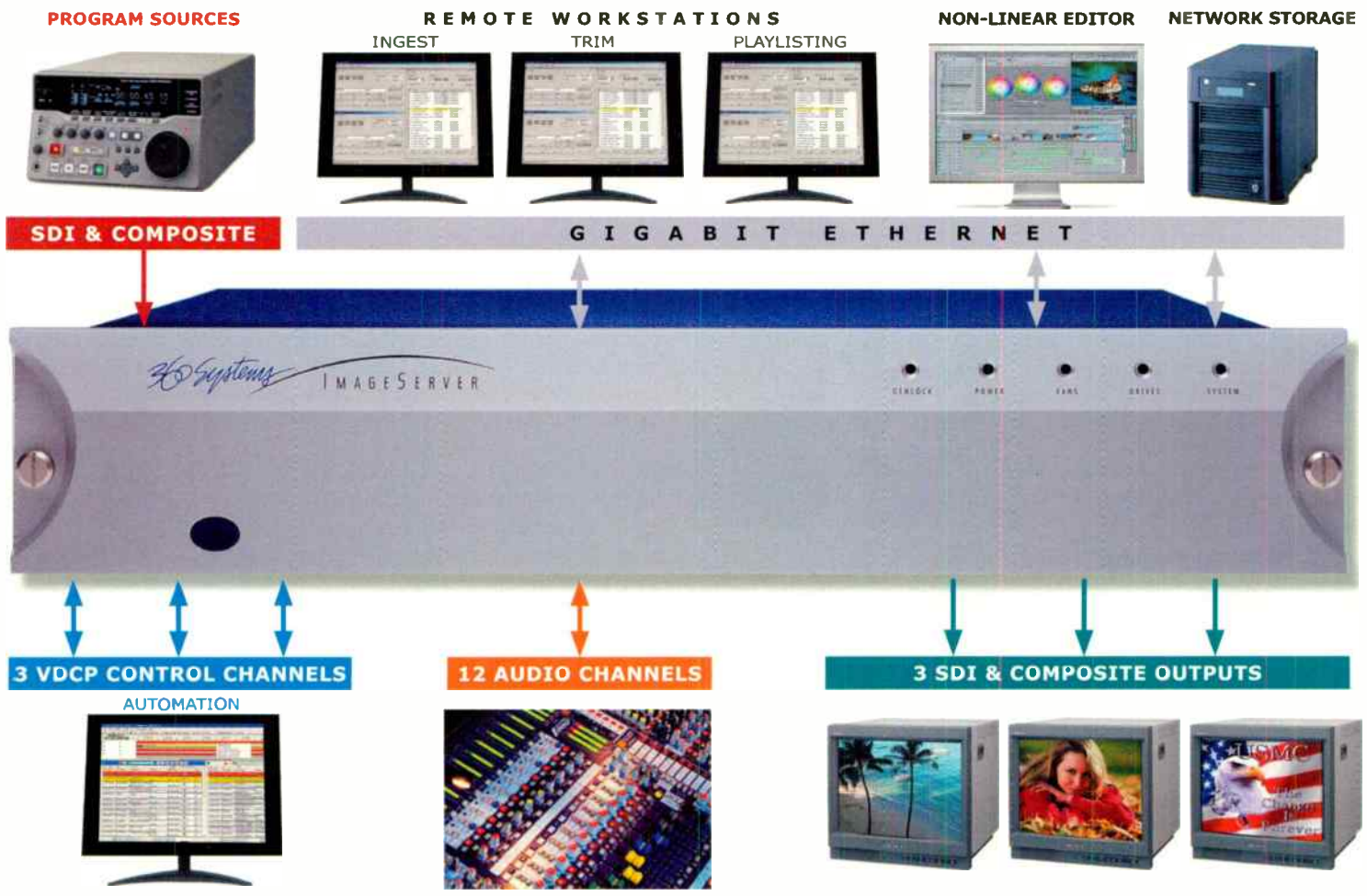

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VJs Gain Foothold in Newsgathering

Newsrooms pare down to expand coverage

by Robin Berger

LOS ANGELES

The world of 500 cable channels and unlimited Internet video has goosed America's appetite for programming while fractionalizing its market value. Luckily, technological innovations have slashed the cost of production.

So notes consultant Michael Rosenblum, who has leveraged new mini-DV cameras to transform TV newsrooms from production-centered businesses to publishing models that favor enterprise and authorship.

"When you work for a local television news station, the first thing you do is open up the newspaper and say 'let's steal that story'," Rosenblum said. "We re-architect the newsroom from being this parasite."

To do this, he replaces news crews with a "well-trained VJ," equipped with camcorder and laptop. He claims production costs "drop by 20 percent to 70 percent with a vast increase in quality."

"A 3-chip mini-DV camera is fine for broadcast quality, Sony DSR-PD170 DVCAM, Canon GL2, Panasonic DVX100," said Rosenblum. "Sony has come out with the Z1 that's about $3,500 for high-definition video, which is pretty remarkable."

Remarkable, indeed, compared to the professional Betacams favored by most television stations. For editing, Rosenblum suggests Apple's Final Cut Pro, Avid's Xpress DV or Adobe Premiere, which he ballparked at free (a stripped down Internet version of Avid Xpress DV) to $800. He also recommends a server that can upload video and transfer it over the Internet.

WKRN & KRON

Execs at Young Broadcasting and its affiliate stations insist their decision to go VJ sprang from the quest for better coverage, not lower costs.

Three years ago, WKRN General Manager Mike Sechrist in Nashville, Tenn., KRON General Manager Mark Antonitis in San Francisco, and Brian Greif, Young's vice president of news, began discussing capital spending and ended up brainstorming about how to regain audience share. They decided they had to generate better stories by getting more crews in the field. A year later, a consultant introduced them to Rosenblum.

Current network host Gotham Chopra acts as reporter, host and producer for many "pods," including "Current Soul."

WKRN's transformation process began in July 2005, introducing Rosenblum's boot camp in four-person shifts, each VJ armed with a Sony Z1, a laptop loaded with Xpress DV and, for 14 former reporters, new company cars; all 32 designated VJs completed their training by mid-September. Rosenblum cross-trained KRON's staff reporters, camera ops, editors and an employee that "ran the feed room" from last September through mid December.

The Nashville station went from the usual eight cameras in the field to a potential 32. In San Francisco, the count went from 22 to close to 50. But the newsroom is more a hybrid operation than a shop of lone wolf VJs.

"There's a lot of flexibility," said Greif. "If there's a big spot news story you can send 10 individual cameras—or, if a story requires it, you could have two [VJs] on it, and one person helps shoot for the other."

San Francisco VJs can access the station's iNEWS system from the road to write their scripts. They use Ipswitch WSFTP professional file transfer package to send footage to the studio's virtual private network via home-based cable modems, remote studios, T-Mobile hot spots in Starbucks, Borders, Kinkos, or other Wi-Fi sites around the Bay Area, said KRON Chief Engineer Craig Porter.

Although some traditional equipment was redeployed to other stations, long-lensed cameras were kept for situations where the minis are not as good, like sports reports and pool coverage at the courthouse.

WKRN gave up "nickel and dime robberies and car accidents" done to "feed the beast" in favor of better beat stories, and added experts to cover religion and real estate. KRON is developing a real estate beat and going after more pro-active stories. More content, said Antonitis, means the stations "can take a risk on a story not turning out."

Prior to the changeover, said Sechrist, "the audience was saying there's too much repetition, you're doing stories that don't mean anything to us." He believes the VJ system provides "stuff your competitors can't touch because they don't have enough people to do it."

CURRENT TV

According to Rosenblum, Current TV takes the VJ system one step further, by offering thousands of people who already have cameras and edit systems a place to publish their material. One in 10 submissions actually makes it to air, according to estimates by Current TV CTO Steven Blumenfeld. Most are three to five minutes long, (see "Network Takes New Path to Stay Current," Dec. 7, 2005).

"Thirty percent of our on-air content is viewer-created," said Blumenfeld.

The eight-month-old network accepts submissions as data files, discs and tape. Most tapes are DV or Betacam, said Blumenfeld.

"Everything immediately gets 'normalized' into some data file," he said. "If it's a DV tape, we use a Sony M10U [recorder] that goes through a Black Magic card in a Power Mac G-5 Quad."

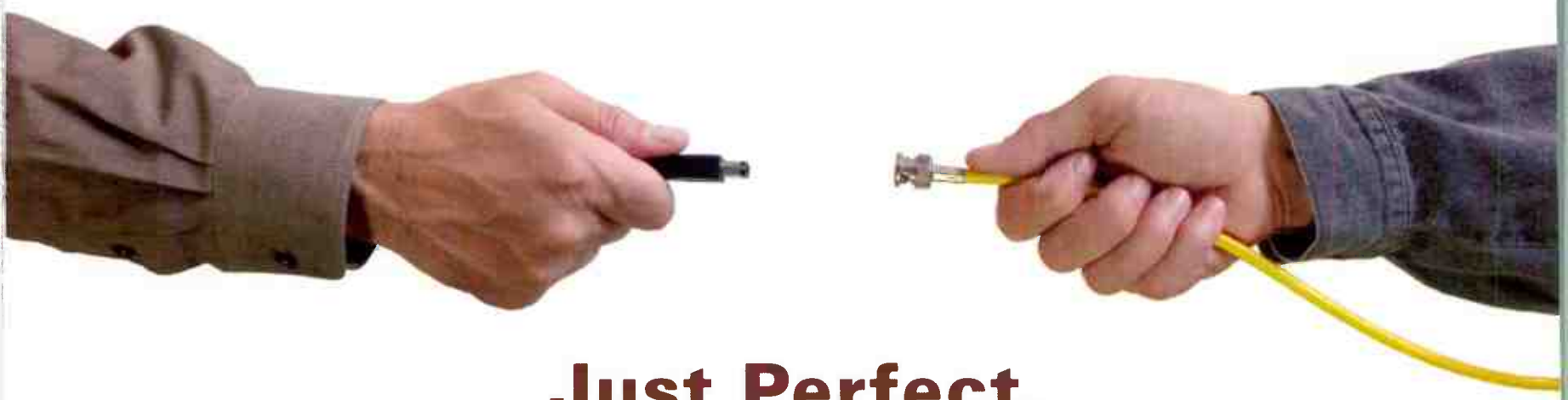
He estimated Current TV's staff at about 200. "About half of that is programming," i.e., schedulers, editors, production—including reporters—in San Francisco and Los Angeles; "about 50 are on the engineering staff," i.e., master control operators, information technicians, broadcast ops.

Staff reporters generally go out in multiple-person crews with their Sony Z1s, he said. "Quite honestly, there is a difference between what we produce in-house and what [VJs] produce," said Blumenfeld.

The crews get around in cars, not production trucks. And because their reports are not "breaking news," they're generally FedExed, instant messengered, e-mailed, or delivered upon return, rarely satellite fed.

Content goes directly from Macintosh to air. Current TV uses Apple's Final Cut Pro for editing, Adobe After Effects for graphics, Digidesign's Pro Tools for sound, and MacCaption for closed captioning. Once ready for air, said Blumenfeld, content is scheduled by an asset management system created in-house. The rundown is sent to BugTV's class one play-out server.

For Blumenfeld, the biggest nightmare is storage. Some 70 terabytes were allocated at launch. But in mid-March he noticed, "we're doubling past that in the next two weeks." ■



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Time to Tell the Public About 2009

End of analog marks beginning of education campaign

by Deborah D. McAdams

WASHINGTON

In Washington, House Commerce Committee Chairman Joe Barton won an award for shutting down analog TV in 2009. In Ellis County, Texas, Barton hasn't said much about the shutdown.

"I haven't heard a whole lot of talk from Joe," said Jonathan Blundell of the Waxahachie Daily Light. "From what I've seen, he hasn't pushed it a lot in this area."

Waxahauchie is about 15 miles from Barton's hometown of Ennis, both are in Ellis County, which is in the Dallas/Ft. Worth designated market area. A study of over-the-air reliance issued last year by the FCC indicated that around one-third of the TV households in the Dallas/Ft. Worth DMA got TV from an antenna.

Blundell said he wrote an article about the analog shutdown in December, when the 2009 legislation passed the House. He said the newspaper got a few letters from folks who objected to the shutdown itself, and others who were against subsidizing digital converters for analog sets. The bigger issue in Ellis County is that direct broadcast satellite is kicking behind because the local cable provider can't build out fast enough to meet demand.

That pay-TV gets more play in East Texas reflects a larger national ethos—when it comes to television, people are willing to pay for something they can get (scaled down) for free. Across the nation, subscriber figures for cable and satellite combined indicate that 80 to 85 percent of U.S. TV households pay for television reception. Who and where the over-the-air holdouts are is a matter of speculation, and so is the number of rabbit-eared sets in those pay-TV households.

The Consumers Union estimates that there are 80 million TV sets in homes not hooked up to cable or satellite. The Consumer Electronics Association says those are used mostly for playing video games and DVDs; the NAB says maybe not. Most parties privately agree there's no way to pin down the scope of broadcast TV reliance without shutting down transmitters. And while Washington insiders threw parties to celebrate the 2009 shutoff, few people outside the Beltway received an invitation—and several didn't care.

TWO HOOTS

"I hadn't heard about it, but it doesn't surprise me," said Marvin Berryman, a retired graphic artist in Denver. "Something like this is always a good way to sell new TV sets. Do I understand that there won't be any over-the-air TV or just that it won't be less than hi-def—digital?"

Up the road from Denver, in Evergreen, Colo., the TV delivery system in question was not a top priority for medical technician Kay Hall. "Analog TV?" she said. "Don't even know what that is."

Janalee Hanson of Kansas City, Mo. didn't realize a deadline had been set, but she didn't consider it cause for concern.

"I have satellite television and don't see where it will be a big deal. My television itself is very old and we are just waiting for it to die, so when we replace it—I'm sure it will be before 2009—I'll be ready. I really don't know anyone who is even concerned about it."

Price Coleman, a former TV trade writer, is similarly indifferent. Coleman lives in Durango, Colo.

"From my perspective, the death of analog and the takeover by digital is a bit of a yawn, other than maybe the economic implications for people who don't want digital sets/receivers," he said.

For those who do want to buy a digital TV set, the exercise is not one of simplicity. Where TV set-buying criteria once comprised screen size and picture quality, now there's a raft of technologies to understand.

Michael Castelli, a semi-retired attorney in Nevada City, Calif. who specializes in bond law, was the youngest member of his firm in San Francisco to make partner. Few things are as arguably abstruse as bond law, except perhaps buying a TV set.

"Patti and I have been wanting to buy a new TV for the last four years, but we are stuck in a bizarre type of paralysis," Castelli said. "Every time we enter a store or Web site, we are reduced to putty in 15 minutes or less. We leave with a sense of utter failure and silently agree not to speak of it. Six months or so later, we repeat the entire ritual. I think we hope that somehow the myriad choices have been simplified or come into focus, but it only gets worse."

Congressman Joe Barton at the Digital Patriots Dinner, where he won an award for his work on the 2009 analog deadline legislation.

ONE IF BY AIR

FCC Commissioner Jonathan Adelstein has pals back in South Dakota in the same boat as the Castellis, so they pepper him with the LCD-versus-plasma questions. He hasn't been grilled as much about the 2009 shutdown back in the Badlands, and he knows there are people there who have no idea what's in the works. That lack of awareness has Adelstein agitating to get the public education part of 2009 legislation rolling. He issued a "Call to Action" at a CEA event in Washington last month.

"While the DTV transition affects the lives of nearly every person in the U.S., few Americans really understand it. They don't pretend, for example, to know the difference between DTV and HDTV, or rear-projection TV, LCD or plasma screens," he said. "Even fewer Americans, especially those who rely exclusively on over-the-air television, are aware that in less than three years, the more than 80 million analog sets out there will go dark... unless they are connected to a digital converter box, satellite or cable. If we don't get this right, we could face a tsunami of public outrage."

The federal government earmarked $5 million to inform the public about the end of analog TV transmissions. Five million bucks is a healthy lottery win, but not a lot for a nationwide education campaign.

"One million was spent in Berlin, alone," Adelstein said.

Analog signals were shut down in Berlin in August 2003. The $1 million education fund there translated to around $6.25 for each of the 160,000 homes that relied exclusively on over-the-air television. By comparison, $5 million would not cover the cost of stamps to mail a letter to each of the

roughly 15 million U.S. homes that rely on over-the-air TV.

The education funding is part of the $990 million the government authorized to subsidize the digital-to-analog converters necessary to keep analog TVs working after the shutdown. The National Telecommunications and Information Administration is in charge of doling out the funds, but Adelstein thinks the FCC is better suited to carry out public education.

"I'm not sure whether Congress specifically determined that NTIA is the best suited federal agency to spearhead a national DTV consumer education campaign," Adelstein said at the CEA event. "In light of the fact that the FCC's Consumer and Governmental Affairs Bureau has developed in-house expertise in DTV education, there's a strong argument to support the FCC as the principal agency in charge of educating the American public about the transition.

"I encourage the two agencies to consider creating an interagency Federal DTV Task Force to develop a unified federal message and approach to inform consumers about the transition deadline and the options [they] have to continue receiving broadcast programming after Feb. 17, 2009."

WWW.DTV.GOV

The FCC unveiled its first public education effort at an October 2004 press conference, where then-Chairman Michael Powell issued forth a great deal of verbiage over creating a consumer tip sheet and launching a Web site—*www.dtv.gov*.

