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WHAT'S INSIDE

Are Broadcasters Ready for 2009?

Vendors urge planning now

PART I

by James E. O'Neal

WASHINGTON

It's like the old visual cliché for the passage of time in movies—calendar pages dropping more and more rapidly until none are left.

This time, it's the countdown to switch off analog television broadcasting and the calendar pages end after Feb. 17, 2009. By best count, that's only a matter of 97 weeks from now.

The Association for Maximum Service Television has even gone so far as to place a rather ominous digital clock at the top of its Web site (*www.mstv.org*)—ticking away the days, hours, minutes and seconds before America's septuagenarian analog television broadcasting system has to be euthanized.

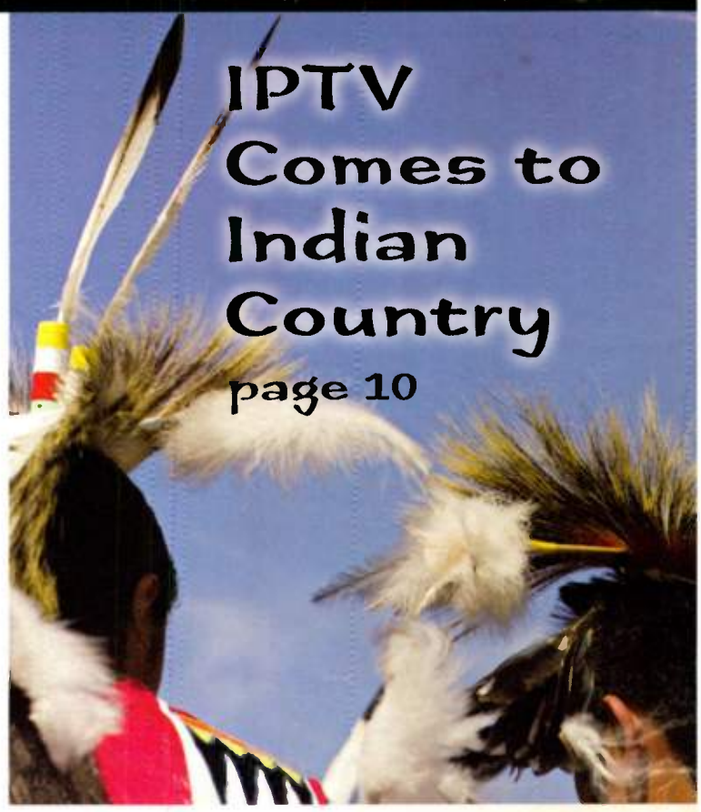
There has been no small amount of discussion and conjecture that there may be some problems ahead in trying to meet that deadline.

Taking a television station digital involves a lot, but on the transmission side of things, it really boils down to delivery and installation of three big (both price tag and size) items: Antennas, transmitters and, where needed, towers. None of these are really off-the-shelf items.

On March 12, MSTV featured a Webcast examining the state of digital transition readiness. The Webcast featured Andrew Long, associate chief of the FCC's Media Bureau; John Lawson, president and CEO of the Association of Public Television Stations; Marcellus Alexander, executive vice president of television at the National Association of Broadcasters and MSTV President, David Donovan.

Numbers and facts presented were staggering, and in some cases less than encouraging—upwards of 600 transmitters needed, perhaps 400 antennas, 650 mask filters, maybe 750 digital exciters—a long shopping list.

MSTV, PAGE 12



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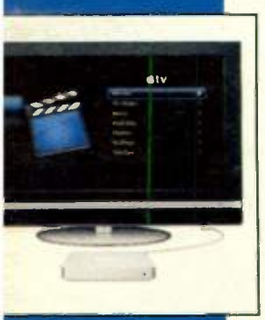

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PBS: 30 Years of Innovation and Technology

CONTRIBUTING WRITERS

Walter Schoenknecht

Inside Production

In our area, there's a popular extra-credit assignment from elementary and high school English teachers: Get out your blue pencil and proof-read the daily newspaper.

Thanks for embedded spell-checkers, it's no longer a matter of hunting... p. 72

Frank Beacham

Net Soup

Noticed the number of new electronics products with the word "Webcasting" slapped on the box? It's enough to make you wonder if this studio in a box concept has become today's shake-and-bake version of broadcasting.

Of course, this is mostly a... p. 76

Karl Paulsen

Media Server Technology

Recently we looked into how media makes its way from origination through the production and transmission chains. It's the part of the content life cycle when material moves through core systems, information about it is collected, and is associated in an absolute... p. 81

World Radio History

FROM THE EDITOR

The DTV Deadline

Now that the general press has started reporting on the analog shutoff less than two years hence, the focus has been on preparing the viewing public for the day when analog TV sets will no longer receive over-the-air broadcasts. And that's as it should be. Survey after survey has illustrated the massive public education effort in front of us—particularly for the elderly, low-income and minority households that are more likely to rely solely on broadcast television. An estimated 70 million sets in 20 million households are expected to be affected.

But what about broadcasters? Are we ready?

A recent Webcast conducted by the Association for Maximum Service Television shed some light on broadcasters' preparedness. The numbers aren't encouraging: Nearly a third of the respondents said their facilities required "major work," and nearly 75 percent of stations that are moving to a new DTV channel expect to buy new equipment. Due to the small sampling, MSTV President David Donovan cautions about drawing too much of a conclusion from the association's research; nevertheless, it's evident that we still have a lot of work on our hands.

Whether this transition is completed on time depends on whether the FCC itself is ready. "We need to get [the transition] done right and we need to get it done on time," said Andrew Long, associate chief of the FCC's Media Bureau during the Webcast. To achieve this goal, Long promises that the commission will "provide the regulatory flexibility needed to move forward in this transition."

That flexibility is going to be important because a number of factors are beyond our control; issues such as weather and the lack of qualified RF engineers are among the likely causes of delays.

Are manufacturers ready? According to our own informal survey, most of them have the capacity as well as the ability to ramp up production, if needed. The antenna and tower companies? Although Dielectric says it's ready, a spokesman for the company warns that broadcasters need to move soon—within the next several months—if they want to get in line for construction or modifications.

There are a lot of components that need to work right for this transition to come to a successful conclusion. Public education efforts are critical and NAB's move to deploy a transition team is to be commended. Cooperation among the various entities, including broadcasters, consumer electronics companies, cable and the federal government is crucial. The NTIA's converter box program is taking shape, but there are still too many unanswered questions to feel very confident that the program will come off without some hitches.

For too many years, we scoffed at the idea that the 2006 deadline was realistic. Some are still skeptical that 2009 will stick. However, the factors that favor Congress sticking with the 2009 deadline—including budget issues, spectrum auctions and public safety—are too important to dismiss. We need to act as if the deadline *is* Feb. 17, 2009.

* * *

PBS is marking the 30th anniversary of the PBS Technical Conference this year, just prior to NAB. Since its inception, PBS has been a leader in the evolution of broadcasting and a number of technical achievements were unveiled and demonstrated at this important annual event. Join us as we take a look back at 30 years of technical innovation (and look to the future with an interview with its new CTO), in our special report, starting on p. 38.

Tom Butts
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tbutts@imaspub.com

LETTERS

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

Get a Clue

Dear Deborah D. McAdams:

Jonathan Collegio told you that many Americans have no clue as to the digital transition in the U.S., ("NAB DTV Transition Head Emulates OTA Viewers," Feb. 21).

Maybe now that he is back from the U.K. he may have a clue himself about what a successful digital transition looks like. Maybe he can offer that clue to the NAB which has been clueless as to the U.S. transition for the last 10 years.

Here is a clue. The U.S. has the worst digital TV modulation in the world and is also saddled with MPEG-2. Where was the NAB when all this happened?

Bob Miller
New York

Staying Cool

Dear Andy Ciddor:

I read your article on DMX with great interest ("When Wires Aren't the Worst Way to Go," Oct. 6, 2006). Someone told me that DMX cables are affected by heat. Apart from the obvious problem of not getting any cable too hot is there any basis in this? Does excessive heat affect the signal?

I would appreciate your thoughts.

Geoff Boswell
Ashead, Surrey, England

Andy responds:

There are quite a few misconceptions floating about regarding DMX512, but this is the first time I've heard about the cables or signals being affected by heat.

DMX512 is a serial data protocol that runs at 250 Kbps over a simplified RS-485 network. The cable required is electrically similar to shielded Cat5 Ethernet (STP or FTP) cable. In fact, the installed cabling on many DMX512 networks is actually Cat5 or 5e STP. While Cat5 can handle data at up to 100 Mbps, DMX512 travels at just one four-hundredth of that speed and is highly unlikely to be degraded by normal operational temperature ranges.

To my knowledge there are no specific issues associated with either running DMX networks in warm places or with DMX cabling being the source of any measurable amount of heat.

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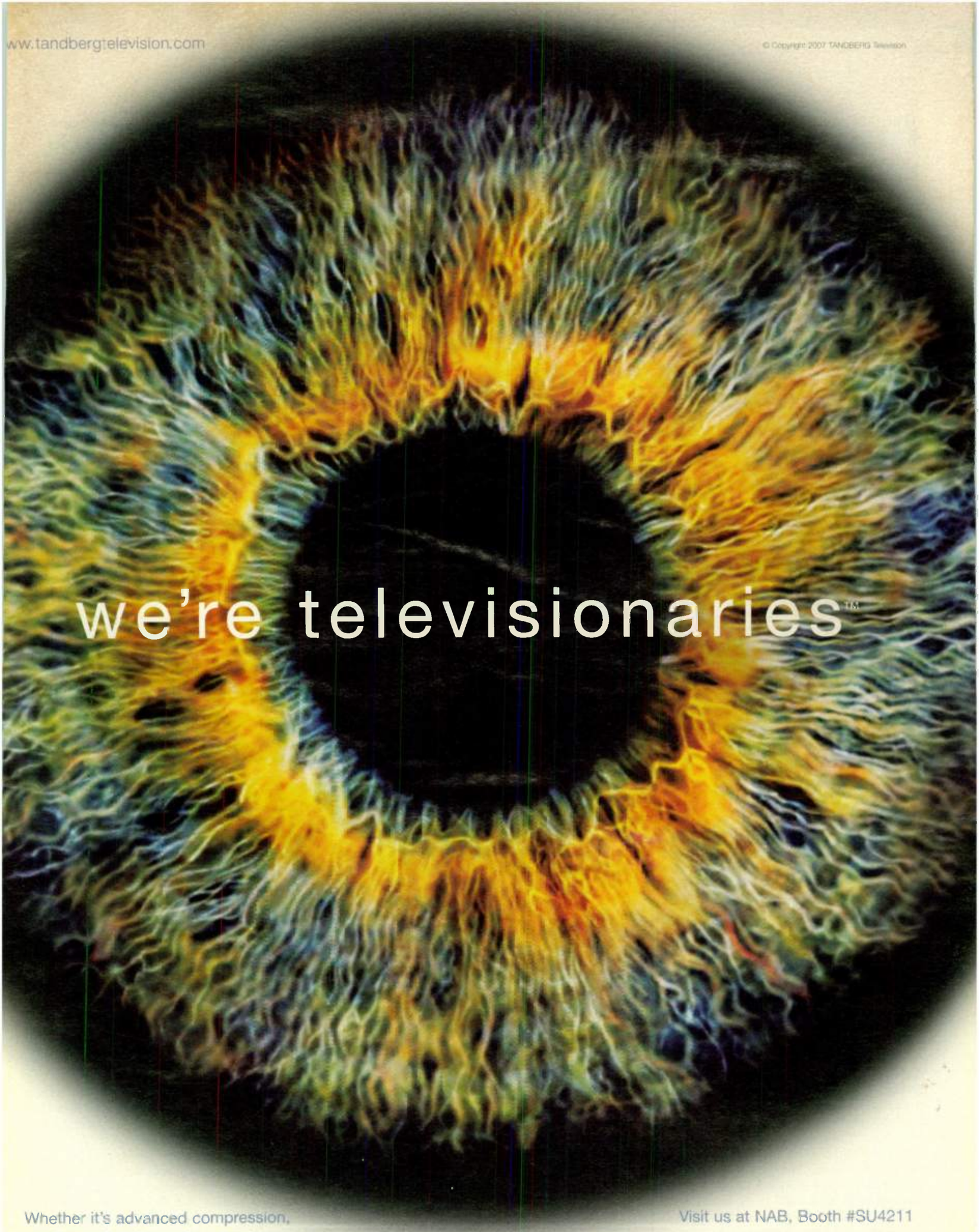

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Broadcasters Adopt e-Business Platform

System designed to serve as an 'electronic bridge' between TV stations and advertisers

by Claudia Kienzle

NEW YORK

As the local television station's broadcast platform expands to encompass HDTV, multiple DTV subchannels, the stations' Web sites, and mobile, broadcasters recognize that there is a critical need to change the way they manage their spot TV advertising business.

Until now, processing orders for spot buys has involved tons of paperwork; typing in sales orders into a computer; as well as calling and faxing information to customers. But TVB ePort promises to remedy the situation by providing an "e-business digital platform" over which sales orders, invoices, and other transactions move electronically between broadcasters and their trading partners, including advertising agencies, media buyers, and advertisers.

Spearheaded by the Television Bureau of Advertising, TVB ePort is currently in development and should be ready to carry the "paper work" associated with TV spot orders electronically by the fourth quarter of this year.

"This paperwork has been a time-consuming process that can introduce human error and delay the receipt of payments due to discrepancies," said Abby Auerbach, executive vice president of TVB in New York. "As broadcasting opportunities expand exponentially to include HDTV, DTV sub-channels, the stations' Web sites, and even mobile, we have reached a point where managing these increasingly complex sales transactions has become virtually impossible without an electronic process."

BACKED BY BROADCASTERS

According to Paul Karpowicz, president of Meredith Broadcasting and chairman of the TVB board, there is very strong broadcaster commitment to TVB ePort. The Meredith station group is comprised of 14 stations nationwide, including WGCL CBS 46 in Atlanta; KVVU-Fox 5 in Las Vegas; KPHO CBS 5 Phoenix; and KPDX-CBS 49 in Portland, Ore. Meredith claims that more than 10 million households tune into a Meredith-owned station each day; and the stations' Web sites attract 1.3 million unique visitors and 12 million page views per month.

"For our company, we look at ePort as the answer," Karpowicz said. "As we move our content onto different platforms—our HD and DTV channels, Web site, and mobile—we want to make it as easy as possible for our customers to take advantage of the great value that the Meredith TV stations bring to the market.

"So to the extent that TVB ePort facilitates that," he said, "and makes it an easier proposition for agencies and media buyers to use Meredith TV stations, as well as all local TV stations, we think that's something that we should get behind. If TVB ePort can facilitate all of the functions that are now faxed or emailed... and that create more paperwork... I think it makes us a more attractive vehicle for agencies and their clients."

Amy Auerbach, executive vice president, TVB

"We have reached a point where managing these increasingly complex sales transactions has become virtually impossible without an electronic process."

—Abby Auerbach, TVB

When asked if advertising customers would be able to use ePort to peer into a station's commercial inventory, Karpowicz said that it's important to broadcasters that the TV spot sales process remain a one-to-one negotiation between the TV station rep and the agency/client.

"We certainly don't want to commoditize our inventory," Karpowicz said. "I think that if you went in that direction, that's what you'd be heading towards. What we're talking about is that everything that happens after the negotiation, after the buy is made, would go through TVB ePort, including the sales orders and invoices. Our hope is that TVB ePort would eliminate discrepancies and bring consistency to the process for everyone."

WORTHWHILE INVESTMENT

ePort also has the full backing and support of the NAB.

"NAB is providing a significant amount of initial financing for this initiative, said Dennis Wharton, executive vice president of media relations for NAB. "We want to do as much as we can to preserve and enhance local advertising opportunities for our member stations.

"[ePort] is an idea put forth by TVB, and we took a look at it and decided that it was a worthy use of some NAB monies, and we look forward to seeing some great success with the program," Wharton said. "NAB recognized the potential for strengthening TV advertising opportunities within local stations for the future."

According to Auerbach, the estimated cost to develop the platform is approximately $5 million. NAB provided the initial funding to launch the project and broadcasters are expected to support TVB ePort into the future. TVB ePort will be free to advertisers.

The key to ePort is that it is an open standards-based solution that can be used by any traffic or sales system. And it is accessible by small market stations as well as large market network stations and affiliates.

"It will also dovetail with any other open standards-based initiatives being developed in the marketplace, such as the '4A's E-Biz for Media' initiative." The "4A's," which stands for The American Association of Advertising Agencies, is facilitating e-business across all media through its "E-Biz for Media" effort.

Unlike the 4A's initiative, TVB's ePort is focused specifically on local television digital assets and local broadcasters have gotten behind the cause.

"In fourth quarter 2006, many broadcasters got together and said we want to support a break-out solution for e-business and we're going to fund it," Auerbach said.

In light of the broadcasters' solidarity, Auerbach said, "software vendors then had the confidence to go ahead and invest their own resources to modify their sales and traffic systems to support ePort."

AUTOMATION PARTNERS

One vendor that stepped up to the plate to extend its software products to support ePort is VCI Solutions, a Springfield, Mass.-based developer of sales, traffic, accounting, and automation software for the broadcast industry. According to Lowell Putnam, CEO and president, ePort is consistent with the company's goals to develop new, innovative products that give their clients better business planning and operational tools.

"VCI is committed to helping our customers gain a greater competitive advantage in the marketplace," he said. "Spot TV is facing increased competition and fragmentation of ad revenue. Making it easier and simpler to do business not only helps keep revenue but can also reduce costs and allow sales to focus on sales, not order administration. ePort represents a great new vehicle to help stations address their core customer base, regional and local business."

VCI recently participated in TVB's "schema" workgroup along with other traffic software vendors, including Harris, OSI, and Wide Orbit. On the buying side, the working group included Data Tech, Donovan Data Systems, Media Plex, Strata, and Arbitron. The schema defines the manner in which all of the data will be organized and transmitted. Currently in phase one of the development efforts, TVB has hired media technologist Click It Solutions to complete the schema work.

Once it is known which fields will carry which data elements, all of the documents related to TV spot and stations' multiplatform buys will have a consistent presentation and structure across the board. This means that a traffic and operations system could automatically take information from the operations log and populate the ePort fields with the run times, date, spot name, program bought, and other data. This report could then be sent electronically via ePort to the media buyer to confirm that spots ran as scheduled.

The ultimate goal for ePort is to have all of the electronic transactions moving in XML, but since this computer language is not yet widely supported, ePort will begin by enabling users to download and ingest the documents in three different formats: XML, Excel, or .pdf. ePort will then serve as an electronic conduit through which these electronic transactions and documents can be exchanged in a uniform manner whether the ad buy includes the station's HDTV or DTV channels, well as its Internet and mobile "channels."

"We believe firmly that local broadcast television is the ideal medium for geo-targeted advertising" Auerbach said. "But all of the paperwork is becoming detrimental. If we can make the sales process less costly and cumbersome, this will free up time that broadcasters can now spend developing their business." ■

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YouTube Who?

NBC-Fox online deal just the latest in a spate of new video distribution ventures

by Susan Ashworth

SAN FRANCISCO

If "choice" is what consumers are after when it comes to downloading television and movie programming, today's market is a Vegas-style buffet of options, packed with myriad preferences and dizzying alternatives.

But like a cafeteria line with too many selections, the flooded marketplace may end up looking like a disconcerted jumble of choices, with consumers confused as to where to turn.