Nearly 18 months later, a Google search of "DTV," "consumer," and "education" brings up not the Web site, but the FCC press release announcing it. "What is digital television?" brings up the site of a certain other TV trade publication, and "digital television education" brings up the switchover site of the United Kingdom.

One inherent problem with relying on the Internet to herald the analog shutdown is that the first of the previously mentioned searches turned up 373,000 sites. Another issue—despite Washington's frenzied push for universal broadband—is that computers are not ubiquitous. According to data from the U.S. Census Bureau, 38 percent of American households did not have computers in 2003. Even more—45 percent—did not have Internet access, primarily because they didn't want it (39 percent) or it cost too much (23 percent.)

Adelstein acknowledged that a Web site alone does not an education campaign make.

"We're just beginning to think about logistics," he told **TV Technology**. In the meantime, he suggested that broadcasters put out public service announcements, since "the ones that are watching TV are the ones that ought to know."

A big part of public education will involve the use of D-to-A converters, which are not yet available on the market. At least one consumer electronics retailer indicated it would place an order for converters as soon as an analog deadline was established, but manufacturers were still sitting by the phone at press time.

The hesitation is twofold: since people don't know they'll need a D-to-A converter to keep their analog TVs working after 2009—or that they could get a better picture with one now—there's no demand for the devices. The second factor is that it's up to the NTIA to decide what makes a D-to-A converter eligible for a piece of the $990 million subsidy. As of mid-March, a spokesman for the agency said no information was available on what would be included in the converter subsidy rules, and that nothing was expected before the end of the month.

Thomson, manufacturer of RCA brand TVs, is one of the companies ready to make D-to-A converters. Dave Arland, Thomson vice president of communications and government affairs, said manufacturers are waiting for the NTIA directive because the market for qualifying converters is expected to be short-lived. As analog receivers are phased out of production, the need for converters will decline. DTV sales are expected to surpass analog set sales this year for the first time since digital TVs were introduced, and with market saturation comes cheaper TVs. (A Thomson TruFlat 27F634T digital set turned up on eBay for $250.)

Susan Aukema, a Denver financial advisor, is waiting for prices to come down before she buys a new TV set.

"I teach people how to get out of debt; stay out of debt and invest for the future, so I practice what I preach and don't invest in many depreciating assets, like expensive television sets and services."

Phil Cooke hasn't yet jumped on the DTV bandwagon, and he makes his living in TV as head of Cooke Pictures in Santa Monica, Calif.

"Except for 20-something guys who want to see their favorite ball games in HD, most people don't fully realize what's happening," he said. "They have little idea that their old sets will be obsolete in a few years. On the other hand, set prices are falling quickly, and it won't be the end of the world for most people. I produce HD programming for a living... and I don't even have an HD set at home yet." ■

Cornell

CONTINUED FROM PAGE 14

tant director of CIT-NCS project management. "There are 60 buildings in scope of the program including some of the older residential halls. The primary goal of the program is to support the University's growing data/voice communications needs enterprise-wide. However CUTV will also be able to benefit from this upgrade, allowing higher bandwidth delivery for advanced services in the future such as HDTV."

While the campus is WiFi-enabled by Cornell's Red Rover Wireless broadband, this technology's 54 Mbps bandwidth limit is insufficient to handle the 200 Mbps load for the entire service, so it's not an option for CUTV.

Although CUTV isn't available via wireless, when the students return to their residence halls, or connect to nearly any other wired port on campus, they can access CUTV, using either their Windows-based computer, or for those who use Macs or Linux (roughly 10 to 14 percent of the student body), or who just prefer to watch on a conventional TV, an Ethernet-based set-top box can be used. Both the PC and STB connections require a smart card that contains the keys to decrypt the service. The Cornell Information Technology department provides end-user technical support.

COST JUSTIFICATION

"One of the challenges we faced was writing a front-end interface to tie our Grass Valley-based Subscriber Management System to other Cornell databases to handle such tasks as billing, order entry, and inventory tracking," Feeney said. "We needed a Web-based system that could query the University's own student databases for important data the service needed while keeping those databases isolated from the SMS for privacy issues."

Subscription fees are $30 per month for the software-based USB service, and $45 per month for the STB service. The current take-rate is about 10 percent and growing, and the current subscriber base of more than 600 students is already triple the number that used to subscribe to cable TV when that was the only service available.

"Campus Life considered it vital to provide equitable housing amenities for all Cornell residents," Feeney said. "Although the revenue is necessary for cost recovery, there is no profit motive, so as we expand the service in the future, one of the questions will be whether to add a premium tier for channels such as HBO—where the additional revenue can off-set the additional per subscriber costs. Or should we just offer a single package that includes everything as an equal amenity for everyone—the program's original mandate?"

FUTURE POTENTIAL

Feeney and Huijts are excited about the future applications for CUTV, including student public information channels, campus digital signage, and channels produced in Cornell's own TV production studios, such as Cornell news and sports shows.

Some of the academic support applications could include foreign language programs; VOD of films that professors want their students to watch; and video presentations of guest lectures and seminars for overflow, or for viewing at a later time.

"We also envision the possibility of professors' lectures being delivered to PDAs or MP3 players, that students can listen to while they're walking about campus or exercising," Feeney said. "There's a real seachange taking place where viewers want the video content they want when they want it and on the device they want to receive it on. IPTV is an excellent platform for meeting the growing trend towards a customized TV viewing experience." ■

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Is TV Prepared for Avian Flu?

Broadcasters playing an increasing role in providing reliable information

by Craig Johnston

SEATTLE

With news outlets reporting on the latest avian flu outbreaks on an almost daily basis, American broadcasters themselves are beginning to ask: Is the television industry ready if avian flu becomes a pandemic?

No one in the broadcast business seems to be ready for such an occurrence, but television in the past few years has made huge strides in disaster preparedness in general, and more recently has been preparing should a flu pandemic become a reality.

"Everybody's always had a recovery plan, if you lived in a hurricane zone or an earthquake zone," said Barbara Cochran, president of the Radio-Television News Directors Association.

"We had this whole wave of interest after 9/11, and our seminars were focused for a terror event," she said, and last fall's Hurricane Katrina brought another round of interest in disaster preparedness.

A recently released NAB survey found "that radio and television stations are significantly more prepared to respond to disasters than was the case three years ago."

But RTNDA's Cochran noted that a flu pandemic is different from other disasters. "It's not going to be like a bomb going off or a hurricane or an earthquake, where something happens, where something is detected and seen, and then you're dealing with the recovery.

"[Avian flu is] not one incident, it's going to be an ongoing story, it's going to be invisible in some ways, hard to see, hard to detect. I think it's going to be a very challenging story to cover, and very challenging for government to communicate about."

ACCURATE AND RELIABLE

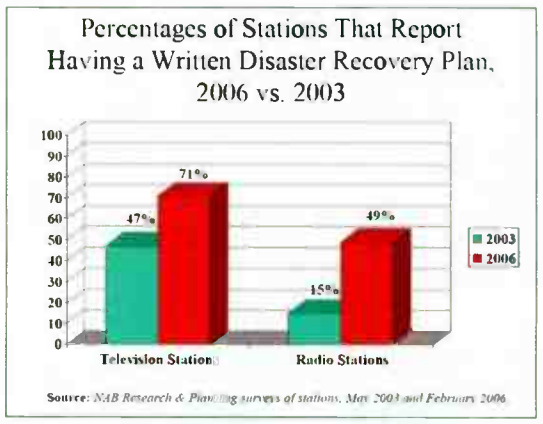
The Department of Health and Human Services has thought about the challenge of communicating during a pandemic. A significant section of the nearly 400-page HHS Pandemic Flu Plan is devoted to Public Health Communications. Not only will the government be challenged with getting the facts out, Cochran said they "may spend as much time chasing down and debunking rumors as they do getting out legitimate information."

The HHS plan instructs local officials to "monitor news media reports and public inquiries to identify emerging issues, rumors, and misperceptions and respond accordingly."

In a tutorial on covering avian flu by Robert Bazell, NBC News chief health and science correspondent, published in RTNDA's Communicator magazine, there is a warning about reporters unnecessarily dramatizing the situation.

Regarding wearing a medical mask during an on-camera report, he cautions: "...remember: you are also on television so you will be setting a powerful message to the community. If you honestly think you need to wear a mask while you are outside, do so, but if you do it for drama you will be panicking people for no reason."

Bazell's article conveys a lot of valuable advice, including a suggestion that the entire HHS Pandemic Flu Plan be a must for journalists. HHS will have a booth on the RTNDA exhibit floor in the Las Vegas during the organization's convention, which runs concurrently with NAB2006. HHS has encouraged broadcasters to pick up a copy of the plan and to discuss issues with its representatives.



According to an NAB survey, an estimated total of more than 800 TV stations and over 6,000 radio stations have a written disaster recovery plan, representing a 50-percent increase since 2003.

During a flu pandemic, "the way that the government is going to report important, life-saving messages to the public is going to be through the news media," Cochran said. RTNDA has held 10 news and terrorism training programs around the country, and it was designed to bring news people and public officials together to have a dialogue.

Another industry group working on such planning is the Media Security and Reliability Council, that includes broadcast groups, networks, trade associations and equipment vendors.

Fred Young, senior vice president of new for Hearst Argyle and chairman of the MSRC steering committee, echoed Cochran's observation about the mouting interest through 9/11, Katrina and now, a potential flu pandemic.

He said MSRC is not down to the nuts and bolts of operating in a pandemic. "Going back to the MSRC model, it never had the word 'quarantine' in it, but it's easy to add it."

Young pointed out that there is already industry experience in moving station operations out of a disaster area. Hearst Argyle and other groups did that very thing when Katrina wiped out their facilities in the New Orleans area.

RTNDA's April edition of Communicator contains an article by former CBS News correspondent Deborah Potter on newsrooms preparing for disaster coverage.

Potter's article covers issues such as stocking emergency supplies, crash kits for news vehicles, having phone numbers for all the people that might be needed as contacts in the emergency, including in-house, police, fire, EMS, and government numbers, staff lists, etc.

No one yet knows if the avian flu, presently passing the disease from birds to a very few humans, will evolve into pandemic influenza.

Nevertheless, broadcasters need to be ready. ■

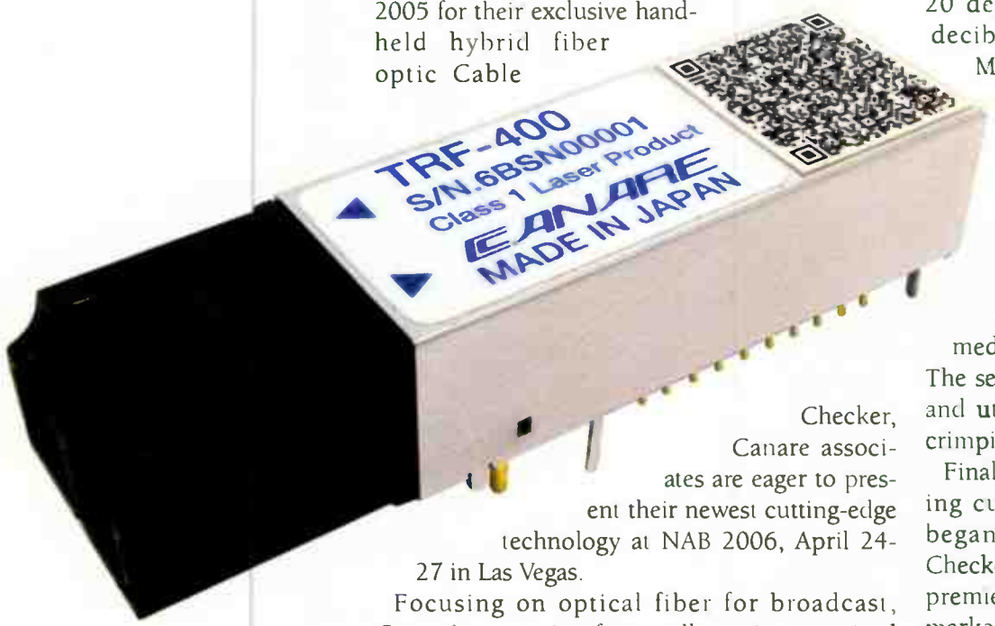
Profiles in Excellence

Special Advertising Section

TV TECHNOLOGY

Canare Corp: Tomorrow's Cutting-Edge, Today

Canare Corporation of America, manufacturer of award-winning products for the broadcast and audio-video industry, continues its decades-old tradition of quality and progress in 2006. Following the receipt of three prestigious industry awards at NAB 2005 for their exclusive handheld hybrid fiber optic Cable Checker, Canare associates are eager to present their newest cutting-edge technology at NAB 2006, April 24-27 in Las Vegas.



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Canare is also launching two different Mux/Demux systems for fiber optics. The 081U-CW2 offers two FCWDM-8 Mux/Demux units installed in 1RU single-rack space box. The 161U-CW provides 16 optical wavelengths in a single-rack space mounting box. Both units allow bi-directionality in 1RU and are easy to use. These cost-effective systems boast less than three-and-a-half decibels insertion loss, more than 30 decibels isolation and at least 45 decibels return loss.

Additionally, newly designed mid-size dual video jacks highlight better isolation and lower return loss than ever before. The MDVJ-ST Series jacks are available in normal or straight-through shielded circuits. These jacks have 75 ohm nominal impedance, more than 20 decibels return loss and more than 30 decibels isolation to three gigahertz. The MDVJ-ST Series jacks will be showing at NAB 2006 and will be available in Summer 2006.

Canare didn't stop there. A line of low-cost BNC plugs is now available. The BCP-PC Series BNC connectors tout the distinctive longer body and 75 ohm impedance that installers, camera crews, studios and other broadcast and media professionals count on from Canare. The series fits the most popular industry cables and utilizes Canare's top-quality stripping and crimping tools for convenience and ease.

Finally, Canare continues its history of bringing cutting-edge products to the market. It began with the StarQuad, then the Cable Checker. Now Canare introduces another world premier product– Rio. Designed for the OEM market, Rio (TRF-400) is the first SFF optical transceiver. Built of fiber-reinforced plastic, this optical interface module is not only durable, it's light-weight. The module incorporates specifications that make it applicable for HD/SDI, HDV, AES digital audio and data communication up to 1.5 gigabits per second rate. Rio is SMPTE 292M compatible and sure to revolutionize optical communications for cameras, CCUs, control surfaces and more.

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Asked why he selected BureauCam, Chris Bellerjeau, Director of Multimedia Services at Columbia University's Graduate School of Business said, "We looked at several systems, but they were all component based. We were very impressed with the new BureauCam because space is a major problem for us. BureauCam is a comprehensive package, compact, self-contained, and simple to use. All the phone lines and everything are built-in. Just plug it in and away you go."

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NAB Booth #C4815

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The DTV product line provides the user with an array of interfaces including: DVB-ASI, SMPTE-310, Ethernet, and T1/E1. The digital modulation utilizes Reed Solomon and Trellis coded error correction scheme, to provide an unparalled error free performance. User flexibility allows the bandwidth modulation scheme (4-256 QAM), and the data rate to be varied by the broadcaster. (20-155Mbs.)

The applications for DTV-Link provide multiple SD or HD video channels over a single RF link. The DTV-Link is available in a range of RF frequencies from 2 GHz – 13 GHz.

Nextel 2GHz relocation requirements can be fulfilled with the Event-HD series, which was developed for broadcasters, with their changing RF bandwidth needs. The Nextel requirement is forcing some channels to 12MHz and others to maintain 17MHz. In the future the FCC can change these bandwidths. The key features of the Event-HD are the fast acquisition and locking mechanism for ENG requirements and overhead channels available to provide GPS information back to the central receive system with less then 3ms delay.

The changing technology in video compression, as seen in MPEG2 (est. delay 3-20 frames), MPEG4 (est. delay 100-100 frames), JPEG2000 (est. delay 1 frame), require flexibility of high data rates.

Moseley teamed with Gyron and HD Wireless to provide live HD video from a helicopter to ground at NAB HD 2005 providing high-resolution pictures at 45Mbps. This demonstration will be shown again at NAB HD 2006. (C11539)

The DV-Mux allows broadcasters to use the Telco network with leased DS3 line, which can provide DVB-ASI, SMPTE-310, Ethernet, and T1/E1.

The application for the DV-Mux was used by a Fox station in New York, which fed SMPTE-310 and 19Mbs of DVB-ASI through a leased DS3 line from their local telephone company. This is how the station was able to get out of crowded New York without the ability of Microwave radios.

Mr. Moseley currently retired, was the first to develop a wireless audio link between studio and transmitter broadcasters for their listeners. In upholding this legacy, the DTV continues to provide premium digital products, for the broadcasting industry.

The Moseley wireless group comprises Moseley Broadcast, Microwave Data Systems, Axxcelera and Carriercomm. With offices and manufacturing in Santa Barbara, San Diego, San Jose, CA, Rochester, NY, Richmond, VA, China, United Kingdom, and Brazil.■

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2 GHz Solutions

As the U.S. television industry starts moving to the new 2 GHz BAS channel plans, Nucomm is ready with a compelling range of product solutions. From tripod and van-mount systems to the latest in central receivers, antennas, controllers, and fixed link radios, Nucomm offers a full range of innovative solutions:

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2 GHz Capacity

Now, when U.S. television broadcasters are scrambling to react to the new 2 GHz BAS channel plan, Nucomm is ready with the industry's best set of solutions.

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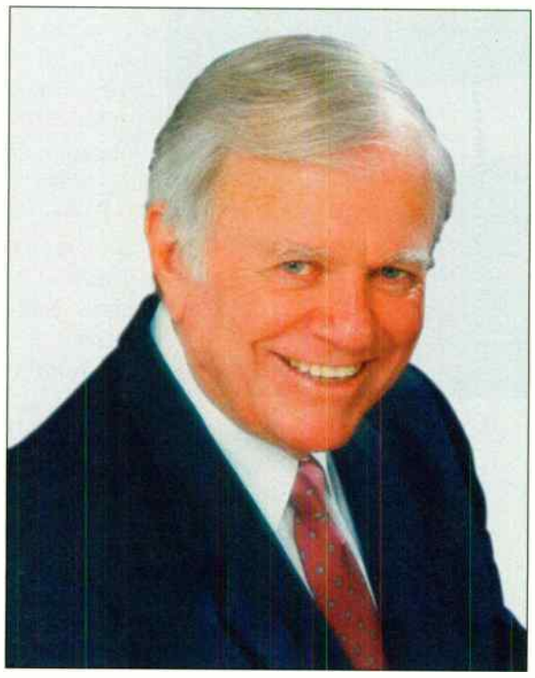
NAB Booth #C320

ProMax Systems: The Evolution of Reliability

Founded in 1994 by Charles McConathy, ProMax Systems, Inc. has become the recognized leader in custom configured, reliable high performance video editing and storage systems. ProMax provides a complete line of configuration, installation, and support services for the video industry. They have gained the experience that has earned the confidence and trust of their clients through top-notch service and putting the customer first.



ProMax started with the goal of providing storage solutions aimed at the video industry to fill a frustrating gap that many early digital video systems adopters were encountering – the lack of a reliable, stable storage solution. ProMax has since developed a number of innovative and award-winning products, such as the TurboMax host bus adapter that was the first product to facilitate the use of less expensive non-SCSI hard drives capable of reliably storing video.

ProMax has evolved through the years. Building relationships and working closely with some of the major manufacturers in the video hardware and software business, ProMax parlayed its expertise in the storage for video business into providing complete, custom configured video editing solutions along with their renowned storage products. Fast-forward to NAB 2006 and ProMax unveils a complete, end-to-end post-production workflow solution called V-SAN.

What is V-SAN?

V-SAN is the complete solution for postproduction. V-SAN offers ingest to play-out capabilities and everything in between. And with all media – video clips, photos, graphics, etc. - shared on a centralized, fully searchable storage network, it allows you to work faster and more efficiently than ever before imagined. And with ProMax's complete array of support options, reliability and stability of the V-SAN system are an afterthought.

V-SAN can incorporate everything you need in a complete postproduction workflow, including ingest, editing, compositing, 3D, closed captioning, encoding, DVD authoring, audio, digital asset management, play-out, and data back-up and archiving.

Every workstation can be dedicated, or specific capabilities can be logically combined on a single workstation depending on the needs of the individual facility and budget. This also allows for ultimate flexibility and scalability – the V-SAN can start small and grow with the user's needs. A few workstations and a single shared storage module can get users started, yet still allow for the ability to add to both the workstation capabilities or increase the storage as needed. In most cases, it is also possible to incorporate existing editing and outboard gear right into the V-SAN.

ProMax and NAB

ProMax began exhibiting at NAB in 1995, and has been a regular exhibitor at the NAB Conference every year since. They also began the Digital Café in that same year, and are proud to announce they will again be hosting the Charles McConathy Digital Café. In its 11th year, the event will feature presentations from major manufacturers including Avid, Apple, AJA Video, Sony, and Adobe, who will showcase their latest innovations and technologies.

The Charles McConathy Digital Café will take place on Tuesday evening, April 25th, 2006, at the Stardust Hotel and Convention Center in Las Vegas, NV. Registration will begin at 5:30PM and the presentations will begin at 6:30PM, after the NAB show floor closes.■

V-SAN

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NAB Booth #SL534

Integrated Production Control Technology

In today's broadcast industry, the pressure to produce more with less has never been greater. More productions, more frequently, with fewer crew resources and tight budgets create significant challenges in maintaining profitability.

In a recent RTNDA/Ball State University survey only 44.5% of television facilities reported a profit in 2005, down from 58.4% in 2004. With only 44.2% of TV news budgets increasing for 2005, many facilities could face significant financial challenges in the years ahead.

In such a competitive environment, what can you do? How can a facility return to profitability without cutting local programming? Many forward-looking broadcasters are turning to the OverDrive Integrated Production Control System from Ross. OverDrive, winner of the 2005 SBE award for Innovative Technology, is the most advanced production control system in the market designed to improve efficiencies, streamline workflows and reduce production costs.

Live Production Control has often been confused with facility automation, however there is one significant difference; modern systems like OverDrive can easily and instantly change complex live production elements at any time, even seconds before taking the shot to air. Also, a MOS protocol LiveLink to the newsroom system allows for complete synchronization between rundowns at all times.

Live production control systems offer another key advantage. They allow for operator intervention, or control, at a level that suits the facility's unique requirements, from traditional manual productions, to semi-automated or 'production-assist', to full system control of all devices and shot elements. In OverDrive, this capability is available at any time, allowing for maximum production and staffing flexibility.

In production control environments, the management and control of on-air devices such as the switcher, video servers, mixer, robotic cameras, and CG is centralized in one GUI and operated by a TD/Director position. Well-designed systems allow the facility to choose these devices from a wide selection of vendors to best suit their requirements.

Interest and adoption of production control technology is accelerating rapidly. Across the industry, the following key benefits are stated as the primary reasons for adopting production control:

Operational and workflow efficiencies: Higher consistency and repeatability in productions resulting in lower costs and fewer on-air mistakes

Additional production capabilities: A cost-effective solution to increasing production capabilities such as cut-ins, a new morning show or coverage during the weekend

Cleanly manage unscripted events: A powerful tool for managing late-breaking, unscripted and 'on-the-fly' events cleanly without compromising the 'look' of the production

Leverage new technology: Powerful integration of video server, swicher/DVE and graphics technology

One of the key decision points when considering new technology is ROI, or the return on investment. A well-equipped OverDrive system will typically create a positive return in 18 to 36 months, driven by savings in crew resources and increases in production efficiency.

Clearly, Production Control technology should be at the top of the list when considering methods to improve production efficiencies and increase the bottom line of the organization.■

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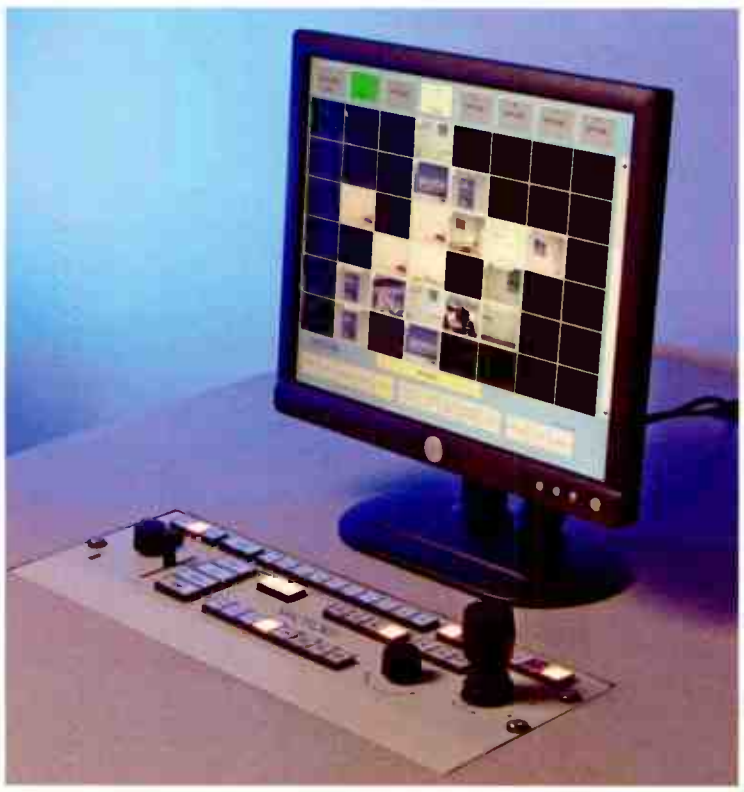
NAB Booth #SU1356

Rapid Expansion at Shotoku Broadcast Systems

Expansion is the central theme at Shotoku Broadcast Systems these days. Not only has the well-established leader in the camera support arena broadened its global presence with a UK-based operation, larger US headquarters, and increased staff, the company has widened its appeal with an innovative robotic camera range.

New Technology, Not a New Name



An acknowledged industry innovator in Japan, Shotoku was established in 1941 as an engineering design firm and has been developing television pedestal and cam head technologies since 1953. The international company entered the US market in 2000 with Naoki Ebimoto at the helm. It recently upgraded to a state-of-the-art facility conveniently located in Torrance, CA. In 2005, Shotoku Ltd. was established in Staines, England under the direction of industry visionary Mike Wolfe to drive its new robotics business as well as introduce Shotoku products to European broadcasters.

Award-winning and Record-breaking Manual Camera Support

The company's manual products range from professional outside broadcast, EFP and HD tripods, to multi-stage pedestals, fluid heads with full pan/tilt capabilities, to a complete line of virtual reality equipment including sensors, serial interfaces, fluid heads and pedestals.

Shotoku's TP-90, a compact 3-Stage, minimum height pedestal with a record-breaking column stroke reach of 37.2 in. (94.5cm), will premiere at NAB 2006. Building on the success of the award-winning TP-80 pneumatic pedestal, the new pedestal is designed to accommodate a wide range of cameras configurations with a payload of 132 lbs. (60kg.) and incorporates several advanced safety features.

Shotoku's tradition of excellence, dedication and innovation is evident in CrescentM, the new mid-size fluid head capable of mounting a wide range of small to large size cameras. The lightweight CrescentM has the same smoothness of its namesake, Crescent, and utilizes its same balancing technology that allows the operator to easily achieve perfect balance. The unique technology and mechanism make the head's balancing range the widest in the industry and provide for extremely light movement.

Intelligently Designed Robotics

Shotoku entered the robotic camera market at NAB 2005 with an intelligently engineered range designed to accommodate a broad cross-section of new and existing robotic customers. The line of robotic pan/tilt heads and control panels - which is compatible with other manufacturers robotic counterparts - includes a complement of pan/tilt heads designed for a wide variety of applications, including legislatures/parliaments, sports arenas and all studio environments such as news, talk shows, and virtual reality sets. The range also includes control panels with numerous unique features that are capable of interfacing with other manufacturers heads.

Commemorating its first full year in the market, the range returns to NAB as a major player. Several new pan/tilt heads, a robotic height control pedestal, and a control system will debut. Like all Shotoku heads, the new units – the heavy duty TG-19 and variants of the popular TG-17, are singularly capable of manual control, the ability to 'learn' the movements of its operator, and high-resolution intelligent optical encoders for virtual reality outputs. Ideal for legislatures, the TG-17 now includes drive electronics and those for lens functions integrated into the head itself as standard requiring fewer boxes and less cables.

Rounding out Shotoku's newest offerings are the i-Height pedestal that allows a wide variety of shooting angles to be achieved from a single camera position, and the TR-8B Robotic Control System to address the demand for a full featured, but simple to operate control system. The TR-8B allows quick and easy positioning of all robotic functions (including height functions) with Shotoku's unique combination of SWOOP mode, auto on-air and automation interfaces.■

SHOTOKU
BROADCAST SYSTEMS

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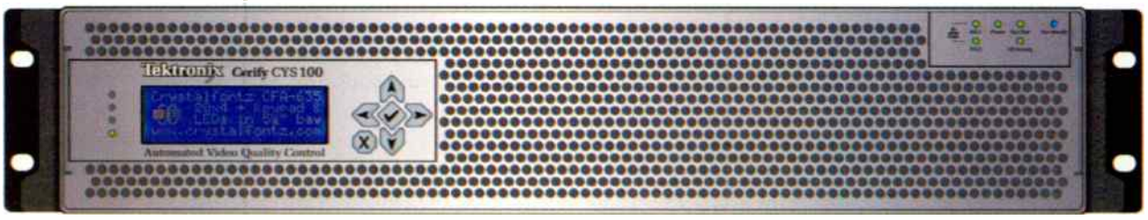
NAB Booth #C7336

Tektronix: Innovation Never Rests

Tektronix is a global company with operations, manufacturing sites, development centers, service centers and distributors strategically located worldwide to support our global customer base.

Enabling the worldwide transition to DTV and HD broadcast and transmission will continue to be a Tektronix focus for many years. We remain committed to developing practical solutions to real problems using the same innovative approach the industry has come to expect from Tektronix after more than 55 years.



In this era of digital convergence, Tektronix will leverage our expertise and deep domain knowledge in video, mobile network monitoring and network diagnostics in support of content delivery to customers anywhere, at anytime.

We recognize that market demand is driving new technology adaptation at lightning speed. Tektronix is dedicated to ensuring our customers' business success. A touchstone sentiment for success for Tektronix and for our customers: Innovation Never Rests...

Next Generation Waveform Monitors

The new WFM6100, WFM7000 and WFM7100 are next generation waveform monitors that offer industry-leading performance, reliability and flexibility to help video professionals produce and deliver high quality video and audio content for mixed-format systems in the emerging digital era.

These new products offer customers the widest range of product configurations and upgrades, and industry-first capabilities that enable the seamless migration from composite video configurations to complete HD/SD/composite solutions. This is the industry's first waveform monitor that is field upgradeable from Analog to SD to HD and will enable our customers to bridge the technology gap as they make the DTV transition at a pace suitable to their business.

Automated Content QC

Cerify, the industry's first automated file based video / audio Content Verification solution will be shown as an integral component of Tektronix' Content Delivery solutions. Cerify provides a highly reliable method to verify the content of your digital media to ensure it meets your quality expectations prior to distribution or transmission.

Tektronix NAB Highlights

Tektronix will highlight at NAB this year a number of major innovations for our customers.

In addition to providing an opportunity for hands on demonstration with the newly introduced next generation waveform monitor family of products and file based Content Verification, Tektronix will also showcase integrated solutions for IPTV test and measurement and **next generation compression** analysis.

With innovative See and Solve™ capabilities, Tektronix helps operators and technicians quickly identify, diagnose and resolve errors which could otherwise negatively impact QoS and increase downtime. Visitors to the booth will be able to see demonstrations of pioneering capabilities including:

- CaptureVU™ - automated trigger, capture and analyze capability
- Dolby™ Digital, Dolby™ E monitoring and analysis including an intuitive Surround Sound Display
- Multi-Layer monitoring management software that integrates Tektronix video, audio and MPEG monitoring solutions
- Intuitive GAMUT displays to support broadcast color space compliance verification

We will have solutions on display for these applications / industries:

- Content Creation & Post Production
- Content Delivery
- R & D / Equipment Manufacturing
- Infrastructure Deployment, Diagnosis and Maintenance ■

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Enabling Innovation

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NAB Booth #SU4141

TV One: Video Solutions for the Next Millennium

Combine entrepreneurship with a strong broadcast engineering background, add a dash of visionary traits and finish it off with a no nonsense approach to market expansion and you get the essence of TV One. This Kentucky based, privately held company staked out territory in the High Definition Television broadcast industry a few years ago and hasn't looked back.

David Barnes, President and CEO, founded the company in 1991. It is located in Erlanger, Kentucky, which neighbors the Greater Cincinnati International Airport. Initially the company concentrated on format conversion products, but shortly after the millennium, the emergence of HDTV caused a redirection – a back-to-the-future return to the founder's broadcast roots.

Since then, the company's main focus has been on purpose built, leading edge devices intended to smooth the path for a broadcaster's transition from analog to digital formats and from standard to high definition broadcasting. Aside from the three offices within the U.S., TV One also has offices in the United Kingdom, Taiwan, China and will soon open an office in Argentina. TV One's product research and development is conducted at all locations worldwide and not solely stateside.

Since the beginning, the company has employed top flight engineering and marketing talent which has yielded superb products like the C2 range of Video Processors powered by TV One's proprietary CORIO2 conversion technology. These products – brilliantly conceived, continually improved and exceptionally well executed – have won numerous awards since making their initial appearance at NAB several years ago.

According to a company spokesman, the new C2-7300 to debut at NAB 2006 is more revolutionary than evolutionary with two channels of "do anything" video processing capability plus multi-channel AES audio that is virtually delay free – no matter what special effects or conversion routines you employ – and a unique switcher-like interface that features intuitive, fast set-up and control.

Standalone HD-SDI and SDI devices are also a key part of the TV One mix. These products are aimed at those users that need to accomplish a specific goal in the analog-to-digital or digital-to-analog universe. Easily competing with far more expensive alternatives, these products are quickly setup, stable and feature laden.

Bottom line, TV One has both the all-purpose and purpose-driven market place defined and addressed. Yet, Barnes claims the best is yet to come. Based on the quality of the products, vision of the employees and TV One's track record, one shouldn't bet against his claim. ■

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NAB Booth #C347

Videssence: Guiding Light of the Last Quarter Century

Videssence is the originator of energy efficient fluorescent lighting for television, studio, ENG, and corporate video conferencing. They offer a variety of fixed and portable lighting products and kits which provide: high level artistic performance; reduce energy consumption; lower heat levels for talent comfort; and long lamp life. Before introducing their new innovative fluorescent products in 1981, the industry typically used high wattage incandescent fixtures that produce tremendous amounts of heat.