And it remains to be seen how affiliate broadcast stations will benefit—or suffer—from the fallout.

The biggest driver of the acceptance of any of the newly announced video distribution portals is bound to be content, quality, cost and ease of use.

"The service that has the most high-quality content at the lowest cost which can be accessed the easiest wins," said Rob Enderle, principal analyst for the Enderle Group, a technology analysis firm in San Jose, Calif.

JOINT-VENTURE BONANZA

The spring of 2007 has brought a flurry of recent announcements on the alternative video distribution, most recently from NBC and News Corp. who announced last month that they were joining forces to create the "largest Internet video distribution network ever assembled."

Set to debut this summer, the video site will offer thousands of hours of television programming, movies and clips from major film studios and several networks. With high-profile distribution partners like AOL, MSN, MySpace and Yahoo!, the network has the capability to reach 96 percent of the U.S. Internet audience, according to News Corp. President and COO Peter Chernin.

In a new twist on camaraderie in the broadcast trenches, Chernin said the venture's primary goals were to serve customers, keep control over programming and offer third parties access to a new, ubiquitous contribution process—with particular emphasis on the open nature of the new venture. Anyone who wants to be involved in contributing content to the site can do so—be it a network like ABC or CBS, or a single individual wanting to post original programming. Even YouTube itself, the popular Internet video site whose success has sent the big networks scrambling to compete, was welcomed into the venture by NBC and News Corp.

"We are open for business with anyone," said NBC Universal President and CEO Jeff Zucker said.

The two stressed, however, the importance of content protection. "[Content providers] will be treated fairly and content will be protected," Chernin said.

AFFILIATE IMPACT

Yet as the big networks search for ways to compete in this foreign new world, broadcast affiliates must begin to gauge how they'll be impacted by a joint venture such as this one, and the subsequent new distribution of content.

Jeff Zucker, NBC Universal president/CEO

"All of our content will appear first exclusively on our primary distribution model, which is our affiliates."

—Jeff Zucker, NBC

"All of our content will appear first exclusively on our primary distribution model, which is our affiliates," Zucker said. "This is a real positive for the traditional businesses—we're very mindful of how to build this thing in a way that helps station owners."

The two did not reveal plans for local stations to receive profits from the new venture, although Zucker said they "potentially could be distribution partners."

Zucker stressed that, when it comes to the network's own affiliates, local stations will not be "cannibalized" by the emergence of this new Internet venture.

"We aren't going to cannibalize those other distribution methods," he said. Rather, Chernin said, this venture should be seen as a "great promotional platform... that will give people the chance to catch up with shows they may have missed."

Yet some analysts disagree.

"I can't see how this won't affect them," Enderle said. "If people increasingly go directly to the Web to get access to programming, the local affiliates become less and less important."

Enderle sees three possible counterstrategies: Find a way to reverse the decision using collective bargaining influence, go into the production business themselves and compete with content using similar channels, or find a new business to get into.

SEARCHING FOR SUCCESS

NBC and News Corp. are not alone in their search for the elusive, magic solution.

Nearly all of these recent ventures are attempting to accomplish what YouTube and others have also sought to do: tap into a loyal base of customers who clamor for programming, and who will submit to advertising in the meantime.

Take the San Francisco firm BitTorrent, which announced in February it was creating its own entertainment network around the ability to deliver high-quality media over the Internet. Or consider MovieBeam, an on-demand set-top box movie service recently bought by the nation's second-largest video rental chain to deliver video content to customers.

Analysts say that fervent consumer demand will be a biggest driver of the acceptance of the technology—and a test of whether these new business models can survive.

That's the theory being followed by TiVo and Amazon.com which joined forces in early March to create a technology/programming venture that will give consumers access to thousands of film and television programs.

Dubbed "Amazon Unbox on TiVo," the service is designed for broadband-ready TiVo subscribers. The service will give TiVo subscribers a new option for searching for and downloading films and television shows from the likes of Sony Pictures and MGM Studios, who join a sizable list of entertainment companies supporting the venture, including CBS, Fox, Paramount Pictures, Universal Studios, Warner Bros. and Lions Gate.

The announcement makes TiVo the first DVR firm to offer direct movie downloads to television sets.

"Whether it's content you choose from Amazon.com or from broadcast and cable programming, we put it all on your television, in one place, easy to find, whenever you want them," said Tara Maitra, general manager and vice president of Content Services at TiVo.

The promise of downloading movies simply and easily was the impetus behind MovieBeam's acquisition by video rental firm Movie Gallery last month. The move was seen as an effort to diversify Movie Gallery's business and drive future revenue growth.

But exactly how that will happen is yet to be determined.

Developed originally by Disney as an alternative to physically heading to the video rental store, MovieBeam has faced stiff competition from other firms delivering video content to the home, such as on-demand offerings from cable firms and in-the-mail delivery options like Netflix. Disney spun the firm off as an independent company in 2005.

Investors, including Disney and Cisco, poured more than $48 million into MovieBeam last year, yet the on-demand movie service was acquired for just $10 million by Movie Gallery.

MIXED RESPONSE

Not all of these recent announcements have been welcomed warmly, perhaps because the individual choices available to consumers are so voluminous.

The San Francisco firm BitTorrent faced similar questioning earlier this spring after launching its BitTorrent Entertainment Network, which is designed to deliver high-quality media over the Internet and give consumers access to a large library of downloadable digital entertainment via the Web. Content is available from MGM, 20th Century Fox, MTV Networks, Paramount Pictures, Warner Bros. and others. At launch, the network will feature more than 5,000 titles of movies, TV shows, PC games and music content, as well as over 40 hours of HD programming.

The service will allow users to rent movies, purchase TV shows, buy music videos, download video games, as well as publish and share individual content, akin to the publishing features available on established sites like YouTube.

Like other firms, BitTorrent is keenly aware of the demand from consumers for easy-to-access, high-quality entertainment content, said Ashwin Navin, president and co-founder of BitTorrent.

The network also offers a self-publishing capability. "Our entertainment network is a true marketplace that embraces and welcomes contribution from the independents, allowing them to reach a vast user base with their high-quality creative expression," Navin said.

But although Navin said the company's uniqueness lies in the "strength of our community, delivery technology, and the industry's most comprehensive catalog of digital content," the initial response to the download process itself was mixed.

Some users reported problems with the company's digital rights management (DRM) technology, which uses Windows Media DRM. Complaints also surfaced complained about the lengthy authentication process. ■

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American Indian TV Targets IPTV

AITV to focus on urban areas first, then reservations

by Ken Freed

NEW YORK

Broadband IP television is coming to Indian Country. American Indian TV debuted in March at RES2007, the 21st annual National Reservation Economic Summit and American Indian Business Trade Fair, which featured 400 exhibitors and 2,500 attendees from across North America.

"AITV will be a subscription-based service," said Jerry Ashton, president and cofounder of AITV. "All people interested in Native content will serve as the audience. We intend to feature powwows, news, original films by Native filmmakers, educational channels to preserve and protect Indian culture, Native arts and crafts, and much more."

Ashton said the response to AITV was "excellent" at RES2007, which was sponsored by the National Center for American Indian Enterprise Development (*NCAIED.org*), created in 1969 to promote American Indian economic self-sufficiency through business ownership.

AITV grew out of conversations about IPTV between Ashton and Bronx, N.Y.-based Joseph Franklyn McElroy at Corporate Performance Artists.

"I've been developing IPTV deals with various media groups over the past few years," said McElroy, now the CTO and co-founder of AITV, "but I never thought IP video on a computer provided a satisfactory viewing experience. The video was good enough for short clips, but it hardly was worth watching for a half-hour or hour TV show."

Last summer, McElroy was introduced to NeuLion, a Plainview, N.Y. company that's developed an IPTV set-top box with proprietary decoding software, supported from Linux servers, that delivers full-motion video over the Internet at wired or wireless broadband speeds as low as 700 Kbps, with a 500 Kbps box slated for release by this summer.

"I'm technology and content oriented," said McElroy, the former CEO of EveryDayOffice.com and a leader of the Open Source SIG for the New York Software Industry Association. "I'm not easily impressed, but I was blown away by the video quality of the NeuLion set-top."

McElroy said he immediately thought of his friend, Jerry Ashton, who was developing call centers on Native American reservations for American Indian Sourcing.

"I set up a meeting with Jerry and Chris Wagner, the executive vice president at NeuLion, and we discussed focusing on Indian Country as a niche market for IPTV. Jerry and I put together a partnership. Michael Starobin came on board as the CEO. We opened an office [near Gramercy Park] in Manhattan, and that's the genesis of American Indian Television, Inc."

DIGITAL DIVIDE

Michael Starobin was a real catch for AITV. A 30-year broadcasting veteran, he pioneered nonlinear editing with Avid in the 1980s, introduced NLE to the advertising agency market, then brought NLE to Martha Stewart Living in 1994, where he later became senior vice president in charge of all television content until June 2006, when he began talking to AITV.

"There's a deep digital divide on the Reservations," Starobin said. "The desire for broadband is strong among the tribes that do not have it yet, and the response to AITV at RES2007 makes me anticipate building solid momentum going toward crossing that divide."

A number of the eastern tribes have already deployed Internet infrastructure, he noted, but penetration is very low in the Southwest, northern Rockies and up into Alaska.

"While most of those in the older generations do not feel a need for Internet access, the younger generations do, and their talents cannot develop as they could if they had access. For example, distance learning and telemedicine alone would make a big difference," he said.

Starobin said conversations with members of the tribal and intertribal associations at RES2007 convinced him that AITV services will be welcomed on "the Res." He discovered that entertainment and sports programming likely will be popular.

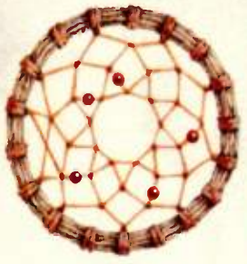
"They want access to pro basketball, and there are a lot members in the boxing organizations," he said.