Fluorescent Fixtures & Systems for Studio, Broadcast & Video

Videssence offers the largest variety of fluorescent studio fixtures on the market. Numerous models are available for all lighting design needs from Key, Fill, and Back Lighting to beautiful, evenly lit Chromakey areas. Fixtures may be ordered in dimming or non-dimming versions and numerous accessories provide control of intensity and beam angles.

One of the most versatile families of fixtures is the *POWER KEY*. These patented fixtures are the only fluorescent, adjustable beam fixtures in the world. They provide concentrated even coverage and a beam adjustment from 60° to 90°. Two new models will debut at NAB 2006.

Additionally, Videssence offers several *"Lighting System Packages"* to take the guesswork out of lighting design. Packages cover everything from a (1) to (4) Person Broadcast/Interview Desk to Chromakey Walls and more.

Fluorescent Lighting Kits

Videssence has (10) diverse, fluorescent lighting Kits available. They range from high light output fixtures & accessories in heavy-duty flight cases to extremely compact ENG or OB kits that weigh less than 35 lbs. and only require 2.5 amps to operate. All kits are provided with stands, lamps, and case. Many have accessories and additional lamps.

The most exciting kits right now are the *BABY BASEKIT* and the new *SHOOTER KIT*. The *BABY BASEKIT* provides three powerful little guys that only use 84 watts each and compete with 300-watt incandescent fixtures. The new *SHOOTER KIT* is competitively priced and retails for only $1200. This miniature, lightweight kit features two small fluorescent *SHOOTER* Series fixtures with one mini halogen *SHADOWCASTER* for artistic design. Fully loaded, this 30-pound kit is easy to handle on the go.

Corporate Video Conference – Distance Learning

Corporate broadcasting for Video Conference and Distance Learning spaces are becoming very common, and recessed fixtures with their architectural design are much more desirable. Videssence offers three different styles of our "Soft" line of products that provide a broadcast quality image without the "studio look". The *SOFTLITE, SOFTKEY and SOFTWASH* fixtures may be ordered for Drywall or T-Bar ceilings and are also available for surface mount installations.

Today, 24 years later, companies all over the world have jumped on the "fluorescent" bandwagon and produce broadcast fixtures similar to some basic Videssence models. However, Videssence will never be satisfied to sit still, or follow the pack. They will always take full advantage of new technology to engineer quality products that the industry has come to recognize and expect. This keeps Videssence one step ahead and still moving forward.■

Videssence

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NAB Booth #C7116

Exciting New Products from Vinten at NAB 06

The Vinten Radamec Fusion Range unveiled at NAB

NAB will see an exciting new range from the worlds leading robotic manufacturers.

Fusion FP145 Pedestal

Comprising a controller, head and pedestal this system is set to take robotics to an expanding user base.

For NAB 2006, Vinten Radamec will introduce the **Fusion Controller** — a single underlying control system, which can be used with the current user interfaces, enabling operation of all current Radamec and Autocam products together with the new Fusion range pan and tilt head and pedestal.

By providing this control solution Vinten Radamec have developed an upgrade path that is compatible with current products, but which also pays attention to future product developments.

The new Fusion range comprises the FH100 head and FP145 pedestal. The FH100 head has been designed for use as a standalone device or for seamless integration with the new FP145 pedestal. The straightforward robust mechanical design and leading edge electronics development provide the perfect combination for a high performance head, both in flexibility and accuracy.

The FP145 pedestal has a maximum payload of 65Kg and can therefore support the new head together with today's portable cameras, lenses and prompters. The pedestal has been designed in two formats, firstly as a fully robotic pedestal with full manual capability, alternatively as a full manually operated pedestal with an integrated height drive, which can then if desired by upgraded to a fully robotic version.

Introducing the latest addition to the Vinten range of professional pedestals - the New **Vision Ped Plus**, ideal for today's lightweight production techniques. The Vision Ped Plus is the natural successor to the highly popular Vision Pedestal. With an impressive line up of new and improved features, such as perfect camera balance developed from the award winning Osprey range of pedestals, plus an increased payload of 30kg. The Vision Ped Plus is the ideal solution for all-small production studios and corporate, educational, religious and government applications where simplicity of operation, portability and reliability is key.

The hugely successful award winning Quattro pedestal has had a make over and re-named the **Quattro L**, this now includes a whole host of new and exciting features. The Quattro L is a unique and innovative four-stage pedestal with an extensive range of benefits for today's camera operator and is available in both studio and OB versions. These new features also appear on the Quattro SL (small based pedestal) with the addition of, single point actuator cable guard and an improved break operating profile. The Quattro SE also has similar features with the addition of positional encoders.

Vinten have teamed up with industry leaders Autoscript to bring you two portable production solutions that are conveniently packaged, reliable, fast to set-up and so simple to use. Both systems utilize the purpose designed **Vinten Vision iScript pan and tilt head**. They also include a pre-set counterbalance system tailored for the prompter system, so no more counterweights and wasted setup time. In addition, both systems are offered with the **Autoscript GoPrompt 12** solution, offering a newly designed "speed mount" hood/bracket, which simply slips into the head platform and is simply and securely locked off. The new **Vision iScript Studio** system is the ideal solution for studio situations, comprising the newly released Vision Ped Plus, iScript head and GoPrompt 12. The new **Vision iScript ENG** comprises a 2-stage Pozi-Loc Aluminum tripod, lightweight ground spreader, iScript head and GoPrompt 12 and all neatly packaged into a very robust lightweight flight case. The new Vision iScript ENG system is the most convenient all-in-one location production system you'll ever need.■

Vision iScript ENG System

Vinten

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Valley Cottage, NY 10989 USA

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www.vinten.com

NAB Booth #C5119C

Wolf Coach: 30 Years and Still the New Kid on the Block

Three decades ago, the National Association of Broadcasters held its last convention in Washington, D.C. The event had outgrown the available exhibit space, turning a parking garage into an extension of the show floor. It was there that Wolf Coach introduced one of its first ENG vans. Wolf Coach has been the only company to exhibit at every NAB since, and it will continue to build on that legacy at NAB2006 in Las Vegas.

Entering its fourth year as part of L-3 Communications, Wolf Coach is more committed than ever to introducing new products, new technologies, and new and expanded facilities for integration and customer support.

Two years ago, Wolf Coach introduced its award-winning Sprinter vehicle. The stand-up headroom and smaller footprint provided an exciting alternative for situations where more than a van was called for. This year the company is going a step further and a step smaller, keeping the same headroom and electronic rack space. This will be the introduction to the Mini-Sprinter.

Two feet shorter in length, while offering industry leading rack space and 9,900 GVW with a turnkey weight of 7,400 pounds, the Mini-Sprinter has gone through an extensive weight-saving exercise and can now offer an integrated unit with space for 2,000 pounds of packed equipment. The balance of staying within the manufacturers requirements for overall GVW and growing the compliment of carried gear and people has a new and stronger solution.

The Wolf Pac has been a long-standing alternative for SUV based work. Over the last two years, drawing on experience across several markets, Wolf Coach re-designed the interior to offer forward-facing operator positions, building a fleet of 20 for a program in Washington, D.C. CBTV is utilizing the company's design for the new Revolution series: a self-contained, dual-stream, dual-thread satellite earthstation, built on a four-wheel drive SUV platform.

Emission standards have put a greater strain on generator manufacturers in recent years. Wolf Coach has placed a more concentrated focus on this issue and will showcase two alternative power sources, both engine driven. One example of the company's innovation in addressing alternative power sourcing is the Sprinter built for WESH (TV) of Orlando, Fla. Wolf Coach installed both a separate diesel generator and an engine-driven system, which will be further evaluated over the next few months.

One of the capabilities Wolf Coach can draw upon as one of the companies partnering with L-3 Communications is the national reach of its other divisions. This spring Wolf Coach will open a southeast service facility in Melbourne, Fla. as part of the L-3 Titan group facility. With the increased resources, Wolf Coach will bring the experience of the company's long-standing success to the next level. ■

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TECHNOLOGY CORNER — Randy Hoffner

What's New In Advanced Displays?

The technology of advanced displays is arguably one of the fastest-moving industries in recent years, and the advances just keep coming.

Any review of the recent 2006 Consumer Electronics Show will certainly confirm that. It is also true that the availability of advanced displays at prices that consumers are willing to pay has given a tremendous push to the success of HDTV in the marketplace. Let's have a look at some of the more interesting display developments that were shown at CES last January.

SIZE MATTERS

Inevitably some of these developments had to do with size. While last year's show featured a 102-inch plasma display, that feat was literally one-upped this year with a 103-inch plasma display panel, which was, into the bargain, a 1080p display. While there appear to be plans to commercialize this product, its price tag will doubtless not be for the faint hearted.

There was other news about PDP displays this year. As recently as a year ago, industry mavens were predicting that the PDP's days as a reigning display technology were numbered, sure to be supplanted by advances in LCDs and other technologies.

Panasonic introduced its 103-inch plasma display at CES 2006 in January.

It appears that plasma is making a genuine comeback, thanks to some innovations. Although the larger plasma panels achieved HDTV resolution, the capabilities of the smaller panels were limited by the achievable physical size of a plasma cell or pixel.

The size of a pixel places a limit on how many pixels can be fit into a given width or height, and the smaller plasma panels simply could not accommodate enough pixels to put them in the HD resolution category.

Those size limitations are being overcome, and manufacturers appear to be well on their way to providing full 1920x1080 resolution in screen sizes as small as 50, and possibly even 42 inches.

We have previously heard of surface-conduction electron-emitter display, or SED, which uses something akin to a pixel-sized CRT cell. These displays were seen in the autumn of 2005 in Japan, but CES afforded many first looks. They are reported to feature high contrast ratios and good gray scale rendition, black levels, and color saturation.

LED BACKLIGHTING

The big story in LCDs this year was LED backlighting to replace the conventional cold cathode fluorescent (CCFL) backlights. LEDs offer purer primary colors than do the fluorescent lamps, and can therefore offer a larger color gamut and higher saturation capabilities.

Manufacturers of these displays claim a color gamut larger than the original NTSC specification. Additionally, LED backlights are said to have a longer life than fluorescent backlights. Other LED advances includ very high brightness levels using advanced heat management, leading to the development of some very bright LCD rear-projection displays.

An approach to expanding the color gamut of cold cathode fluorescent-lit LCDs appears to borrow from the high-end inkjet printer field: the addition of colors beyond the red, green, and blue primaries, through the use of new CCFL phosphors.

One manufacturer, for example, added a crimson phosphor to make a four-color display, and the same manufacturer also showed a five-color display that had an additional deep green phosphor.

A similar approach has been used in some recent photographic quality inkjet printers to increase the color gamut capabilities of these devices. These printers are at heart CMYK (cyan, magenta, yellow, black) devices, and those in the field will attest that the color gamut achievable with CMYK inks on paper is somewhat limited.

Photographic printer manufacturers have in the past overcome some of these problems by adding colors, for example, light magenta and light cyan, in addition to the conventional magenta and cyan inks, and "light blacks" (most of us would call them grays), in addition to black. Recently, some printers have also added blue and red inks to further stretch to inherent CMYK color gamut.

The big story in LCDs this year was LED backlighting to replace the conventional cold cathode fluorescent (CCFL) backlights.

Another interesting development on the LCD front is of special interest to those who are fond of video games, as well as those who watch video.

This is the development of very fast LCD switching. Gamers have typically eschewed LCD displays in favor of CRTs because of the need for speed.

One display seen at CES featured 2 millisecond switching, and there was also a prototype with 1 millisecond switching. These are impressive developments, as, besides the above, the fastest LCDs were switching at 8 or 4 milliseconds.

In video, it has been held that if the display pixels can switch faster than the display's progressive frame rate, (about 16.7 milliseconds for a 60 frame-per-second refresh rate, progressively scanned), this is adequately fast for such video, but in the video gaming world, there is no such thing as too fast, only too slow.

These are some of the high points of advanced display technology as we move into 2006.

Randy Hoffner is a veteran TV engineer who recently relocated to sunny California from New York.

RF TECHNOLOGY

Doug Lung

What to Expect at NAB2006 for RF

NAB2006 this year should be interesting as manufacturers deal with an anticipated drop in demand for high-power TV equipment after the last maximization deadline passes in July and stations wait for the announced end of analog TV transmission in February 2009.

TRANSMITTERS

Improvements in TV transmitters at NAB last year were more evolutionary than revolutionary.

At this year's NAB, I expect to see less booth space devoted to high-power TV transmitters for the U.S. TV market and more space devoted to transmitters for other markets, including DVB-H and other multimedia-to-cell phone transmission equipment.

Thales is moving from its usual location in the Central Hall to the South Hall where it hopes to be able to attract more attention for its multimedia products and digital processing/distribution/ monitoring equipment.

Thales is providing transmitters to Crown Castle and Qaulcomm for DVB-H and MediaFLO networks. I expect them to focus on this side of the business. However, on the high-power side, Thales has been showing prototypes of a new ATSC exciter system at past NAB shows and I hope to see a production version this year.

I'm sure Harris will have some high-power transmitters sitting around its large booth in the Central Hall, but as with Thales, I expect Harris to focus more on medium power transmitters for DVB-H and other multimedia-to-cell phone technologies.

I expect to see less booth space devoted to high-power TV transmitters for the U.S. TV market and more space devoted to transmitters for other markets.

Acrodyne Industries' main products are high-power UHF transmitters but it will be interesting to see if they too see the need to expand into the medium-power multimedia transmitter area.

Axcera was demonstrating high- and low-power distributed transmission system solutions before ATSC adopted the DTS standard. Will other companies join them in showing DTS equipment at NAB2006?

As we near the sunset of analog TV, many broadcasters will want to improve their DTV coverage. Due to FCC build-out requirements, most stations will have to build out their maximized facilities this coming July.

I wouldn't be surprised to see a

EXPECT, PAGE 70

(L to R) Rich Schwartz of Axcera explains the Visionary DTV transmitter to Randy Mullins and Skip Stow of Tyler Media at NAB2005.

Photo: Steve Jordan

NET SOUP | Frank Beacham

Being Digitally Relevant In a Vast Wasteland

Back in 1849, Henry David Thoreau astutely addressed the issue of content on information delivery systems. "We are in great haste to construct a magnetic telegraph from Maine to Texas," he wrote, "but Maine and Texas, it may be, have nothing important to communicate."

Fast forward more than a century and a half to the year 2006. The shift from analog to digital communications technology is all but complete. The much-anticipated new DTV, digital cable, satellite, telco fiber, and wireless digital services are reaching full deployment. With all this remarkable communications technology available to us, what comes next?

We've already been marketed to the point of becoming walking zombies. We've been "spun" into dizziness, and those "reality" shows no longer resemble much that's real. What now, with all this communications firepower at our disposal, do we have worth saying to one another?

OLD BUSINESS MODELS

Perhaps no entity should be pondering this question more than local terrestrial television stations. If he were alive today, Thoreau would no doubt have already been hired as a consultant by some station group in search of answers!

With the "DTV transition" now a light at the end of a very long, dark tunnel, one wonders if anyone will really care when analog TV is finally shut down in 2009. Empowered by the Internet, television programs—even the bad ones—are migrating to new platforms at a rapid-fire pace. It could be that Newton Minnow's "vast wasteland" will be no more than an empty desert by the end of the decade.

Even the most optimistic boosters in the broadcast ranks had to shudder at the words of Walt Disney Co. chief Robert Iger last month at a media investor conference in Florida. After telling the money people of ABC's plans to begin free downloads of its shows on the Internet (with network-sold spots attached), Iger failed to pay the traditional lip service to affiliate stations.

"You have to be willing to put traditional business models and relationships aside in order to reach consumers," Iger was quoted by Daily Variety. "We will no longer be slave to the old business models because consumers just don't care about them."

Those were strong words for a former network TV executive. But easier to understand after ABC's iPod experiment with Apple resulted in Iger's network selling more than 3 million downloads and grossing about $6 million in $1.99 increments in less than six months.

Perhaps one of the great remaining fantasizes of the digital television transition is that the traditional television network-affiliate relationship will remain unscathed. Outside of some diehard broadcasters, almost no one believes these ancient alliances will survive—though virtually no one will say so publicly.

NBC Universal's Robert Wright has danced with the issue for years at media conferences, and now Robert Iger, his competitor, is joining him. The writing is on the wall: the distribution of television programs is moving beyond traditional broadcast platforms and the old network-affiliate loyalties are beginning to disintegrate.

"We are in great haste to construct a magnetic telegraph from Maine to Texas, but Maine and Texas, it may be, have nothing important to communicate."

—Henry David Thoureau

That said, back to Thoreau's question. What does a broadcast station, or any media outlet (Web sites, included, for that matter), have that's important to communicate?

The answer is simple: stories. Compelling stories, well told, from a unique point of view. In the case of television stations, those stories are usually local.

WORTH WATCHING

Yet, repeatedly, our fascination with technology swamps the basic low-tech mission of storytelling. Over the years, I've collected some observations on this subject from some of the industry's most notable players.

Regardless of the "carrier pigeon," audiences are not going to turn on the new digital media services unless there is something worth watching, insisted Marcy Carsey, one of television's most successful producers. "Is all this stuff (technology) making for better shows, better movies, better music?" asked Carsey. "Lots of eyes have dropped lots of balls and those balls have to do with storytelling."

Another observer was Charles Dolan of Cablevision fame. The founder of Home Box Office in the 1970s, Dolan noted that for too long the media industry has ignored content, focusing instead on technology and competition between facilities-based providers. "What we do about content—each in his own area—will be the way the winners are selected," Dolan predicted.