Producing tribal news to distribute throughout the AITV network will be a top priority, he said. Organizations like NATV.org in Washington, D.C., already are teaching television production skills, he observed, "and the cost of production has come down to the point a good consumer camera and a decent computer are enough to put a news feed together. We envision daily newscasts anchored by popular Native American personalities."

NEULION BOX

What sold Starobin on joining AITV was not only the vision and mission, but the capabilities of the NeuLion box.

"The NeuLion platform is incredibly stable," he said. "I was demonstrating it at Res2007 on the conference floor and in my hotel room, and it did not miss a beat in delivering cable-like video experiences."



American Indian tv

"IPTV represents an opportunity to reach audiences that could not be reached before."

—Randy Ross, North West American Indian Development

NeuLion already has commercial deployments of its system as the foundation for launching AITV, said Jerry Romano, director of business development. Founded by Nancy Li, former chief technology officer of Computer Associates, NeuLion bases its services on the IPTV set-top box manufactured by sister company TransVideo in Beijing. NeuLion also provides a complete backend for the IPTV network, from video servers to billing to customer service.

NeuLion is building its business by offering IPTV to niche markets. Programming services already launched include the flagship KyLin TV for Chinese language audiences in North America, Hawaii TV for the islands, and ABS/CBN for the Philipino market.

"What's really impressive to me," Romano said, "is that the thin-client box supports full DVD functionality with pause, fast-forward and rewind from only a two-minute buffer in the box memory. Everything else is in the network, which makes it very easy to upgrade the system."

Ashton said NeuLion's box and network infrastructure will allow AITV to break even with as few as 10,000 subscriber and then grow from there.

He is not concerned about immediate reach onto tribal lands.

Of the 2.5 million to 5 million people "who call themselves Native Americans, 60 percent of them live in urban areas and already are getting 'Desperate Housewives,'" Ashton said. "My research says we can successfully launch AITV to this market base and gradually expand onto the reservations."

Ashton also is not worried about original content.

"I've found a tremendous wealth of Indian filmmakers who say their main problem is distribution. Right now most of them are selling their DVDs at film festivals or out of the trunk of their cars. I'm convinced from the conversations I had at RES2007 that they will want to distribute their work through AITV."

"I'm still getting my arms around the idea of IPTV, said Randy Ross, a communications consultant who's an enrolled member of the Otoe-Missouria Tribe of Oklahoma with family roots in the Rosebud Sioux reservation in South Dakota. Ross now heads the North West American Indian Development in Seattle and has begun talking with AITV about deployments on tribal lands.

"IPTV is an interesting emerging venue from video-on-demand over the Internet, and it's much needed," Ross said. "IPTV represents an opportunity to reach audiences that could not be reached before." An example is the Black Hills, where tribal leaders refuse to tolerate broadcast TV towers on top of the sacred mountains.

"AITV is tempering its expectations to match the high levels of poverty on the reservations that hinders network development," Ross said. "For the urban Indians, there is a substantial market base of people who have good jobs and regular income. They're the first market segment to reach."

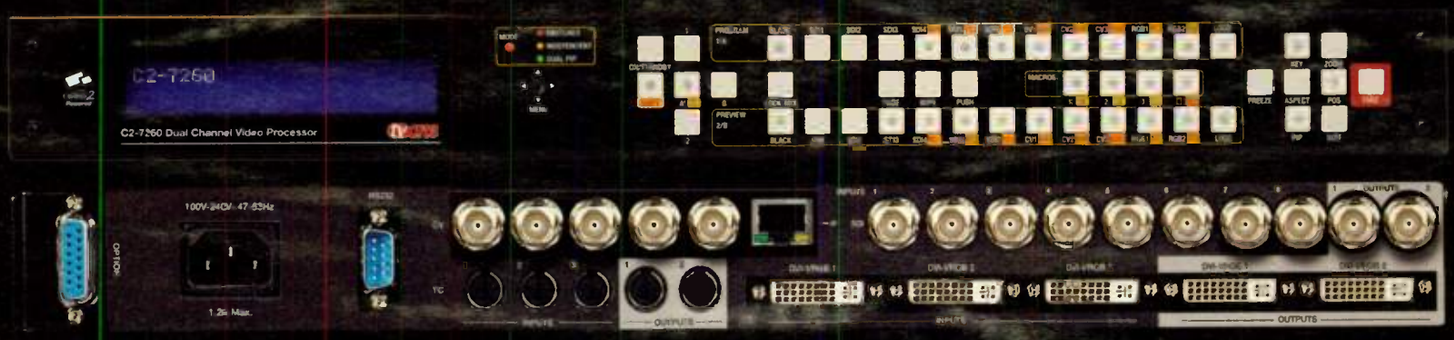
Ashton said AITV plans to enhance its outreach by inviting tribal members onto its advisory board from the four directions—east, south, west, and north—by the time the network launches commercial services this summer.

"My five-year vision calls for capitalizing AITV by selling 50 percent of the equity to Native Americans, and eventually to have the company totally owned by Natives, who may keep me on for their amusement."

Ashton voiced concern that no single tribe or region dominates the network, such as Southwestern tribes now tend to dominate the Indian art market. Based on the idea that all humanity is related, he said, "Every tribe has the potential to contribute and to benefit. That's why we want every tribe to have a fair say on the development of AITV." ■

World Radio History

THE GREEKS ADDED ALL THOSE COLUMNS TO THE PARTHENON BECAUSE THE ARCHITECTURE DEMANDED IT.



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MSTV

CONTINUED FROM PAGE 1

However, Donovan is quick to caution that the figures used in the Webcast were based on a fairly small industry sampling and may not entirely reflect the health of the digital transition.

NOT SURE HOW MANY

"I really want to make it clear that these numbers are an extrapolation based on a very small survey," he said. "It's incorrect to just look at these numbers and conclude from them that the industry will not reach the deadline. There needs to be a further investigation and if it shows that these numbers are representative, then there needs to be cause for concern."

Donovan used as an example a station that had put a digital signal on the air with a new side-mounted antenna and an analog antenna on top of the tower.

"If the side-mount unit is located high enough to provide good service, then the station is ready for the transition," he said. "At some point in the future, they may want to take down the analog top-mounted antenna and replace it. However, they will be providing a good quality signal to their entire service area by the deadline.

"You may also have the reverse where someone will have to move the antenna to the top to meet the requirement by 2009. We need to find out how many of these situations exist."

Donovan stressed that the key point here is that stations have to get going in planning whatever modifications will be necessary for the transition, and they must order equipment as soon as possible.

"If they don't, they may face very long lines if they wait to order the equipment in 2008," Donovan said.

MANUFACTURERS AGREE

Richard Schwartz, vice president of marketing and management at Axcera in Lawrence, Pa., is not so sure that Donovan's equipment figures need to be refined, at least for transmitters.

"Our numbers are very similar," Schwartz said. "Just look at the number of digital stations that are licensed right now. If you assume that there are 1,100 stations on the air today with full power, then there are 500 to 600 coming. Maybe some of these are on the air with low power, but there are a lot that will need equipment. Honestly, we think a few will not make the transition and just go dark."

Schwartz felt that as a whole, manufacturers could keep up with demand for new transmitters as long as orders are placed with sufficient lead time.

"We're the number three provider of digital transmitters in the U.S.," Schwartz said. "As a transmitter manufacturer we don't foresee any problems in supplying our portion of the system."

Jay Adrick, vice president of broadcast technology at Harris, supplied numbers that are in good agreement with those from MSTV.

Courtesy Dielectric Communications

Another station is readied for digital with the installation of new antenna

"We have 306 stations currently broadcasting in UHF that have elected or have been assigned to move back to VHF assignments," Adrick said. "These stations will need a digital VHF transmitter."

Adrick said that by his company's count, 222 stations are transmitting DTV on an interim UHF or VHF assignment (many of these are out-of-core). With the transition, these will move to a permanent in-core assignment.

"In almost every case, this is not an issue of the transmitter having to be replaced, but rather components such as mask filters and/or combiners having to be replaced," Adrick said. "These transmitters will live on."

Adrick said that it will be possible to convert some of his company's newer VHF transmitters from analog to digital operation, but this is not a simple overnight operation. He suggested that there is another option that could speed up matters.

"Already, some customers are asking about having us cut their transmitters in half—go to reduced power analog operation, and convert the remaining half to digital," Adrick said. "On transition night, you'd just make a patch. Post transition, the remaining half could be converted to digital operation for redundancy."

Brett Jenkins, the U.S. video transmission product line manager for Grass Valley is very positive about any rush to purchase new Thomson-branded transmitters.

"It's music to my ears," he said. "I expect all manufacturers including Grass Valley Thomson will be ready. We would be happy to crank out 600 transmitters between now and the transition. All manufacturers have been ramping up for this situation."

Jenkins said that lately he has noticed a slight increase in the level of concern from some customers about securing digital gear.

"Some of the more progressive broadcasters are really beginning to talk with us about equipment, but at this point this is the exception, not the norm," Jenkins said. "We would really prefer to see advance discussions starting to make sure that no one is left behind."

Jenkins observed that some good had come out of the previous missed DTV transition deadlines.

"These have helped manufacturers see problems and make corrections to meet the demand that will come," he said.

When asked about the impact of the telcoms' push to get mobile TV systems operational, Jenkins said that this could be a factor in delivering digital equipment for broadcasters.

"It all depends on timing—with enough advance notice, manufacturers are pretty good at figuring things like this out."

Eddy Vanderkerken, director of sales and marketing of broadcast products at Rohde & Schwarz said that his company has not seen any rise in interest or sales since the MSTV Webcast.

"There are no quick spikes in the transmitter business—everything goes pretty slow," Vanderkerken said. "People have to plan, they have to prepare a budget, have to get quotes—this process usually takes some amount of time."

Vanderkerken said the U.S. television market had been slowing down in recent years, but expected that things will pick up as the transition date gets closer. There has been some amount of interest by some customers in converting from analog to digital.

"We have 306 stations currently broadcasting in UHF that have elected or have been assigned to move back to VHF assignments."

—Jay Adrick, Harris

ANTENNAS?

Despite the large estimated number of antennas that will have to be in place and operational, Bill Harland, director of marketing at Electronics Research Inc. (ERI) in Chandler, Ind., feels confident that the 2009 date is still realistic.

"With a double shift, we can produce 10 or 12 full-power top-mounted antennas per month," Harland said. "We also have crews that can handle installations."

Harland says that ERI is also up to speed on producing the necessary mask filters required for digital transmission, but stressed that early planning and placement of orders would be absolutely necessary to make sure there are enough to go around.

"I feel that as long as the industry cooperates and planning starts in time there will be no surprises," he said. "I don't think that the commission will back off on the date."

Harland was asked if ERI had seen any upswing in orders since the MSTV Webcast.

"There's not really been a rise in business," he said. "But we have seen an increase in the sort of activity that turns into business. The level of interest has probably risen by about a third since the Webcast."

According to estimates from Tim Wells, director of marketing at Dielectric in Raymond, Maine, there are at least 400 stations that will need new transmitting antennas to make the deadline.

Wells too is confident that manufacturers will be able to meet the anticipated demand for equipment.

"We think that if it starts soon—next 35 to 40 days—everything will be fine," Wells said. "We're not that confident if it doesn't start soon."

Wells said that manufacturing capacity could be an issue.

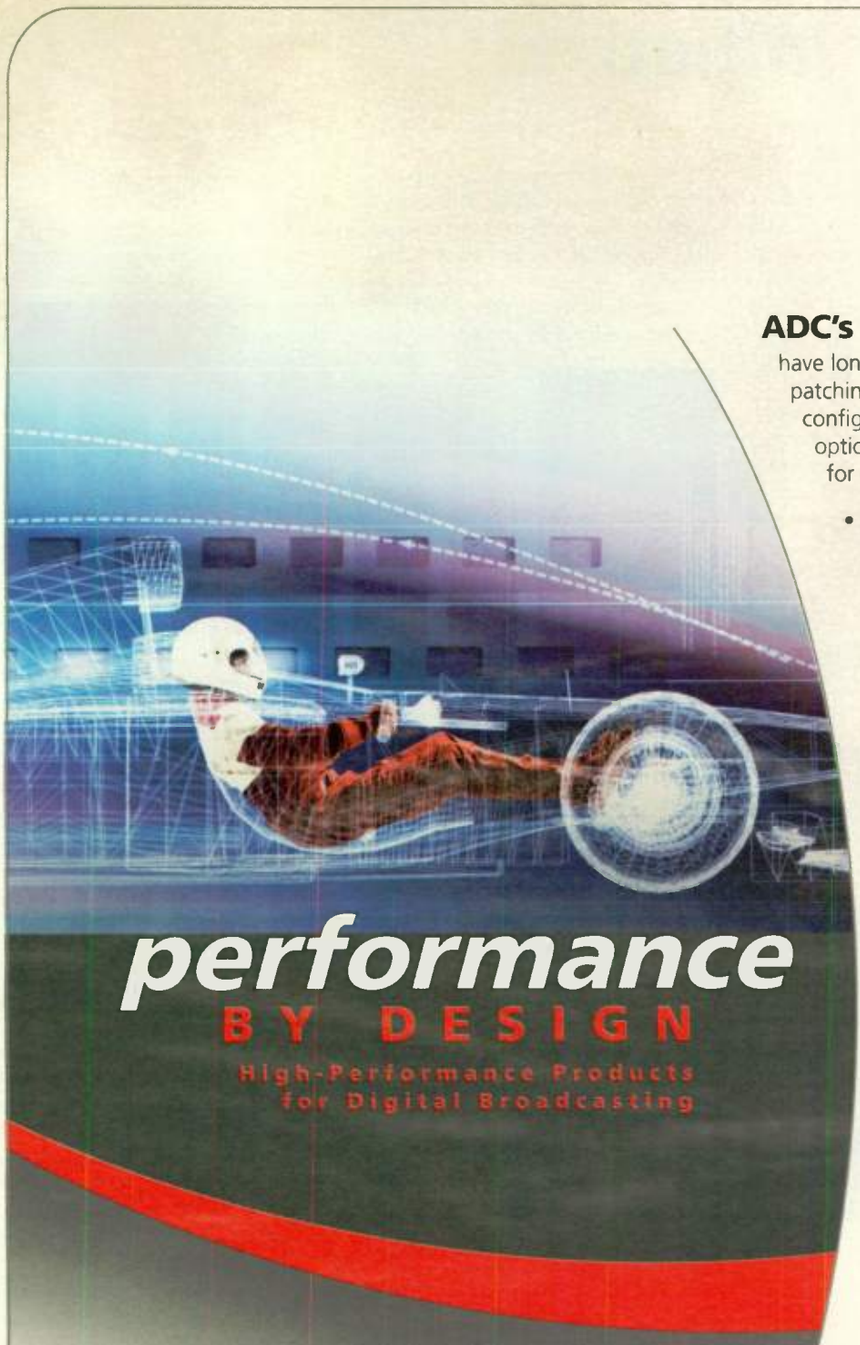
"The whole industry has taken capacity out in the last year—we can't sustain the same staffing levels considering the size of the market," he said.

Some concern has been expressed over the ability to get new gear installed even if it is available and delivered on time. He noted that typical installation time for a new transmitter and filter is about four weeks.

"The service industry may be hard pressed to keep up with demand," Wells said. ■

Coming up in Part II: A look at what local broadcasters are saying.

World Radio History



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CableLab's Off-air Initiative

Lack of detail spurs speculation

by Robin Berger

DENVER

CableLabs is working on an initiative to develop cable interface specifications so that set-top boxes could receive off-air digital broadcast signals.

"This is different from the standpoint that this goes in the home—this isn't [intended for] a headend receiver," CableLabs CEO Richard Green told **TV Technology** in describing the intended path carved out by the new technology. "The set-top box [would] seamlessly integrate off-air contributions together with the signals that are on the cable—kind of like an electronic A-B switch."

In other words, a set-top box tuner—not the cable operators' network—would deal with terrestrial broadcast programming.

The March 1 announcement from the cable operators' tech consortium presented the move as a golden opportunity for consumers to "receive broadcast television signals as an integrated viewing experience."

One set-top box manufacturer noted, "It would provide consumers with programming that may or may not be available on the cable plan—and greater flexibility from an architecture standpoint for MSOs."

But would the new viewing experience compensate for the fact that consumers would now need another device (namely an antenna) to get any terrestrial broadcast programming at all?

Few details followed, and speculation ran rampant over the obvious areas of omission. For starters, why would cable operators want to provide a way for viewers to watch non-cable programming?

SAVING BANDWIDTH

Commentators concluded that the over-the-air option would allow MSOs to conserve bandwidth for things like high-speed data transmission, games, and consumer shopping options, while giving subscribers the illusion that they were still getting broadcast programming from their cable provider.

More sinister analyses concluded that this path could provide an "out" from must-carry demands, or, at the very least, leverage for cable operators in their negotiations with broadcasters over retransmission consent fees.

Dr. Richard Green

There's quite a range of manufacturers that have approached us."

—Dr. Richard Green, CableLabs

The buzz indicated that prototypes might be available for the National Cable and Telecommunications Association show in May (something not confirmed by CableLabs). But, at press time, terrestrial broadcasters seemed to be as much in the dark about the initiative as the public at large.

"We have been in contact with CableLabs," said Lynn Claudy, senior vice president of science and technology, for NAB. "We're intrigued by the project and are awaiting further information about how the program will proceed."

MSOs and technology providers were also short on details despite their enthusiasm for the initiative.

"From Comcast's perspective, we're glad to see that CableLabs is exploring this technology for set-top boxes," said spokesperson Jenni Moyer.

Similar comments came from Motorola, Scientific Atlanta and LG Electronics.

AN 'INCREMENTAL ENHANCEMENT'

Although no one was willing to go on record, let alone concede the driving forces behind the initiative, most acknowledged that momentum came from the MSO membership at large.

All claimed it was too early to ball park what MSOs would be willing to pay for the technology needed to realize the initiative.

"This is an incremental enhancement," said Larry Robinson, vice president of product management for Motorola Connected Home. "Although a lot of the hardware is available in the box, additions would be required to support it."

Robinson's view was echoed by Scientific Atlanta.

"We'd need more flexible capability from a tuner," said Dave Clark, director of product strategy & management for Home Entertainment Products. "There are hardware modifications and, more significantly, software modifications—the bottom line comes down to cost."

But CableLabs' Green noted that the time was ripe for this technology due to the government's digital TV transition timeline and the advent of new reception and processing technologies.

"You can put the tuner on a chip rather than have a separate unit," Green said. "And since you can put it on a chip, it means you can integrate it with digital processing, which really helps in terms of resolving some of the propagation problems that occur with the off-air signal."

Moreover, he said, "the processors in the new boxes are capable of much more complex software tasks."

And, although the initiative was said to be "too new to really talk about," suppliers beyond the usual suspects had demonstrated their interest.

"We had a lot of companies come forward and say 'we've got a lot of good ideas on how to do this and we'd like to work with you.' There's quite a range of manufacturers that have approached us," Green said.

The amount of interest was even more remarkable because, at press time, he said, CableLabs had not put out a Request For Proposal or Request For Information yet.

However, Green said that CableLabs had elected a project manager, who had "about half a dozen people" reporting to him, with more expected to participate.