That opinion was strongly echoed by the chief executive of one the nation's largest public television stations when he predicted to me that the winners and losers among local stations will be those who aggressively acquire the copyright to their own programs and other exclusive content.

He insisted on not being quoted by name in order not to frighten smaller station executives "who don't get it" and probably, he predicted, won't survive over the long run in the digital era.

I've observed his strategy at work over time as he shed unnecessary production facilities and increased original production, which his enterprise syndicates in other markets. His "content machine" has thrived as it moved beyond traditional broadcast to cable, satellite and the Internet. The strategy seems to have worked, extending the station's reach to a global audience.

As media outlets move beyond the era of "techno intoxication" that has defined the past two decades, each must define itself in terms of story and message. That's the basic currency of human communications. Without a story, we have little to say.

Rather than resist the vast changes ahead in distribution, traditional broadcasters should think like Thoreau and ask what they have to offer that's important enough to communicate in today's connected world.

Frank Beacham is a writer/producer in New York City.

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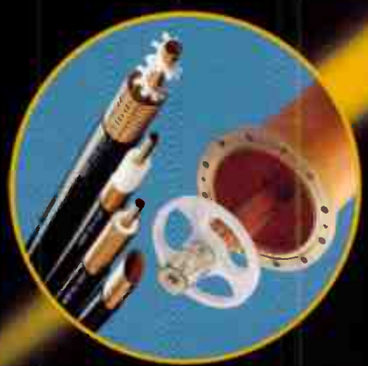

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transmitter company, perhaps one of the smaller ones, offering a CP saver transmitter that can be shipped soon after NAB to give procrastinators an opportunity to preserve their authorized DTV coverage area.

Once maximized facilities are completed, if over-the-air coverage is important the focus will shift to filling in areas with bad reception. This should lead to more interest in TV translators, boosters and, of course, distributed transmission.

LPTV and TV translator stations are just starting their transition to digital. The FCC recently allowed these stations to file applications to transition to DTV on-channel or, where possible, file for a second channel for DTV operation. This should be good news for companies like Larcan, which has introduced new digital LPTV and TV translator products at past shows.

ANTENNAS

With the July 2006 maximization deadline approaching, the market for high-power UHF TV antennas should diminish until stations start constructing new facilities in anticipation of the end of analog TV.

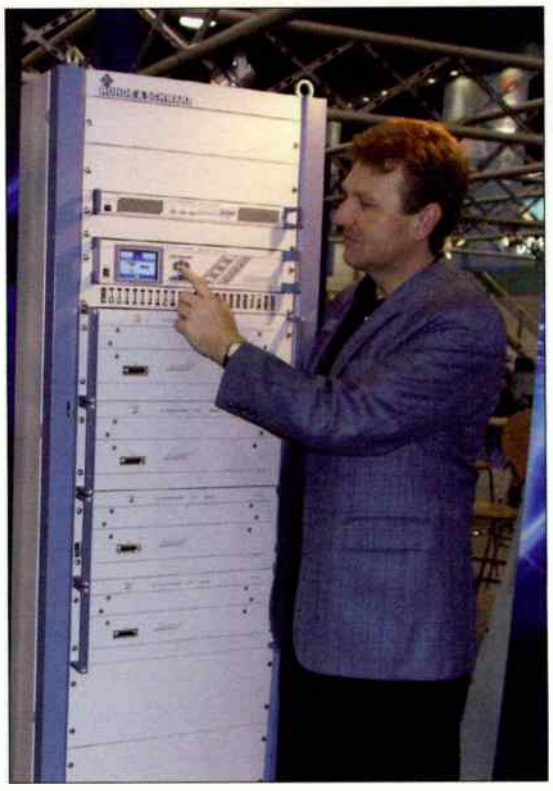
Recognizing this, antenna manufacturers are likely to be promoting new designs for the lower 700 MHz band, digital low-power stations and DTS more than for high-power operation. As with transmitters, I wonder if we'll see a CP saver antenna that can be delivered in time for stations to make the July 2006 deadline.

Distributed transmission systems demand antennas with carefully controlled azimuth and elevation patterns to avoid creating interference to other transmitters in the network. I will be looking for new antenna designs that may be useful for DT systems I'm planning.

(L to R) Jeff Lexa of Bird Electronics watches Martyn Horsepool of Harris check settings on an Atlas transmitter at NAB2005.

RF Technologies LLC is one company that has focused on developing antennas that require specialized elevation patterns with low downward radiation. Many markets have DTV stations on adjacent channels. To avoid interference with stations on adjacent channels, broadcasters wanting to use DTS will have to avoid RF hot spots around transmitters in populated areas.

I was impressed with the quantity and quality of reasonably priced RF test equipment at NAB last year. I expect the trend to continue this year.



Juergen Nies of Rohde & Schwarz demonstrates the company's NV8200 low-power transmitter, SV800 exciter and NetCCU control system at NAB2005.

Lack of 8-VSB demodulator chips that output detailed signal quality information is one thing that could hinder production of lower cost 8-VSB test gear. Software-based demodulators, such that developed by the GNURadio project, offer one solution. I'll be looking around the smaller booths to see if anyone has incorporated this software into an 8-VSB test instrument.

Last year, Pixelmetrix and others introduced products designed to make it easier to monitor DTV signals over a WAN or the Internet. I expect that trend to continue.

Along with the interest in transmitting video (and multimedia) to cell phone and handheld devices, I'm sure the major test equipment manufacturers will be featureing products designed for monitoring and testing DVB-H and similar transmission systems. These products may also be useful for DTS.

With the conversion of the 2 GHz band to narrower digital channels well underway, many broadcasters will be deciding what equipment to order and what add-ons to purchase.

In addition to equipment from the major broadcast microwave suppliers like BMS, MRCicrowave Radio and Nucomm, I'll be looking for new products from smaller companies to improve digital news gathering operations.

Some broadcasters have already begun providing HDTV video from the field and more are planning to add HDTV ENG capability.

Contribution- quality HDTV requires higher data rates or at least more complex compression technology such as MPEG-4 and Windows Media 9. Will the demand for higher bit-rates increase interest in the VSB modulation technology Nucomm has demonstrated at past NAB shows?

I look forward to seeing you at NAB. Don't miss my presentation on "RF Delusions" Saturday. It's the last presentation of the day at 4:30 p.m. and I've allowed plenty of time for your questions, and, I hope, my answers!

Doug Lung is vice president of engineering for Telemundo.

I was impressed with the quantity and quality of reasonably priced RF test equipment at NAB last year. I expect the trend to continue this year.

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LET THERE BE LIGHTING

Andy Ciddor

Poor Planning Creates The Stuff of Nightmares

Among the eclectic collection of things I do in lighting, I get involved with construction and upgrade projects varying from broadcast and training studios, to dance and drama spaces, retail, hotel, gaming and convention facilities, and all the way around to places of worship.

Sometimes I'm employed by the end user, sometimes by electrical, technical or theater consultants, and other times I work for the supplier or the project manager. You see, I'm just fascinated and excited by light: its technology, its psychology and the amazing things we can do with it.

I started out in the theater before moving on to television. Later I went on to teach lighting, then to consulting about it, and in the last decade, writing about it as well.

Along the way I got interested in computers in lighting and studied enough about them to have been employed for a couple of years as the IT manager of the university performing arts faculty where I had been teaching (though I did still find the time to teach some classes and DP the student telemovies). Every I time moved into another area, I didn't really leave the previous areas behind; I have simply kept adding new items to the list of things that I find interesting to do.

FUNDAMENTAL NEEDS

The legacy of this quest for interesting things to do with lighting and production is a reasonably broad view of the way things work in many forms of production, and in many kinds of production facilities.

What has become clear to me is a recurring pattern of disregard by those put in charge of projects for meeting the fundamental needs of the production space.

It would be easy to suggest that a particular project somehow got fouled up by a bad choice of project manager or chief engineer or architect or technical consultant. However it's very much harder to understand why, almost without exception, there are fundamental and easily avoidable flaws in every project.

Probably the worst example I have ever stumbled on came quite early in my career. I had moved across the country to take up a position as head of lighting in a growing television station that was proudly expanding its facilities. There was a shiny new studio under construction when I arrived, and everyone was excited about the prospect of moving productions into this big new facility from the two-and-a-half existing studios that were bursting at the seams.

Between dealing with all the issues that had built up since my predecessor had left and finding a new lighting director for the commercial production department, it was a few weeks before I got an opportunity to get onto the construction site to have a look at the new studio.

I saw no sign of a lighting grid in place, but there was plenty of steel work going on, so I didn't think much of it at the time. I did see the place for the dimmer room and the control rooms, so I went back the to main building without any major concerns. After all, the project had been underway for almost two years, and it was being handled by the station's chief engineer, who I had already discovered was obsessively fastidious about details.

What has become clear to me is a recurring pattern of disregard by those put in charge of projects for meeting the fundamental needs of the production space.

When I did start to ask questions about the lighting control facilities in the studio, I discovered the awful truth. Somewhere along the way, the group of local businessmen who owned station had decided that they really didn't want to spend the money required to fit out a fully working studio, but they still wanted the prestige of having the biggest studio facility in the region.

What was constructed was a shell. It was the size of a decent production studio, but the control rooms weren't acoustically isolated from the studio. This didn't matter all that much, because the exterior studio walls were a single layer of bricks, and thus almost acoustically transparent to the passing traffic.

The building structure wasn't capable of supporting a lighting grid, much less the weight of any lighting gear. This didn't really matter either, because there was only enough power available to run the studio air conditioning plant and a single outside broadcast truck.

However, the air conditioning plant, in this desert-edge climate, was only barely big enough to keep an empty building cool, with no capacity left for the heat from an audience (there was bleacher seating for 200), a crew, or lighting or electronic equipment.

Even if none of that had been a problem, the floor was not flat enough for the camera pedestals to dolly further than six feet, or to keep the cable guards low enough to prevent them from jamming on their own cables.

Nearly three decades later, that studio is still only being used to store scenery and build carnival floats. Very occasionally it gets cleared out to be used for a charity reception. It has probably only ever produced a few dozen hours of airtime.

PATCHED TOGETHER

With the ghost of that long ago studio still lurking in my nightmares, last month I was approached about converting a factory space into a television studio.

The first thing that occurred to me was that it isn't a brilliant idea to be bringing a studio online at a time when there are unused studios being bulldozed for housing developments. With almost all production now concentrated in just a few centers, it seems strange for a local government to be spending tax dollars on such a venture.

Certainly the partially converted facility is being used for a six-month

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INSIDE AUDIO | Dave Moulton

TV Levels: A Canadian's View, Part 2

You may recall that last month I wrote about audio guru Neil Muncy's observations regarding television audio level problems he encountered in Canada. Like all of us, Neil is bothered by levels that vary significantly from channel to channel.

In particular, Neil noticed that things got worse around the beginning of October 2005. I also mentioned Neil has tried to measure these level problems and is having trouble reconciling his findings. I ended by saying that there is more to the story.

WHAT DOLBY SAYS

Jeff Riedmiller is the audio levels evangelist from Dolby. He has probably worked harder on the implementation of dialnorm and related metadata than just about anyone else.

Jeff wrote, referring to the Canadian Cable Telecommunications Association, "Since the implementation of correct dialnorm settings by the CCTA was carried out on a service by service basis, where some were correctly set and others were not. As Neil states, before the change, everyone was at –31 for dialnorm, which only allowed us to fine tune the level in one direction (down) for many of them. Now we have room to fine tune the levels in both directions for many of the services simply and easily (i.e. with no changes to production practices).

"Also during this effort, I brought up the fact that by setting dialnorm more appropriately 'on average' may expose certain program-to-program level differences that were there to begin with, on a single channel/service due to the fact the dynamic range control subsystem of AC-3 is not being constantly driven into compression and/or limiting because the dialnorm value was set at –31 (this behavior depends on the actual speech level and dialnorm setting). Hence, the DRC subsystem was (unbeknownst to many) offering a type of 'brute force' normalization that reduced any significant level differences from program to program (for a single channel/service) with the penalty of a reduced dynamic range."

Jeff Riedmiller, Dolby

"I brought up the fact that by setting dialnorm more appropriately 'on average' may expose certain program-to-program level differences."

—Jeff Riedmiller, Dolby

Here we see a negative and unintended side effect of the metadata system. Dialnorm is not only an indication of the actual average dialog level of the program, but *also* a threshold setting for DRC (dynamic range control).

If dialnorm is set at –31 dBFS when the *actual* dialogue level is –21 dBFS, then most of the program level could be heavily compressed by the DRC subsystem, depending on how it's set. Happily, when dialnorm correctly indicates the *actual* level, the DRC subsystem functions correctly.

Jeff continued, "This does not address the problem of average channel-to-channel level differences among all the channels combined on a system. For some channels and services, –31 dBFS may be essentially correct over the long-term while in other cases it may be very wrong.

"If only some of the services set dialnorm correctly (meaning that their actual long-term dialogue level and transmitted dialnorm value match each other), their decoded dialogue level will unfortunately be quieter than an adjacent channel/service where their actual dialogue level *and* transmitted dialnorm value differ (sometimes greatly) from each other.

Programmers who are setting dialnorm correctly can, and often do, receive complaints that their programming is too quiet when compared to other services. The first step to resolve this problem is to get everyone on the same playing field over the long-term."

WHAT CCTA IS DOING

Meanwhile, CCTA is picking away at the problem. One initiative has been to log and publish the *actual* long-term dialogue levels of all the Canadian service providers at: *http://www.ccta.com/CMFiles/Responses_from_programmers_0921056+ORQ-9232005-1248.pdf*.

What we have here are a compendium of long-term dialogue LeqA averages for the various service providers. In theory, each provider could simply enter the indicated level as their dialnorm level, and all would be fine over the long-term.

Meanwhile, CCTA is also moving ahead to help members get dialnorm and DRC correctly implemented.

Michele Beck, vice president of technology at CCTA, has written, in several memos to the membership, "While we recognize that the introduction of digital audio metadata will require companies to invest time and resources, it will greatly improve the overall quality of the audio as it will reduce the variations in loudness levels between services. Audio loudness problems are the top complaint of television viewers. This project should greatly reduce the number of complaints received related to audio loudness levels..."

The project will work only if everyone cooperates. "As you will recall from previous memoranda, CCTA has been coordinating a project that aims to improve the quality of audio... Phase 1 occurred on Aug. 29 and involved the introduction of dialnorm on the digital services carried by BDUs. To date, the reaction has been positive... Phase 2 [commencing Oct. 5] involves the introduction of dialnorm on all the services that are typically distributed on the analog tiers on cable... This will ensure that the loudness levels of the programming services transmitted to all cable headends will be consistent at the output of the satellite integrated receiver/decoder (IRD)... cable companies should be prepared to make their adjustments beginning Thursday, Oct. 6.

"It must be noted that audio levels on cable companies' analog tiers will be significantly misaligned after the Oct. 5 introduction of dialnorm until cable companies verify the settings of the IRDs and adjust the BTSC modulators. Cable companies must be prepared to schedule site visits as soon as possible after Oct. 5. Once the adjustments have been made, cable companies should see improvements in the overall quality and consistency of audio levels.

"Off-air services may require adjustments to bring these in-line with the remaining services... Cable companies should use the digital services as a reference when adjusting audio modulators for the analog services. This will ensure that the majority of all analog and digital services are equalized. Cable companies should avoid using off-air services as a reference as these do not have dialnorm applied to them."

So here's what appears to have happened. The implementation of dialnorm in the digital tier went comparatively smoothly in late August, but when dialnorm was put into effect on the analog tier in October, there was a mad scramble to (A) determine what their analog tier dialog LeqA levels were and (B) to correctly set dialnorm for their digital simulcast services in real time, on-air. It wasn't a pretty sound for awhile there. Neil Muncy noticed.

The problem is not unique to Canada, of course. Next month, I'll take a much harder look at that part of it, and share with you some more of Jeff Riedmiller's remarkable thinking about how this should go. In the meantime, thanks for listening, even without dialnorm and with way too much compression!

Dave Moulton is trying to find his remote. You can complain to him at www.moultonlabs.com.

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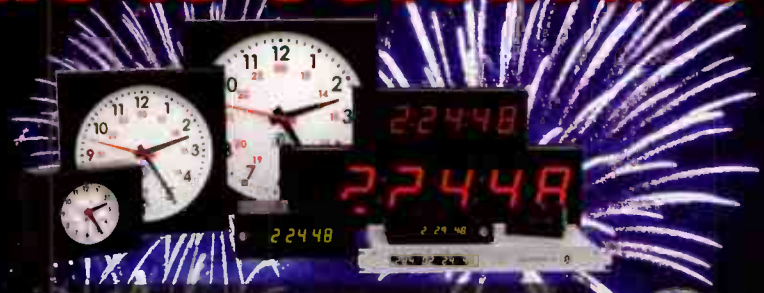

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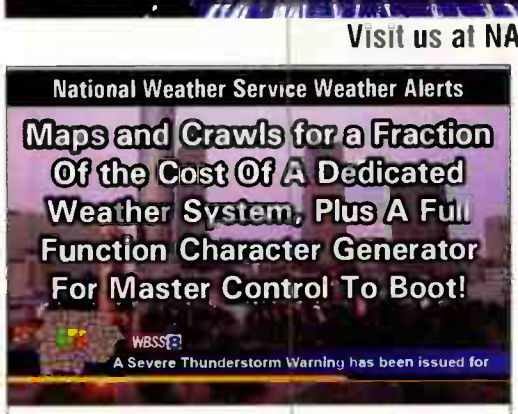

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PRODUCTS & SERVICES SHOWCASE

INSIDE PRODUCTION **Walter Schoenknecht**

Learning to Follow The Digital Signage

Scene: A small manufacturing firm, circa 1906. The owner speaks with an employee:

"Ellsworth, I'm afraid I'll have to let you go... looks like Mr. Edison's invention has pretty much ruined the market for oil lamps."