"We're not quite ready to announce who that person is," Green said. ■

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Yankees Fans Interact with DirecTV

YES Network offers out of town box scores, alternate camera angles with new service

by Craig Johnston

NEW YORK

Broadway shows often open first in some out-of-the-way town so they can work out the kinks without coming under scrutiny of the Big Apple's critics.

Not so for baseball's first interactive telecasts; they debuted before the New York audience itself at the mid-point of the 2006 baseball season. (YES began its iTV telecasts again this season on DirecTV April 2.)

"It just popped up on the screen one day," said Ray Hopkins, chief operating officer of the YES Network, home to the New York Yankees. YES and satcaster DirecTV had done no promotion prior to putting the new service up on the bird for New York, New Jersey and Southeast Pennsylvania subscribers to DirecTV's Total Choice package.

"Fortunately, it was pretty intuitive," Hopkins said. "The color of the buttons on the screen matched what you had on your remote control. And we experienced these high usage numbers with no promotion behind it."

One advantage of interactive broadcasting on DirecTV is that viewer ratings are more than an estimate based on a small sample; they're exact numbers. And in addition to raw viewing numbers, they also tell how many viewers used interactive features, and how often.

"We've been very pleased with the performance of YES," said Robert Mercer, director of public relations for DirecTV in El Segundo, Calif. "We got an average of 42 percent of all of our TV viewers with access to the interactive application who used one or more of the interactive features on a weekly basis."

Almost everyone who used the application used it more than once, and they found that 25 percent of those who used it did so 11 or more times during a game. "First time out of the box, that's a very good number," said Mercer, who has seen a number in iTV rollouts at DirecTV.

We wanted to make sure this was an additive experience, not a nuisance in any way."

—Ray Hopkins, YES Network

YES offers a variety of features for Yankees fans to access on DirecTV, including schedules, stats and trivia.

The most popular interactive feature last season was MLB Scores, an the out-of-town scoreboard that showed the real-time scores of four games while the Yankee game telecast continued.

"What we found was that in a lot of cases, people were just keeping it up on the screen," said Hopkins.

As a result, that feature has been enhanced this year so that the viewer can select one of those games to receive a real-time, text gamecast while the audio and video feed of the Yankee game continues.

Another popular feature in 2006 Yankee home games was the "Bonus Cam," a camera angle not available in the regular broadcast, that is seen in a box over the regular telecast. Bonus Cam shots complement the YES telecast shots, bringing fans closer to the players and action inside the game.

"We heard from a large contingent they wanted the Bonus Cam not just for home games but for away games as well, so this year we're adding the bonus cam feature to all of our games," said Hopkins.

Not every interactive feature "hit the ball out of the park," so to speak. Few viewers chose to look at detailed season and career statistics on individual Yankee players, and it turned out the feature was very data-intensive and slowed the interactive application down. It's been eliminated for 2007.

Hopkins said that adding iTV to their broadcasts last year was not without trepidation for the folks at YES. "When the Yankees are on in the New York area, it is the most widely viewed network for that particular night... you have a loyal, passionate base that you don't want to upset in any way. We wanted to make sure this was an additive experience, not a nuisance in any way."

"We worked on it very closely and hand-in-hand with DirecTV to put this application together," he said. "They are a great partner in this in that they view their killer application as sports, and one of their differentiators amongst the competition is with interactive." Before deploying the system at midseason 2006, they spent the first part of the season trying out the application and tweaking it.

While developing the iTV application for baseball was a large undertaking, YES has not found it daunting to operate day-to-day. The real-time scores, game data and statistics are gleaned automatically from a data feed received from MLB.com. There is the additional cost of the extra camera and operator for the Bonus Cam camera angle. And DirecTV has an employee who monitors the iTV telecast to assure it is going smoothly.

"The heavy lifting is certainly done in the off-season getting the application ready for the season," Hopkins said. "Then once the season comes, it takes time and effort to continue making things roll, but not the same time and effort it took to build the application."

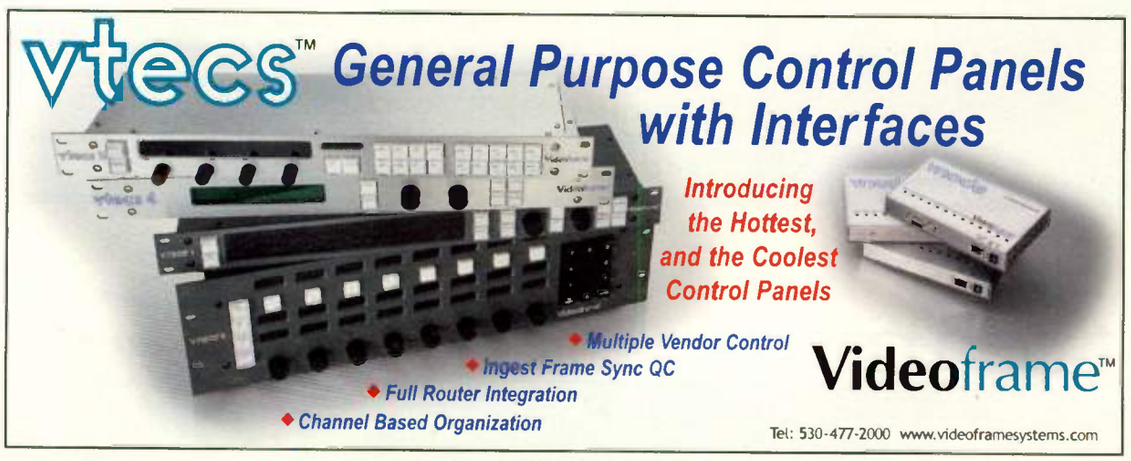
With the early March news that DirecTV will be the carriers of the out-of-town baseball television package, DirecTV's Mercer said the YES Network rollout has been a template for that new offering, with scoreboards and real-time statistics. But when DirecTV's package debuted April 2, there were new additions as well.

"Our enhancements to the baseball package include the MLB Game Mix Channel, where fans can see up to eight live games on one screen. They'll be able to highlight any game to hear audio, and then press select on their remote to see it full screen."

He said another feature is similar to DirecTV's Red Zone Channel on its NFL package. "We have a new Strike Zone Channel that takes the viewer into a live MLB game in progress at a key point. Maybe there's a pivotal play or a late-inning rally underway. It takes you to the decisive point in that game, cutting in live."

DirecTV has made iTV in its sports offerings a market differentiator from its competition, so it's reasonable to expect that they will aggressively continue to roll out interactive features in its sports coverage as it finds sports network partners interested in doing so.

"We're really taking fans deep in the game," said Mercer. ■



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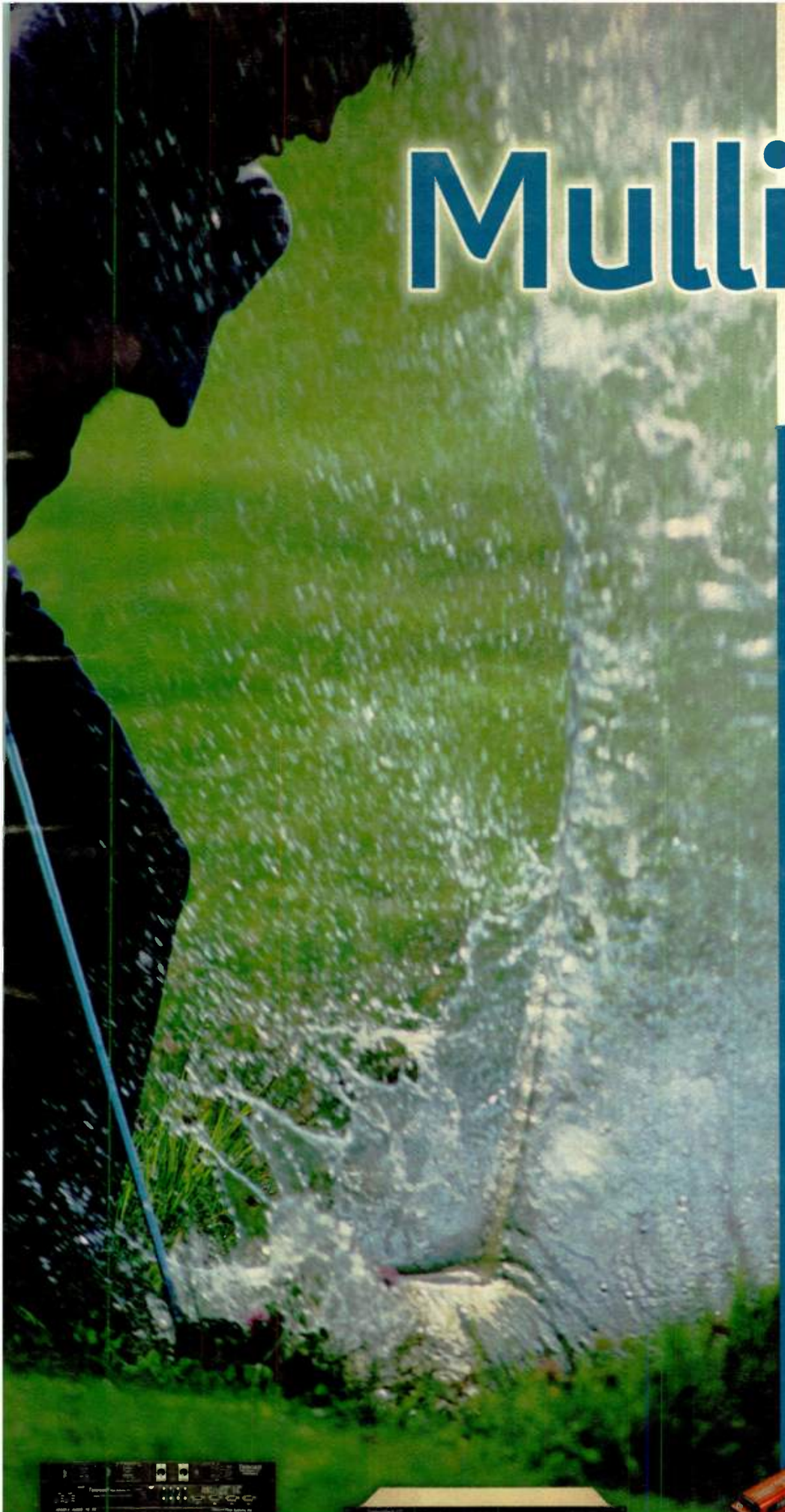

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Conference Celebrates Television History

Annual meeting for early TV buffs includes tech papers, hands-on demos

by James E. O'Neal

HILLIARD, OHIO

The stage is once again set here in this Columbus suburb for the Early Television Foundation's annual convention. This year's event is the fifth such gathering for those interested in television's history, and the three-day affair gets underway on May 4 with a social event.