Across town:

"Tarnation! I can't believe it, Martha! Used to be a man could make a fair living selling washtubs and washboards. Who'd have thought these electric washing machines would catch on?"

Flash forward, about 100 years, to a conversation at a small video production company:

"Geez, John, I don't know what we're going to do. Looks like hardly anyone is doing those role-play sales training videos any more. And our video news release business has gone straight down the dumper. Looks like we'd better sell the Betacams and look for a new line of work."

This is the sound we're hearing more and more these days: the death rattles off old-line TV production businesses. More correctly, it's the sound of once-clever people failing to adapt—failing to recognize that nothing lasts forever, and that change is periodicallly required.

LANE CHANGE AHEAD

So you find yourself the victim of a shift in production trends. Think you're left with no transferable skills? Think again. There are, without a doubt, dozens of related products and services which draw upon your years of experienceæexperience in communicating different messages to different audiences using a variety of media.

One of my favorites is the still-blossoming world of digital signage. The more I see digital signage systems around me, the more I want to explore, and exploit, their potential. I see the electronic billboards inside my local bank branch, hawking loans and checking accounts and investments; and I picture a network of 50 plasma screens in cafeterias and common spaces at my largest clients' various corporate, manufacturing and sales locations.

I imagine a 42-inch screen packed with crawls, text boxes, headlines and, of course, a big 'ol video window. Better yet, I imagine needing to feed this beast with a never-ending stream of informational programming. Some of us would be out shooting, others managing the ingest of new material and still others programming the playout, pushing MPEG-2 files down the public Internet to our far-flung fleet of screens. Sounds like a lot of work, right? You betcha... the kind that clients pay for. So how do I get a piece of this action?

VertigoXmedia Xpresenter GUI

I asked some friends over at VertigoXmedia to loan me one of their Xpresenter digital signage systems so I could experiment a bit. Vertigo is a fascinating company, with ingenious, graphically driven products for complex television graphics, capable of creating and programming entire broadcast-quality informational channels. Powerful but more modestly priced, Xpresenter is a close cousin of that primetime graphical family.

One of the real fascinations with the Xpresenter system is that its operation and programming is greatly simplified thanks to the underlying application—Microsoft PowerPoint.

Vertigo has added plug-ins and extensions which put a powerful programming dashboard at your fingertips, and allow the addition of dynamic elements, such as crawls, moving backgrounds and live video, to your compositions.

If I were a full-fledged VertigoXmedia client, I'd have a whole suite of tools to manage creation, playout and network status, right down to the electronic health of each plasma display. I'd be able to set kill dates for my features and news items, and route more marketing shows to the sales offices than to the plant floors.

It wasn't long before I was able to breadboard a few templates and formats for an imaginary client network. I added a live ticker for the company's stock price; a locale-specific Community Bulletin Board set to run at six, 26 and 46 minutes past the hour; and, of course, a few corporate video programs, scattered around the hourly programming wheel. It's a little like building and programming your own cable TV network, except there's no initial risk—your client pays the freight.

Imagine my surprise when I learned some months ago that my old pal, Tom Shrader, landed a digital signage contract for his Portland, Ore.-based production company, BetaBay. Shrader uses InfoCaster from Inscriber, now part of Harris Corp., to program a digital signage network for the State of Oregon that provides traffic and travel information to motorists at various locations. Interestingly, one of the system's most-viewed outlets is its Web feed, drawn from the signage system's content. But why stop there?

MOVING TARGETS

There's no limit to the applications for this technology, and Shrader describes a use for digital signage that I'd never have imagined. Pick your local large-venue special event—a golf tournament, for instance. Obtain a feed from the broadcast outlet covering the event, but extend and enhance it by building an informational screen around that feed, one which includes personalized welcomes to corporate sponsors, conveys key facility information, runs features on the event's history, and, most importantly, offers sponsorship opportunities.

Shrader's been a video production maven longer than I have, which is saying something. That ought to mean that he's firmly mired in "the old ways", but not so. "You can't limit yourself because of the technology," Shrader told me. "Technology is a moving target."

While some folks are stuck on composite analog versus component digital signals, Shrader takes the big view of communication. By controlling and managing content, he says, "...you'll have two stronger legs on which to stand the next time the big wave of technology splashes over you."

I haven't decided yet which route I might take in selling one or two key clients on a digital signage network. I could prepare a formal, cold pitch for one of their execs; I might approach a few friendly faces within the organization, and have them open one or two strategic doors for me. Another interesting approach is to join forces with a local systems integrator, someone who needs your creative juices to sell big boxes of expensive hardware.

But the real message here is that we already have these skills, as writers, shooters, editors and producers of informational programs. We *own* this turf, and we shouldn't be so willing to give it up just because the method of delivery has changed. We once again have an opportunity to make ourselves indispensable, and that's *very* good for business.

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

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PRODUCTS & SERVICES SHOWCASE

Servers

CONTINUED FROM PAGE 77

nected through GigE switches, with storage interfaces via Fibre Channel switches. I/O may be configured through a server "director" or manager and should be capable of drawing equally from common storage. Integrating legacy platforms into new systems may not warrant these capabilities, so understand how data moves from one store or server/port to another.

Previous servers housed multiple I/O-cards in a single backplane crate with advantages and disadvantages; the later that once a certain level was reached, growth became complicated or impractical. For the most part, the trend to reducing server crate sizes allows for greater flexibility in both physical I/O systems chassis size and I/O-formats.

INGEST AND ENCODING

I/O-modules may be dual purpose, whether on a multiple card or single card with multiple I/O; i.e., they act as both an ingest port (encoder) and on playback, become a decoder. Know that this arrangement will affect the number of simultaneously operating channels as most dual-purpose codec-pairs generally provide for a single function at a time—ingest or play-out only.

I/O-cards provide a wide variant of encoding capabilities. Basic inputs may be SDI or HD-SDI, and may be encoded into various compression file formats and bit-rates (see Fig. 1).

A server may have a Serial Data Transport Interface, per SMPTE 305M (SDTI), and also allow content package data per SMPTE 326M (SDTI-CP).

FORMAT	BIT RATE & CODING
DV	25 Mbps
DVCPRO-25	25 Mbps
DVCPRO-50	50 Mbps
MPEG 2	25 to 50 Mbps I-frame only 4:2:0 or 4:2:2 profile
MPEG 2	3 to 24.9 Mbps Long-GOP 4:2:0 or 4:2:2 profile
IMX	30, 40 or 50 Mbps I-frame only 4:2:2 profile
ITU-R BT 601	270 Mbps 10-bit uncompressed video 4:2:2

Fig. 1: Representative server ingest format

This more sophisticated format may have restrictions based on how the vendor's codec handles the serial data. For example, the transport rate may be at 4x record, as in DVCPRO-25, but only 1x for DVCPRO-50. Embedded audio for CP may not be available or IMX at 50 Mbps CP but may only allow isochronous transfers.

Be aware of the level of compliance for S326M, and understand the formatting of picture, audio and auxiliary elements, as well as timecode, time stamp or other metadata as per SMPTE 331M.

Multifunction/multiformat encoding may be achieved via "administrator-only" level configuration. While the server's decoder may accept and play-out any file format, it may only be capable of playing a single format back to back.

Issues may exist when trying to play out an MPEG-file followed immediately by a DV and then back to another MPEG file.

Users now face a mix of both SD and HD content. Ingest choices vary by server platform as a matter of philosophy. While one server expects an external MPEG en-coder, it uses internal software based HD-encoding.

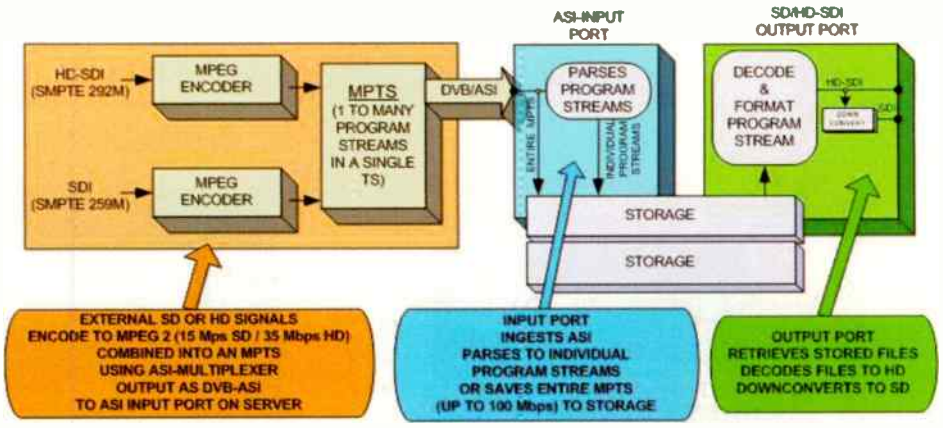


Fig. 2: Process flow for external SD/HD encoding to DVB/ASI server input port

Those servers with ASI inputs accept data ranges at upwards of 100 Mbps as single- or multiple program MPEG transport streams. Some systems can disassemble an MPTS to discrete program streams or elementary streams on input, while others parse all but one program (see Fig 2).

Understanding what storage platforms are comprised of is essential.

How any particular server handles these capabilities will vary by the vendor's philosophy—so be sure you understand how their implementation will affect your application.

The greatest change is in HD, with servers now providing transcoding, upconversion and downconversion on the same I/O-card. An HD program file ingested as 720p can be presented in 1080i, and at the same time downconverted to SDI on a separate output. Conversely, a 480i SD signal can be upconverted to either HD-format providing a dual format output from a single file.

ON THE HORIZON

While H.264 has yet to find its way into professional broadcast servers, HDV is gaining momentum. Systems now "store" HDV, ingested via FTP direct to a server's store, but its uses may be for editing only; and play-out may be restricted.

As a final check, be conscious of how updates or new purchases impact your particular needs, applications, and workflow—and always ask the hard questions!

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.

NLE SOFTWARE

Media 100 sw NLE Software

by Michael Hanish

A good editing interface is a thing of beauty and a well-crafted and designed tool. It should be easy to learn and operate, quick and efficient, easy on the eyes, flexible, and should not require multiple or confusing steps to accomplish common tasks. For many editors, Media 100 has been such a tool. Several years ago, on the verge of releasing a next generation application for HD, Media 100's parent company imploded and was purchased by a temporary white knight, Optibase. That team was able to bring the HD product to market, but unable to sustain the effort. The company was sold again to a worthy developer, Boris FX.

Media 100 sw, Companion version 1.0, runs on Mac OS X 10.4 (Tiger) or better, on G4 or G5 processors, with a G5 recommended. Unlike previous versions of Media 100i, this software version (and the Media 100 HD product) is not based on a PCI card for handling all processing functions, but rather is powered by the host system's processor. The faster the host processor, the better the overall performance and number of real-time effects that can be achieved without rendering. Media storage requirements depend on the nature of the media in the project. A GB of RAM is required for operation, with 2 GB recommended for HD work.

It is important to note that this version does not have input and output features. It functions as an editor only. FireWire I/O, at an expected price of $695, is anticipated. However, do not think of this software as in any way crippled—it has all the features of Media 100 HD except I/O, and can edit, color correct, composite, title, perform aspect ratio and sample rate conversions, as well as import and export.

FEATURES

As you can see in the accompanying illustration, the software interface is almost identical to that of Media 100i, except for the addition of a number of features and functions. It is file-compatible with all previous versions of Media 100 and virtually all QuickTime codecs. This means that bins, programs, and projects will import with all edits, effects, color correction and titles intact. Codecs, frame sizes, and aspect ratios can be mixed in a single timeline, with very fast rendering on import required for up- and downconversions. The V (master video) track contains the typical Media 100 A/B edit configuration: two tracks with a transitions between. The software allows creation of as many as 99 video overlay tracks above the V track. These have opacity levels suitable for keyframing purposes. The host processor's speed determines how many overlay tracks can play in real time.

Below the timeline video tracks there is provision for a total of 24 real-time audio tracks with EQ, level and pan automation and a master audio track for global levels, dynamics, EQ and reverb. The program ships with Boris Graffiti for real-time static titles, and is fully compatible with Boris Red, FX and Continuum Complete. There are integrated color correction controls and a keyer with RGB, YUV and HSL controls, both of which work in SD in real time and in HD with a fast render. All features and functionality of Media 100i are available, along with some extras.

The Media 100 sw user interface is nearly identical with that of Media 100i.

The Media 100 HD codec is fully scalable between SD and HD frame sizes and aspects and supports 8-bit and 10-bit uncompressed video, with or without an alpha channel. Working in this codec and converting all files to it on import provides maximum flexibility and quality, along with the highest system efficiency and performance.

The real value lies in the workflow. You may ask what is the value of a software-only editor that can't capture or output? Quite substantial, it turns out.

IN USE

I opened a copy of a recent Media 100i SD project—a performance video about a jazz duet, piano and electric guitar. Opening a project copy was important, because the Media 100 sw is not backwardly compatible with older versions of Media 100. This means that you can easily open an older project with all details intact, but once saved, it can only be opened (project, programs and bins) with the sw or the HD version. The sw project I created to import into used the Media 100 HD codec. Using the Conform command, I re-framed the 4:3 material into 16:9 and resampled (on import) the 44.1 kb audio to 48 kb. The entire timeline was conformed in one step in a very fast render.

The ability to easily work with multiple video layers in the timeline is one of the biggest revelations in this version. I tested the Media 100 sw on both dual G4 and dual G5 processor machines. The G5 obviously had much better real-time performance. I could work with up to five additional video layers in real time without rendering. When I started looking for limits by adding more layers, the software requested fast renders for the topmost layers only. On the G4, all layers required rendering for full motion playback, though I could easily see the frame-by-frame compositing. Depending on the sort of workflow you have and the kinds of projects that you do, this capability is huge. Media 100 has always had great interoperability with After Effects and other QuickTime applications, and the sw version still does. However, the ability to do compositing and keying directly in the timeline can be a great time saver.

Audio mixdown is a pleasure. EQ, dynamics and reverb filters sound great and can be adjusted and auditioned in real time. Audio playback is through the system, meaning that you can listen either through the Mac's built-in audio or through an assigned and installed audio card or outboard device. There are two missing features—OMF import/export and a usable audio scrub. I hope that these omissions are addressed soon.

The final step with this software version is to export the finished video and audio program to any Media 100 or QuickTime codec for output to tape or to compression for DVD or the Web, or perhaps even to After Effects for further compositing and effects work. The result is a single video track, along with stereo audio tracks. The obvious missing piece of workflow at this stage of the software's development is the ability to do color correction work with a video monitor. However, this will be addressed when I/O features are added.

SUMMARY

The Media 100 sw Companion is an excellent value and a very welcome editing toolset addition, especially for a first version. It greatly expands the workflow and offers the possibility of low-cost, high-quality (and high-definition) production. For those of us who still have an investment in Media 100 programs, this new software release provides a lower-cost means for accessing the features of Media 100 HD, and is an affordable step into the future. I applaud Boris for undertaking the challenge of keeping an excellent editing and post system alive and well and advancing, and would encourage anyone who enjoys working in the Media 100 space to take a serious look at the direction the development of this fine tool is headed.

Michael Hanish runs Free Lunch, a video/audio/multimedia production house near Guilford, Vt. He may be contacted at mhanish@sover.net.

FAST FACTS

Application
Editing tool for SD and HD

Key Features
Large feature set; fast

Price
$395

Contact
Boris FX
888-772-6747
www.media100.com

CLOSED CAPTION SOFTWARE

MacCaption Closed Captioning Software

by Michael Hanish

With the recent FCC mandate now in effect, closed captioning is a hot topic. To encode closed captions into your video, you can either send it to a service (at an average cost of between $700 and $1,000 an hour) or acquire the necessary tools to do it in-house. Until now, the do-it-yourself option involved a substantial investment in a hardware encoder to insert the closed caption information into line 21 of the analog video signal, as well as the software necessary to generate the captions for insertion.

FEATURES

Computer Prompting and Captioning Co., a long time expert in captioning, has a software solution to closed captioning that allows encoding to be performed without hardware. The program is MacCaption for Macs. There's also a parallel products line, CaptionMaker, for Windows.

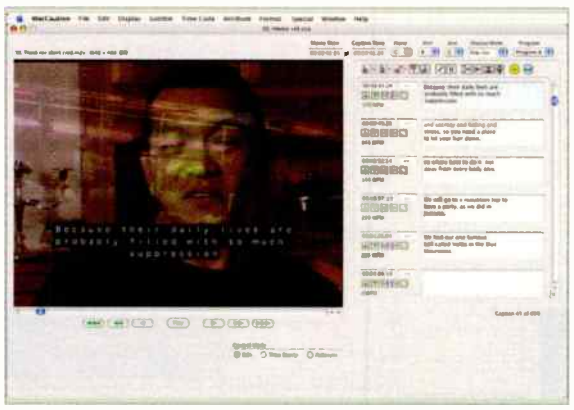
The workflow starts with a transcription of the video, which must then be broken into two to three line segments of text, each of which gets cued to appear and disappear at specific timecode locations in the video.