The conference is an offshoot of the Early Television Museum project here, which was started by collector Steve McVoy in 2000.

McVoy organizes these yearly events to provide a meeting ground for collectors, conservators and persons interested in the history of television's evolutionary path. Conference technical papers and hands-on presentations span television's earliest days in the 1920s to the advent of color in the 1950s. Previous conferences have featured presenters describing the origins of the Indianhead test pattern, restoration of some of television's earliest video recordings, as well as the first public demonstration of CBS field sequential color in more than 50 years.

1954 COLOR TELEVISION

In addition to a number of papers being presented at this year's event, McVoy promises some special treats in store for conference attendees.

"We have a number of very early color TV receivers in the museum and there's been a lot of interest in determining just what sort of performance could have been expected from these models when they were first sold," McVoy said. "There are some engineers who were involved in the early days of color arriving a few days before the conference to work on these sets and adjust them for the best possible pictures. Their goal is to set them up just as they were in 1954 and to use some video from some of the earliest color recordings as source material."

McVoy said that the museum had about 10 such sets from RCA, GE, Westinghouse and others that all used the same cathode ray tube—a 15GP22 This was the first mass produced color CRT and the one with phosphors upon which NTSC colorimetry was based.

"It is our hope to show convention attendees just how good these early sets looked when they were new and when NTSC color was first beginning to be transmitted," said McVoy.

JOHN BATTISON

A special guest speaker at 2007 conference is John Battison, a television pioneer who was honored at last year's NAB with an SBE lifetime achievement award. Battison grew up in London, England and was on hand to witness some of John Logie Baird's earliest 30-line television pictures transmitted by the BBC. He relocated to America after World War II and worked with Peter Goldmark at CBS to develop that network's color television system. In the 1950s he built and operated his own television station. He has authored 15 technical books and written more than 500 technical articles for publication. Battison was named "Engineer of the Year" by the NAB in 1998. He will speak about his lengthy career in television.

Two RCA 1935-vintage RR-359 television receivers at the Early Television Museum in Hilliard, Ohio

Other convention presentations include papers on Thomas T. Goldsmith, DuMont Television's chief of research; Walt Disney and the color television revolution; Kansas State University's early involvement in television (1931-1952); and RCA's World War II military television development work.

McVoy's museum contains one of the largest and best maintained collection of television receivers in the world. There are approximately 40 pre-war sets from both American and British manufacturers, 12 mechanical television receivers, and numerous early color models, including two CBS field sequential receivers. The majority of these sets have been fully restored and are operational. In addition to the receivers, the collection also features cameras, including an RCA 1939 iconoscope model, an RCA TK-31 and a General Electric PC-4; and early control monitors and telecine equipment.

One of the more recently acquired items is a very early RCA television transmitter.

"This is a complete five kilowatt TT-5 we recently acquired," said McVoy. It came from WTVN-TV in Columbus [Ohio] and is one of our museum's larger items. We plan to have it all ready to show to convention attendees."

Other convention events include networking sessions for collectors of early television lore and equipment, a Saturday evening banquet, swap meet for collectors seeking early parts and materials for restoration projects, an auction for persons wishing to acquire early television equipment, as well as tours of the museum.

McVoy says that the conference usually attracts about 90 people, with attendees coming from all over the United States, and a few from as far away as Europe.

McVoy and the Early Television Museum have been featured on The History Channel, as well as in numerous newspaper and magazine articles. The museum is one of the few such institutions in the world that focus almost exclusively on television technology.

Complete information about this year's conference is available in the Early Television Foundation's Web site, *www.earlytelevision.org*.

McVoy has requested that **TV Technology** readers who have television items that might be of interest to the museum to contact him via e-mail at *etf@columbus.rr.com*, or by telephone at 614-771-0510. ■

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NAB2007 to Showcase MXF Milestones

Advancements in standardizing AAF, MXF file wrappers to be demonstrated

by Jay Ankeney

LAS VEGAS

The promise of universal file format interchangeability has come one step closer to reality. On Monday, April 16 at 5:00 p.m. at NAB2007, the Advanced Media Workflow Association, formerly known as the Advanced Authoring Format Association, will sponsor the first public demonstration showing how a single Media eXchange Format master file can be used as a source for creating multiple versions of a program.

Called "Putting AAF and MXF to work," the presentation will be led by Turner Broadcasting System.

Initiated three years ago under the encouragement of companies like Snell & Wilcox, MXF is intended to be a "container" format with different streams "Essence" encoded with a variety of algorithms. Having essentially been developed to carry a subset of the AAF (Advanced Authoring Format) data model, each MXF file comes complete with a metadata wrapper, which describes the material it contains.

Although simple in concept, the quest for establishing a single MXF format has been complicated by different companies developing their own proprietary versions. This has resulted in, for example, incompatibility between Sony's XDCAM and Panasonic's DVCPRO P2 data recording systems.

"There is some misunderstanding in the marketplace about what MXF is," said Brad Gilmer, executive director of the Advanced Media Workflow Association. "MXF is a toolbox out of which you can create a number of different wrappers. Manufacturers responded to early customer demand by using MXF in different ways, but this has created problems in the industry. Our organization has recognized this issue, and we intend to contribute to the solution."

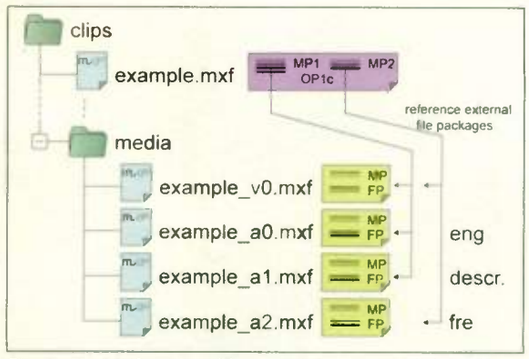

Fig. 1: An MXF master file containing an English and French version of the same program.

Held at the Summit Room of the Renaissance Hotel across from the Las Vegas Convention Center, the demonstration is the result of a long-term project spearheaded by TBS. Its goal is to bring a fresh approach to the latest MXF concept that includes two key elements: the MXF mastering format and the MXF processor application programming interface.

Participating manufacturers include Marquis Broadcast, Metaglue, Omneon, Open Cube Technologies, Pro-Bel, Quantum, Snell & Wilcox, Softel and TransMedia Dynamics.

"We intend to drive the number of proposed solutions to a particular workflow down to a reasonable number," Gilmer said, "and we hope to eliminate arbitrary inconsistencies between different solutions. This will allow manufacturers to create, and users to purchase, solutions to meet their needs without having to create one-off implementations for each user in each application area—a daunting task to say the least."

MASTER FORMAT

There was a time when a single piece of film or tape could be used as a master from which all subsequent copies and versions would be struck. But today's digital content creators need to be concerned with different languages, restrictions on sex and violence, and a growing number of delivery options, ranging from HD to PDAs.

That's why TBS and its vendor partners have been working to develop a proposal for an MXF master format which would allow multiple versions of a program to be created from a master inventory. The master inventory would contain all of the elements (video, audio, subtitles, descriptive metadata, etc.) necessary to automatically create different versions of the program.

As Fig. 1 shows, an MXF master file actually consists of several files. In this example, the top-level inventory file, titled example.mxf, contains instructions on how to create two versions of a program, one in English and the other in French.

The inventory file contains no video or audio. The video and audio are contained in separate media files. The media files consist of a single video file, an English audio file, an English descriptive audio file, and a French audio file.

The contents of the example.mxf file hold two simple program versions. The first contains instructions to play the video file along with the two English audio files for the English version. The second contains instructions to play the video file along with the French audio file to create the French version. The proposal can be expanded to handle captions, multiple language tracks, versions that are changed due to content requirements, and so on.

Turner and its partners have developed a written technical proposal and an example of the implementation of the proposal will be presented at NAB2007 along with a number of papers on this topic.