Finally, the caption file has to be encoded into the video file. This can basically be done in one of three ways: by producing one of the myriad closed caption formats for import into a DVD authoring program or other encoding system; by producing a new, self-contained digital file, in any codec, that holds the captions; or by producing a caption file that can be used in virtually any of the current NLE systems, for output to tape or encoder.

The most expensive MacCaption package, which was chosen for this review, contains all the above features. It has the ability to organize a text file into discrete captions, to assign them to specific timecode points, and to output a caption file, encoded digital file, or caption file suitable for NLE use.

The price goes down as feature sets are stripped away, until the least expensive package provides just basic encoding of an already prepared caption file into a self-contained digital file.

MacCaption takes the plain text transcription file, and on import, breaks the text into discrete caption according to Preferences settings, making text cells of two lines for "pop-up" captions or one line for "roll-up". You can see these caption cells along the right side of the window in the illustration. Buttons allow you to adjust the captions by pushing or pulling words between captions, splitting or combining caption cells, or inserting or deleting cells.



Buttons on the MacCaption GUI allow you to adjust the captions by pushing or pulling words between captions, splitting or combining caption cells, or inserting or deleting cells.

On the left side of the illustration is the movie window; MacCaption can open and play any movie your system can. Below the window are the playback controls, and below those are the three control modes: Edit, Time Stamp and Autosync. Time Stamp plays the movie, and as you hear each hit point for a caption, you simply hit the "+" key and the caption is time stamped. In Edit mode, you can adjust any of the caption's parameters (start and end time, placement, composition, line break); Autosync plays the movie and sound, while displaying the captions for proofing.

When everything is as it should be, it's time to export the captions. Depending on what the final project is, there are numerous export options, including the possibility to do closed and open captions and subtitles. This is yet another area in which MacCaption really shines.

You can export a caption file in any one of a number of formats, including files for Scenarist, Spruce, DVD Studio Pro and industry standards .scc and .on1, for both closed and open captions. As another option, closed or open captions can be encoded directly into a DV format movie, which can be printed to video via FireWire, from the MacCaption application.

CPC has also developed an ingenious method for outputting closed-caption-encoded video directly out of just about every nonlinear editor, including Avid, Media 100, Final Cut Pro, Matrox and Pinnacle, or any other editor that supports 720x486 frame size. This method involves exporting a QuickTime movie with only black content, and containing the closed caption information on line 21, out of MacCaption, then importing it into the NLE of your choice and applying it to the picture track as either a picture-in-picture or crop effect, at very specific settings so that only the caption-bearing lines are revealed. Then, you just record to tape directly out of the NLE as you normally would.

FAST FACTS

Application
Closed captioning generation and encoding for broadcasting purposes

Key Features
Does open and closed captioning, as well as subtitles; requires no line 21 hardware encoder.

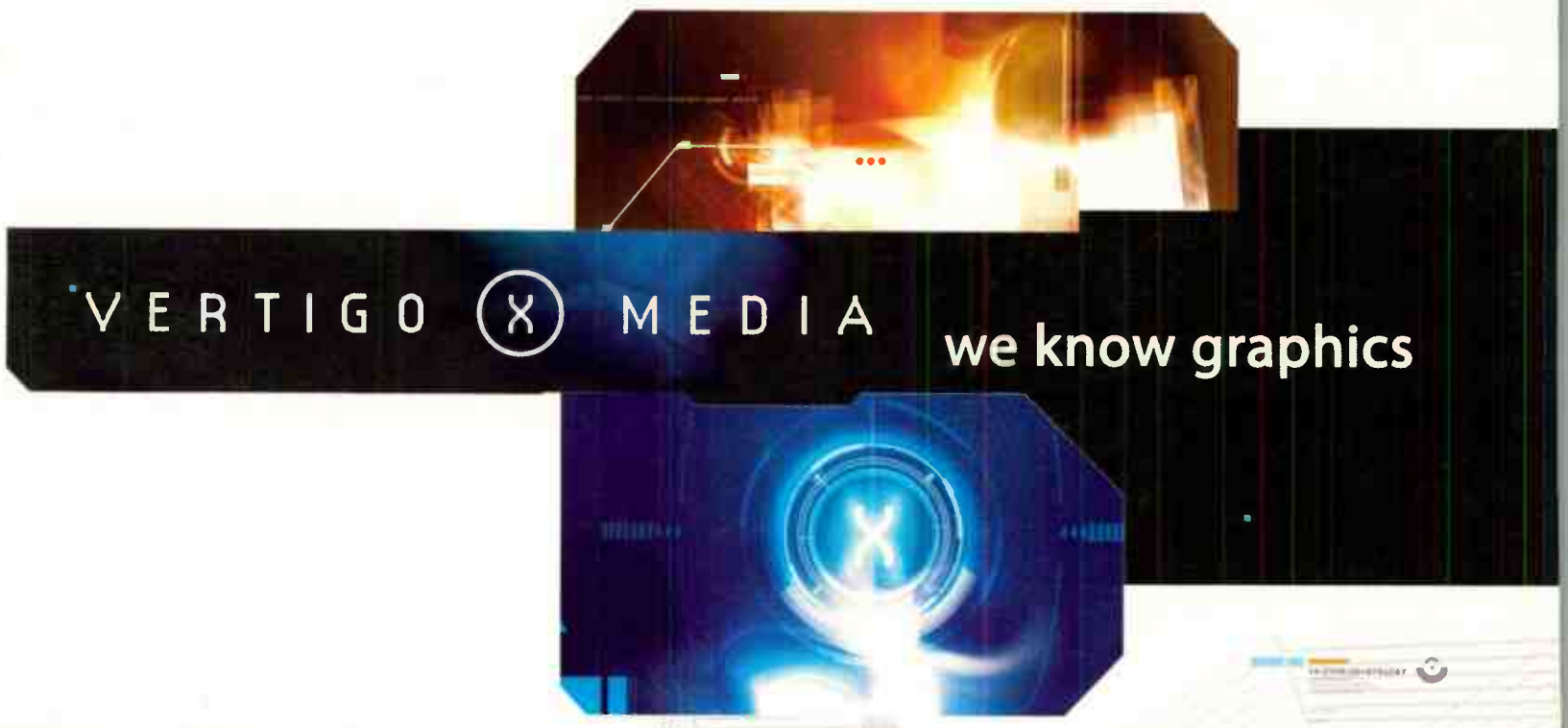
Price
$995 to $6995, depending on features, functions and capabilities.

Contact
Computer Prompting
and Captioning Co.
800-977-6678
www.ccaption.com

IN USE

I had the pleasure of using MacCaption to create closed captions for a documentary I edited a couple of years ago. Somehow, in the madness of the late stages of post, we had updated the working script to some-

MACCAPTION, PAGE 90



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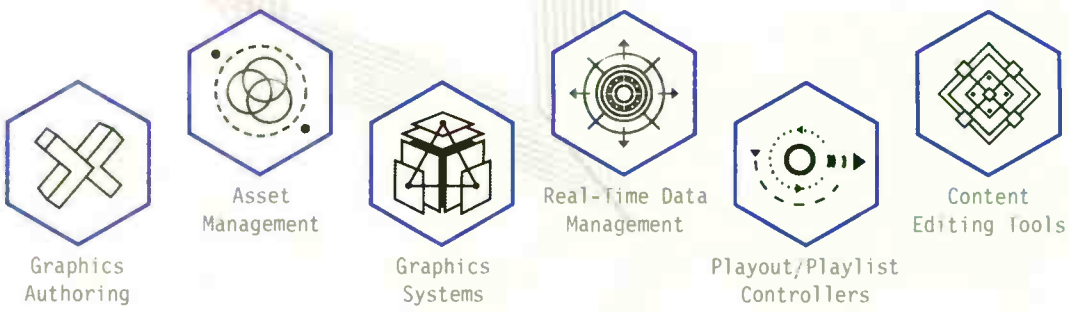

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KVM EXTENDER

Avocent LV3500W KVM Extender

by Stephen Murphy

The name Avocent may not be familiar to single-computer system users and smaller production facilities, but you can be sure IT departments in larger production facilities and broadcast corporations (including Fox, ABC and CNBC) are quite familiar with the company's products. Formed in 2000, the Avocent Corporation has quickly become one of the leading suppliers of enterprise-level remote access and centralized server control solutions.

The Avocent LongView LV3500W KVM extender set

The core of Avocent's product base is its network-based KVM (keyboard, video, mouse) switching, which provides direct control over a large number of servers and other computer-based assets from remote locations. For those of us with only a few computers to manage (as opposed to a few thousand), Avocent also makes several useful remote access products suitable for more moderate needs. Two such products are the network-expandable AMX5130 User Station, and the LongView LV3500W Wireless KVM Extender, the latter of which is reviewed here.

FEATURES

The LongView LV3500W Wireless KVM Extender connects a local keyboard, monitor, mouse and stereo speaker set to a remotely located PC-compatible computer via RF transmission. According to Avocent, the LV3500W system can transmit and receive data at distances up to 100 feet through walls and other obstructions and up to 300 feet within an unobstructed path. The system uses the Advanced Encryption Standard to securely transmit data using a proprietary data processing and compression process based on the 802.11a wireless networking standard.

The LongView wireless system is comprised of two paperback book-sized units labeled "transmitter" (computer-side) and "receiver" (remote-side), though communication between the units is actually bi-directional. The units are powered via an included 12 V wall wart-style switching power supplies.

The transmitter and receiver are essentially identical in appearance, each boasting dual swivel-mount omnidirectional antennas, a set of three LED status indicators on the front, and a set of female KVM (PS/2 and 15-pin RGB) connectors, plus audio and power jacks, on the rear. The transmitter unit also has a permanently attached 3.5-foot cable that breaks out into male KVM connectors for connection to the host computer's keyboard, video and mouse ports. The set of KVM ports mounted on the rear chassis of the computer-side transmitter unit are designed for connecting an optional keyboard, monitor and mouse set for local operation of the computer in addition to the remote wireless set.

The LongView wireless system is capable of transmitting up to 30 frames per second of VGA-compatible analog RGB video at resolutions of 640x480, 800x600 and 1024x768, at refresh rates up to 60 Hz. Audio is connected from the computer's headphone or speaker output to the transmitter via a supplied 1/8-inch (mini) stereo cable. A corresponding mini jack located on the rear of the receiver provides the remote audio connection to phones or powered speakers. According to the manufacturer, audio is resampled from the analog input and transmitted at CD quality.

Avocent also makes a more powerful wireless system called the LongView LV4500W, which sells for $995. This system has the same feature set as the LV3500W system, though its internal high-output directional antennas are capable of transmission distances from up to 300 feet (obstructed) to 1,000 feet (unobstructed). The larger-footprint LV4500W offers several mounting options, including a desktop stand and in-wall.

FAST FACTS

Application
Wireless connectivity for computer keyboards, mice and displays

Key Features
Wireless remote keyboard, video and mouse transmission; supports 30 fps RGB video at up to 1024 x 768/60 Hz; CD-quality audio; PC compatible; 24-month warranty, 30-day satisfaction guarantee

Price
$695

Contact
Avocent
866-286-2368
www.avocent.com

IN USE

For this review, Avocent supplied the LongView LV3500W Wireless KVM Extender system. This package is self-contained, providing all the necessary cables and power supplies to get connected in a matter of minutes.

Though the wireless KVM system has several potential applications in the A/V world, I decided to try it out first in a typical studio/machine room setup. In my edit suite, I have three video monitors (not including the HD video display): two are attached to the video-editing computer and the other is for a dedicated audio server. The computers are located in an audio-isolated room about 15 feet from the edit desk and connected to the monitors via high-quality 20-foot video cables. While this setup is not exactly screaming out for a wireless solution, it provided a stable test bay for the Avocent product.

I first hooked up the LV3500W system to the audio server since it is a single-monitor setup and its display resolution does not require anything above the wireless system's maximum of 1024x768. Setup was straightforward: I simply detached the existing keyboard, mouse and video cable runs, connected the transmitter unit to the computer via the attached cables, and connected the receiver unit to the keyboard, mouse and video monitor located in the studio. One thing to note is that the transmitter unit must be powered on and the middle status light ("S2") must be illuminated before powering up the computer.

An on-screen display (OSD) initially indicates a connection is being established, and once the unique MAC ID of the units is recognized, the monitor resumes its normal display information. A more comprehensive OSD is available during regular use to fine-tune video settings and to check wireless signal strength. The OSD menu includes an auto setup mode as well as manual video setup controls, including horizontal and vertical position, brightness, contrast and clock phase. By default, a dynamic auto setup is performed upon each boot-up or screen resolution change. This function can be defeated by turning the "Set Auto" button to "off," thereby retaining the last used settings.

The overall compression mode used by the system is also accessed in the OSD setup screen. The two modes use algorithms that take into account inter- *and* intraframe changes (Computer mode) or intraframe-only changes (DVD mode).

Computer mode proved the most useful for typical applications, as it provided the smoothest mouse response and keyboard tracking, with decent video-playback quality. Changing to DVD mode definitely enhanced DVD and MPEG-compressed video playback compared to the Computer mode, but at the cost of smooth mouse tracking.

I also tested the LongView system in real-world applications (PowerPoint remote operation and display to an LCD projector, and video-only transmission from a DVD player to a plasma monitor) at the National Press Club in Washington, D.C.

In general, when the transmitter and receiver were in close proximity (for instance, on a straight line with only a door between them), the system proved to be stable with almost no negative effects from the compression and wireless transmission.

At greater distances (across a ballroom floor, or through two walls) the video display degraded, and mousing became more sluggish, which resulted in occasionally overshooting the target. Video degradation first manifested itself in scan or "shimmy" effects, even on static graphics, and at greater obstruction amounts and distances (yet within the LV3500W's stated ranges), scan glitches worsened and an occasional blanking and redrawing of the screen occurred. For professional uses where distance and/or obstructions are a potential factor, it seems the more powerful LV4500W should be strongly considered.

One other thing that I should mention is that both the transmitter and receiver are cooled by tiny fans. While not noisy by most standards, the receiver will make itself known in a quiet control room.

SUMMARY

The Avocent LongView LV3500W Wireless KVM Extender system provides a unique and useful solution for quick and mobile KVM access to a remote computer. While I found the video display/mouse motion synchronization a bit too sluggish for precise editing applications (and its maximum video resolution too low for graphic work), there are many applications where the LongView system is just the ticket.

For example, the LV3500W system is perfect for remote server access and maintenance, streaming video and audio from a computer to an overflow or auxiliary video monitor (e.g., clients seated in the lounge), mobile signage, podium-to-projector PowerPoint presentations and any application where direct cable connections are not possible or prohibited.

Stephen Murphy is a video editor and audio engineer with more than 20 years of broadcast and production experience.

AUDIO RECORDER

Sound Devices Digital 4-Track Recorder

by Ty Ford

In this run-and-gun world when there's time to actually think about what you're shooting and what it sounds like, being able to improve audio quality and increase the audio options for post production means better product in the monitors, more awards on the walls and a sense that you're doing more than grinding out audio/video sausage every day.

With HDTV crawling out of its infancy, the "ear candy factor" is becoming a competitive issue. To that end, having an additional four tracks to gather high-quality sound makes a lot of sense. The future of audio (and by the way, the future is now) is 24-bit digital and file-based. Anyone who has compared the audio from a digiBeta deck against a good dedicated digital audio recorder can hear the difference.

FAST FACTS

Application
Professional location audio recording

Key Features
Analog and digital inputs, a variety of digital sampling rates, hard drive and CompactFlash storage

Price
$4,250

Contact
Sound Devices LLC
608-524-0625
www.sounddevices.com

FEATURES

Introduced at NAB2004, the Sound Devices 744T is a four-track recorder that's smaller than some motel Bibles I've seen. It is a recording computer that weighs 2.6 pounds without the included Sony FP770 battery. It has four inputs, two high quality preamps, a 40 GB hard drive and a CompactFlash card slot. You can record to either the hard drive or CompactFlash, or both at the same time and transfer by FireWire (only from the hard drive) to Windows or Mac.

File types include mono and poly WAV, BWF files (16-bit or 24-bit ranging from 32 kHz to 192 kHz or any sample rate in between, if clocked from an external wordclock signal) and MP3 files from 64 kbps to 320 kbps stereo. The latest firmware upgrade includes a note that MP3 encoding has been omitted due to an expiring licensing agreement. Firmware Version 1.57 includes the MP3 encoder.

To make the best use out of the extremely small body, Sound Devices had to resort to a few unconventional connectors. In addition, the connectors are very close-spaced; so close that the mounting washers on the jacks encroach on the labels, making them difficult to read. Of course, after a while, you know what they are.

On the left panel, the two XLR connectors do triple duty as mic, line or AES/EBU inputs. Their function is individually assignable with small switches above each connector. Inputs one and two, each with inter-

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MacCaption

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thing that conformed very closely to the final product. It was easy to select and export a plain text file, and bring that into MacCaption, which formatted the text into two-line, 32-character captions, as I had specified in the Preferences setting.

Next, I loaded a QuickTime movie of the documentary that I had exported for reference, to save disk space, from my Media 100 NLE. At this point, I simply played the movie in MacCaption's Time Stamp mode, and at every line I heard, I pressed the + key to cue the caption, all in real time. Naturally, the transcription wasn't totally accurate, so some text editing, insertion, and reformatting among captions was required, all of which was easily done in the application itself.

MacCaption provides an estimated reading speed in words per minute for each caption, making it easy to see objectively which were too long. It was also necessary to set out-points for many of the captions to avoid confusion. This was also easily done by either inserting a blank caption at the appropriate point, or by setting the out point on the caption itself.

With all the captions cued, it was necessary to review the entire piece in Auto Sync mode with the captions displayed, and make adjustments to screen placement (to avoid conflicts with already existing lower thirds) and timing.

I used the same caption placements for multiple forms of export. First I exported an ".scc" file for use in DVD Studio Pro, in which adding closed captions was as easy as adding the file in the track inspector. Next, I made a DV version and printed it to miniDV through my Mac's FireWire port. Then I exported the QuickTime movie (with black screen only) to the animation codec at 100 percent quality, and brought that and the reference movie into After Effects.

In AE, I laid the movie on top of the reference movie, applied a horizontal wipe so that all except the top few lines were wiped off, leaving the closed-captioning information (visible on underscan as a series of moving dashes) just visible. I then rendered that to the Media 100 codec and played it out of Media 100. No problems.

SUMMARY

The process is pretty simple and straightforward, if a bit time consuming. A certain level of expertise is required in placing the captions correctly and timing them for best reading. The MacCaption manual and the captioning guidelines booklet provided by CPC offer many tips for achieving satisfactory results.

The captioning application is very polished, brilliantly done and well worth the price it commands. My hat is off to CPC for providing such a stable and well-conceived program. If you're considering bringing captioning in-house, you can't avoid looking very seriously at MacCaption or CaptionMaker.

Michael Hanish runs Free Lunch, a video/audio/multimedia production house near Guilford, Vt. He may be contacted at mhanish@sover.net

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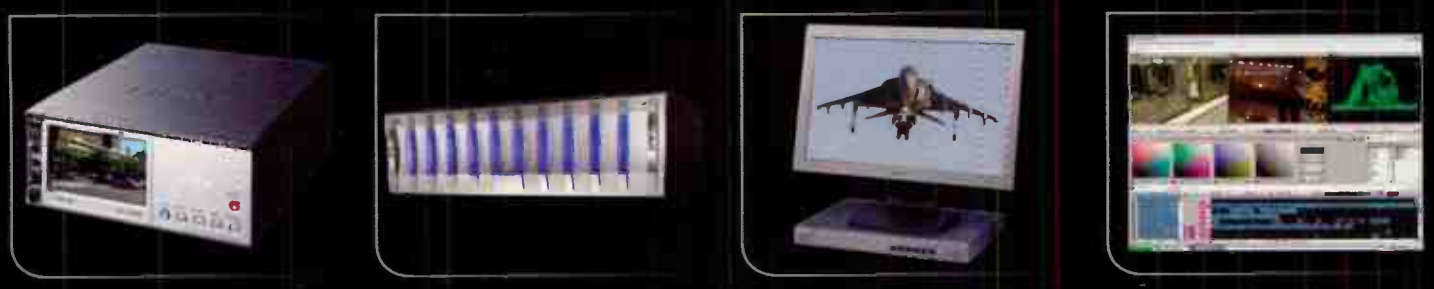

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Sound Devices

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nally switchable phantom power, are the only mic level inputs. These two inputs each have switchable limiters which are factory set to engage at –6 dBfs (decibels below full scale). Two push-to-retract front panel rotary pots can be used to trim the first two inputs as necessary or they may be trimmed as inputs three and four from the menu.

The mic inputs each have high-pass filters that can be engaged by traversing the menu or by using a two-button shortcut. Blue status lights on the front panel indicate whether high-pass filters are engaged. Corner frequencies are adjustable at 12, 18 and 24 dB/octave. Inputs three and four use TA3 male jacks and are line level only. You can record two analog sources via XLR inputs one and two, while recording digitally into tracks three and four via the BNC connectors on the right side of the box.

The next two male TA3s are active-balanced line level outputs with internally adjustable levels. A 1/8-inch stereo TRS lies below as an unbalanced tape out with a rotary level control and another 1/8-inch stereo jack is reserved for headphones.

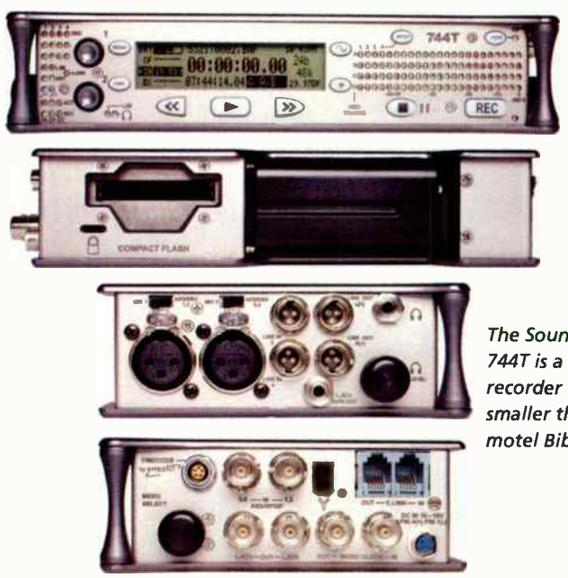
The right side bristles with six BNC connectors—two for AES-3 or S/PDIF digital inputs for tracks 1 & 2 and 3 & 4, two for separate output busses and wordclock in and out. Very obvious yellow LEDs on the front panel blink if digital inputs are chosen without a proper connection. A pair of RS-232 jacks provide a 6-pin interface for linking multiple Sound Devices 722 or 744T recorders. This link also carries wordclock, machine transport control and timecode. A 5-pin Lemo connector supports timecode input and output. The external power supply/charger plugs into a 4-pin Lemo jack. Finally, there's a rotary controller for spinning though the 80 menus. Once you get to the menu item you want, just press the controller knob in to select it.

The front panel of the 744T is handsome, spartan and yet complex. The LCD panel alone provides information about 14 different areas including battery level, file name, absolute time, time/date, bit depth, sample rate, timecode, internal and external media space status, CompactFlash status, input gain level for the first two inputs and external digital clock indicator.

In addition, there are 29 lights, controls and readouts on the front panel. While daunting at first glance, the use of different colored lights for different functions makes understanding the 744T a lot easier. In addition, a trip through the well-written 65-page manual makes quick sense of it all, but there's a lot to know. This is one manual you'll probably want to keep handy for awhile.

Each of the four inputs can be routed to any and/or all of the four internal tracks. The blue LEDs on the 744T front panel indicate to which track an input is routed. I was a little confused in trying to interpret the LCD readout for input matrixing, until I realized the blue LED lights changed to indicate the input to track assignments as I made different choices in the menu—very cool.

Metering for each track ranges from –50 to 0 dB. On the output side, audio is sent to three output connections: analog line out, analog tape out and digital one. Matrix switching allows the second stereo output bus to supply a completely different feed than the first output and from its own BNC connector.



The Sound Devices 744T is a four-track recorder that's smaller than some motel Bibles.

SMPTE is supported with an internal timecode generator capable of 23.976, 24, 25, 29.97df, 29.97ndf, 30df and 30ndf with free run, record run, 24-hour run and continuous jam. The 744T will not slave to timecode during camera playback, but it can be used to jam sync a camera.

There are 74 parameters that can be adjusted and stored. This runs the gamut from sample rate and bit depth to being able to delay each of the inputs individually in one microsecond increments for precise time alignment. Other adjustable parameters include meter ballistics, mic and line analog input sensitivity and multiple high-pass filter settings, up to 24 dB/octave.

The menu system has been designed for easy navigation for the not-so-experienced person. There are 80 top-level menu selections and more than 70 parameters, but you never have to go down more than one step to change settings. Hitting the backlight button at the lower right of the display takes you back one step in the menu. Hitting STOP brings you back to the main page. Hitting the RECORD button also brings you back to the main page and puts you into record. A pre-record buffer of two to 10 seconds (sample rate dependent) means you'll never miss a take.

IN USE

The 744T offers four operational mode presets—Factory, Film, Reporter and Music—that allow you to get up and running very quickly. You can use one of the existing presets or create your own and store them. There are also a handful of multibutton shortcuts to get to the most frequently used features. I plugged in a new Schoeps CMIT 5U shotgun mic, turned on the 744T, hit the Menu button, selected Quick Setup, scrolled to Load Film Setup, pushed in the rotary scroll knob and up came two channels of phantom-powered audio, plus the two-line inputs each routed to one of the four tracks. I didn't want to use all four tracks and with only one mic, didn't need phantom on the second track, so I dialed up input two, turned off the phantom power and then scrolled down to input routing and selected input one to track one. I then pushed the scroll knob in again to make the selection.

The sound quality of the preamps and converters of the 744T are quite good—on a par with or better than those in the Sound Devices 442. On my Web site, *www.tyford.com*, in the Article Archives Sound Devices folder is a 48 kHz WAV file called 744T Normal Test.

I recorded it at normal level with the new Schoeps CMIT shotgun mic. Halfway through, I cut the gain at the preamp, so that I was recording around –35 dB. I later optimized that portion of the file to show how quiet the 744T system and A/D conversion are. Pretty impressive.

I tested the sturdiness of the hard drive by continually banging my fist on the case while recording. The hard drive ignored my assault. I learned that I could connect the 744T to my Mac while running Pro Tools, but doing so was a bad idea. Apparently Pro Tools and other random access editing programs put audio database files on the drive. Because the drive is not part of the main system, the data can get corrupted. Sound Devices suggests loading audio on to a computer system and disconnecting the 744T before starting up any editing program.

There have been a few reports of interference caused by certain combinations of wireless mic frequencies and specific sample rates. These are in the minority, occurring mostly with bag systems that use a common battery and distributed DC power, and with wireless mic receivers operating within a foot of the 744T.

Experiments with my Audio Technica U100 series wireless mics showed no interference problems. Sound Devices and Lectrosonic are working together on this issue and suggest that if you have any concerns that you contact Sound Devices directly for the most recent data.

One of the areas for improvement is making the case more watertight. Apparently, the 744T is not as rainproof as a Shure field mixer. If you get caught in a downpour, rain can enter around the many LEDs on the front panel and shut down the unit.

FireWire transfer is slower than it could be, but I did transfer 47.8 MB in 14 seconds (3.41 MBps) to my system. CompactFlash is not available via FireWire. Faster transfers and the use of an external FireWire drive are in the plans. For more information, and to download firmware upgrades, check the Sound Devices Web site.

SUMMARY

The 744T represents the state-of-the-art at the moment. As the art evolves, the machine's firmware can be upgraded. In fact, while I was putting it through the paces, I performed the upgrade to Version 1.57 by downloading the file from the Sound Devices site and dragging it to the 744T hard drive.

The procedure took about two minutes. Sound Devices has always been a conscientious company, very concerned about its gear and customers. I continue to be impressed with their offerings.

Ty Ford is an independent audio/video producer based in Baltimore. He has been involved in audio/video technology for more than 30 years. He may be contacted at www.tyford.com.

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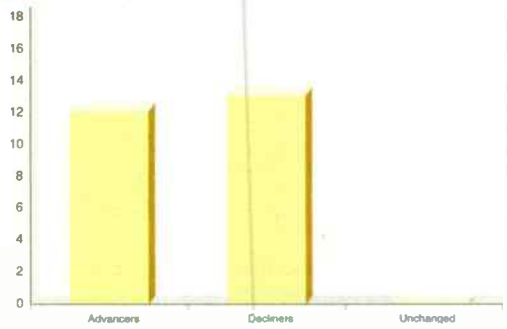

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Avid	35.78 - 68.35	43.67	44.17	1.14%
Belden	17.65 - 27.72	27.11	26.95	-0.59%
Ciprico	3.70 - 6.19	5.80	5.88	1.38%
Harmonic	4.08 - 10.35	5.81	6.59	13.43%
Harris	27.25 - 49.78	45.83	45.52	-0.68%
LSI Logic	5.01 - 11.58	11.18	11.00	-1.61%
Scopus	5.05 - 8.35	5.90	5.23	-11.36%
SeaChange	5.07 - 13.60	7.68	7.83	1.95%
Tektronix	20.97 - 36.89	36.70	35.16	-4.20%

Broadcast STOCKS as of March 24

Company Name	52-Week Range	March 17	March 24	% Change
Acme	3.30 - 5.70	4.05	3.88	-4.20%
Belo	20.74 - 24.96	20.07	19.91	-0.80%
Emmis	15.29 - 24.49	16.57	16.70	0.78%
Entravision	6.80 - 9.50	7.87	8.25	4.83%
Fisher	41.43 - 51.90	42.88	43.00	0.28%
Gray	7.53 - 14.66	7.95	8.38	5.41%
Hearst Argyle	23.13 - 26.34	23.55	23.74	0.81%
Nexstar	3.93 - 7.24	4.42	4.62	4.52%
Lin TV	8.80 - 17.12	9.25	9.41	1.73%
Paxson	0.37 - 1.56	0.96	0.94	-2.08%
Sinclair	7.18 - 10.07	7.42	7.61	2.56%
Univision	23.52 - 35.65	34.09	33.67	-1.23%
Young	1.70 - 9.36	3.30	3.27	-0.91%
Tribune	27.79 - 40.14	29.36	27.88	-5.04%
Meredith	44.51 - 56.83	56.13	54.85	-2.28%
EW Scripps	44.36 - 52.91	45.90	44.88	-2.22%

Barrington Acquires Raycom Stations

MONTGOMERY, ALA., HOFFMAN ESTATES, ILL.

Barrington Broadcasting Corp. is purchasing 12 TV stations from Raycom Media in nine markets in a deal worth $262 million.

The stations include NBC affiliates WNWO-TV, Toledo, Ohio, WSTM-TV, Syracuse, N.Y., WPBN-TV and WTOM-TV, Traverse City-Cheboygan, Mich., and WLUC-TV, Marquette, Mich.; Fox affiliates WACH-TV, Columbia, S.C., KXRM-TV, Colorado Springs, Colo., and WFXL-TV, Albany, Ga.; UPN affiliates WSTQ-TV, Syracuse, N.Y., and KXTU-TV, Colorado Springs, Colo.; CBS affiliate KGBT-TV, Harlingen, Texas and ABC affiliate KTVO-TV, Kirksville, Mo.

Barrington Broadcasting Corp. was formed in 2003 to acquire and operate stations in mid-sized markets and, prior to the Raycom deal, had purchased six other network-affiliated stations. After the Raycom deal is finalize—pending federal approval—Barrington -owned stations will cover more than 3.4 percent of U.S. TV households, with 947 employees nationwide.

Meredith Creates New Video Unit

NEW YORK

Meredith Corp. has created Meredith Video Solutions, a new venture that will use all Meredith media platforms to develop and distribute video content for consumers.

"We possess some of the most recognizable brands in consumer media, and we will expand initiatives to create content that can be used across multiple platforms," said Paul Karpowicz, president of the Meredith Broadcasting Group.

Karpowicz and vice presidents, Mark Berryhill and J.R. McCabe, will oversee the new business unit. Berryhill will be responsible for production and programming; McCabe will have sales and new business development duties.

Berryhill moves from vice president of news and marketing for the Meredith Broadcasting Group, a position he has held for the last four years. McCabe is joining Meredith from Paramount Pictures Television, where he was eastern regional sales manager.

"We have an excellent base from which to build," Karpowicz said. "We are currently evaluating a number of either cable or syndicated distribution channels for Meredith video programming."

The company said its current video initiatives include a new series of 30-minute shows based on magazine content that is being syndicated to more than 85 percent of U.S. television markets. E.g., American Baby branded video-on-demand is distributed by Comcast cable; custom how-to DVDs are being created for The Home Depot; and news vignettes based on the company's magazine content is shown on all 14 Meredith television stations and other stations across the country.

News Stations Team Up in Las Vegas

LAS VEGAS

KVWB-TV, The WB affiliate here has partnered with NBC affiliate KVBC-TV to produce a new 10 o'clock news hour, "News 3 at 10 on WB Las Vegas."

In April, KVBC will produce a 10 p.m. to 11 p.m. newscast Monday through Friday, and a 10 p.m. to 10:30 p.m. newscast Saturday and Sunday on KVWB. Jim Snyder and Nina Radetich, co-anchors of News 3 at 11 p.m. will anchor the 10 p.m. newscast weekdays. Dana Wagner will be the weather anchor.

KVWB's news, which was discontinued March 3, was produced by the station with a national news feed from Newscentral, a service of its parent company, Sinclair Broadcast Group. NewsCentral discontinued its live primetime newscasts on its other WB stations effective March 31.

Sinclair's NewsCentral integrates newscasts produced in Sinclair's corporate news facilities with locally produced segments.

Belden CDT Sells U.K. Operations

ST. LOUIS, MO.

Belden CDT Inc., a maker of high-speed electronic cables and wire products, has sold its telecommunications operation in Manchester, England, to Manchester Cables Ltd. for an undisclosed amount.

John Stroup, president and CEO of Belden CDT, said, "Our exit from this business is consistent with the continuous refinement of our market focus. It will free management's attention to work on raising the profitability of the rest of our European business portfolio."

Manchester Cables Ltd. has arranged an agreement with the operation's principal customer, British Telecom. The company said key management and most employees are transferring with the business.

Belden CDT's revenue in 2005 was $1.35 billion.

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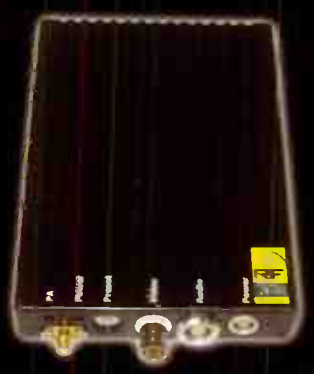

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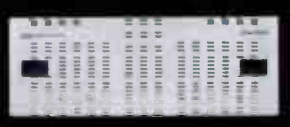

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