"This will be a major milestone in the development of the Media Exchange Format," Gilmer said. "The Advanced Media Workflow Association wants to put AAF and MXF to work by developing user requirements for workflows in application areas such as program and commercial distribution, mastering and archiving. This will involve a dialogue between manufacturers and users to develop technical documents which describe best practices in those application areas. In addition, we look forward to working with other organizations to standardize these best practices." ■

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NAB Booth SU3111

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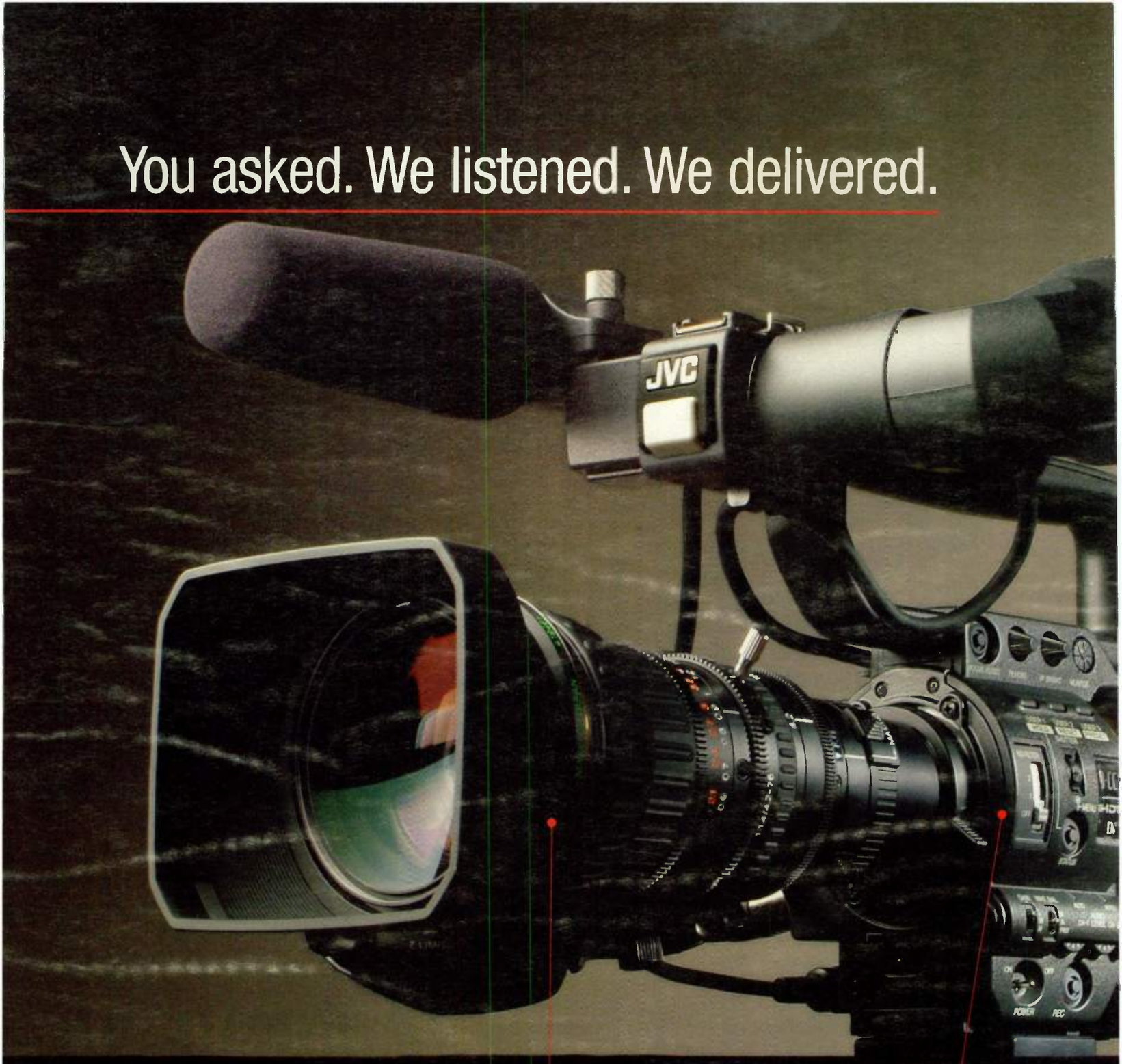

Multiple lens choices
Fujinon and Canon provide a wide range of professional HD lenses and adapters to choose from. In addition, JVC offers the exclusive HZ-CA13U PL mount lens adapter specifically designed for prime film lenses. Inverted images are righted through a menu selection.

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An improved wideband front end produces sharper images with less noise than competing models. Low-light performance has been significantly improved, and a new 14-bit DSP provides better highlight, shadow and color gradations.

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JVC's 200 series utilizes a new highly efficient encoder that achieves recorded quality comparable to high-end formats but with dramatically reduced data rates. Both models can provide a 19.7Mbps MPEG-2 encoded output for microwave and satellite feeds, eliminating the need for expensive external encoders – perfect for live HD remotes!

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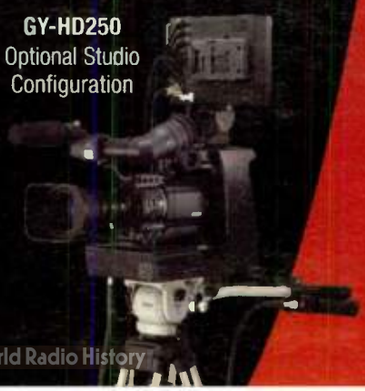

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NAB2007: Searching for HD Workflow

Acquiring hi-def images is just the beginning

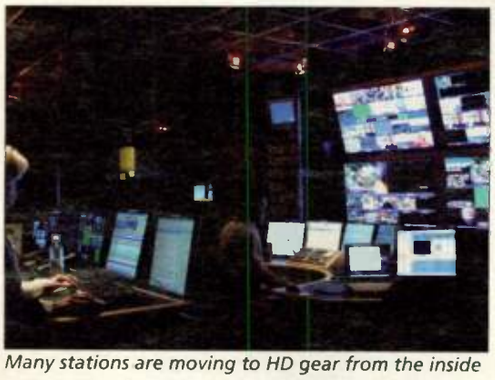
by Ian MacSpadden

LAS VEGAS

Everything from HD routers to transmitters will be on display for the broadcast faithful who flock to Vegas.

This year, the industry buzzword, "migration," i.e., to new platforms, is taking on new meaning—referring not to the migration from analog to digital—but to the increasing pressure to go HD. The objective is to locate gear that lives up to the claims made about it.

"It is one thing to read about a product in a brochure and another to actually see it working," CEO and creative director of FX Group, Mack McLaughlin, said. "If the manufacturer's representative can't operate the company's own equipment, that's a good sign you won't be able to either."



Many stations are moving to HD gear from the inside out, starting from the studio to field acquisition.

This is an exceptionally good recommendation given the abundance of new HD technology and equipment. McLaughlin and his staff are planning to examine HD equipment that affects the company's core business, which is building HD studios.

They plan to use NAB2007 not only to showcase their wares but also to "keep up with what clients are buying."

McLaughlin said that being able to "test drive a variety of gear all in one place at the same time" is an invaluable way to evaluate equipment before making a huge investment.

Avid Technology's director of on-air product management, Jonathan Howard, said "There are many unproven solutions available, and the fact is that creating a solid nonlinear solution worthy for news production is not easy. Broadcasters require experienced partners and can't afford to be part of the proverbial science experiment.

"It's not just about video format. Take the entire process into consideration. Broadcasters who worry about being an early adopter can rest assured that there are proven solutions available on the market today."

WHO'S ON FIRST

For the top 100 news affiliates, the race is on to be the first in the market to employ HD, and perhaps equally

WORKFLOW, PAGE 25

DIGITAL JOURNAL

Bill Hayes

Mobilizing for HD

Searching the NAB floor for a new hi-def production van

JOHNSTON, IOWA

My primary focus at NAB this year will be mobile high definition production.

IPTV was the first station in Iowa to do live HD broadcasts. Initially we cobbled together a live broadcast of the Iowa State Fair parade. About a year after our first live event we came across a portable HD production package designed as a fly away system. The package consisted primarily of a few Sony HDCAM cameras, an Ikegami HD switcher and a small audio console. The price was very attractive and we decided that having some dedicated equipment would make doing many of our live or live to tape events a lot easier. Although this has proven to be true, transporting and setting up the flight pack has at times proven to be quite a challenge. In addition, the package lacked some of the basic features, such as HD graphics, that are needed. Because of this, so much augmentation hardware had to be pirated from our studios, or borrowed or rented, which either restricted project schedules or added operational costs and complexity to the process. In most cases we have found ourselves operating without any margin for error.

EVENT DRIVEN

The vast majority of events that we would like to produce live or live to tape (90 percent) could be done with four or five cameras. As we push forward with plans for multicasting and content delivery via non-terrestrial broadcasting, the number of events that require us to dedicate resources to the project will also increase.

In addition, as a statewide television network, we need to have a strong presence beyond the Des Moines area that the citizens of Iowa can see and identify with. Producing events from remote locations is a great way to connect with the viewers and make sure they understand that they too are a part of the family. All of these elements pointed to the fact that the flight pack needed an update to become more user friendly, functional and useful.

There were two primary limitations.

MOBILIZING, PAGE 26

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widescreen took a lot of workflow changes."

These changes involve everything from routing solutions and digital asset management systems to control room and play-out options. Just as in the days of analog-only broadcasting, the goal is to move the video signal through a station to the viewer with as little loss in quality as possible, said Andrew Alexander, vice president of For-A Canada.

"In an end-to-end workflow, broadcasters need to limit the amount of times they compress or recompress their HD video," he said. Whenever possible, uncompressed HD signals should be used to prevent multicompression artifacting. This becomes an important issue due to HD compressed editing, broadcast server compression, and satellite or cable transmission."

"In an end-to-end workflow, broadcasters need to limit the amount of times they compress or recompress their HD video." —Andrew Alexander, For-A Canada

This loss of quality is very much akin to the analog tape-based generation loss that occurred when videotaped images were repeatedly transferred in the production process from one tape to another. Contrary to some perceptions, digital files can be degraded as they move through a production system, particularly in hybrid facilities.

Consider that a digital DVCPRO or SX tape is shot in the field, then played as an analog signal from a tape deck into a nonlinear editor that redigitizes the signal for editing.

This is then mixed in the edit bay with live footage from an analog helicopter camera that is transferred via an SDI router. The final product is then transferred from the nonlinear editor and redigitized by the station's MPEG-2 play-out server before being upconverted to HD during transmission. The final product is a less than ideal compilation of various formats and compressions.

Avid's Howard recommends that stations standardize on a single resolution whenever possible.

"If you choose XDCAM HD, HDV, or DVCPRO HD for field acquisition, make sure that your editing system can edit it and that your video server can play it back in its original form. On paper, most of the news solutions look very much the same, but in order to truly evaluate a solution, broadcasters must go beyond the marketing literature and out into the real world."

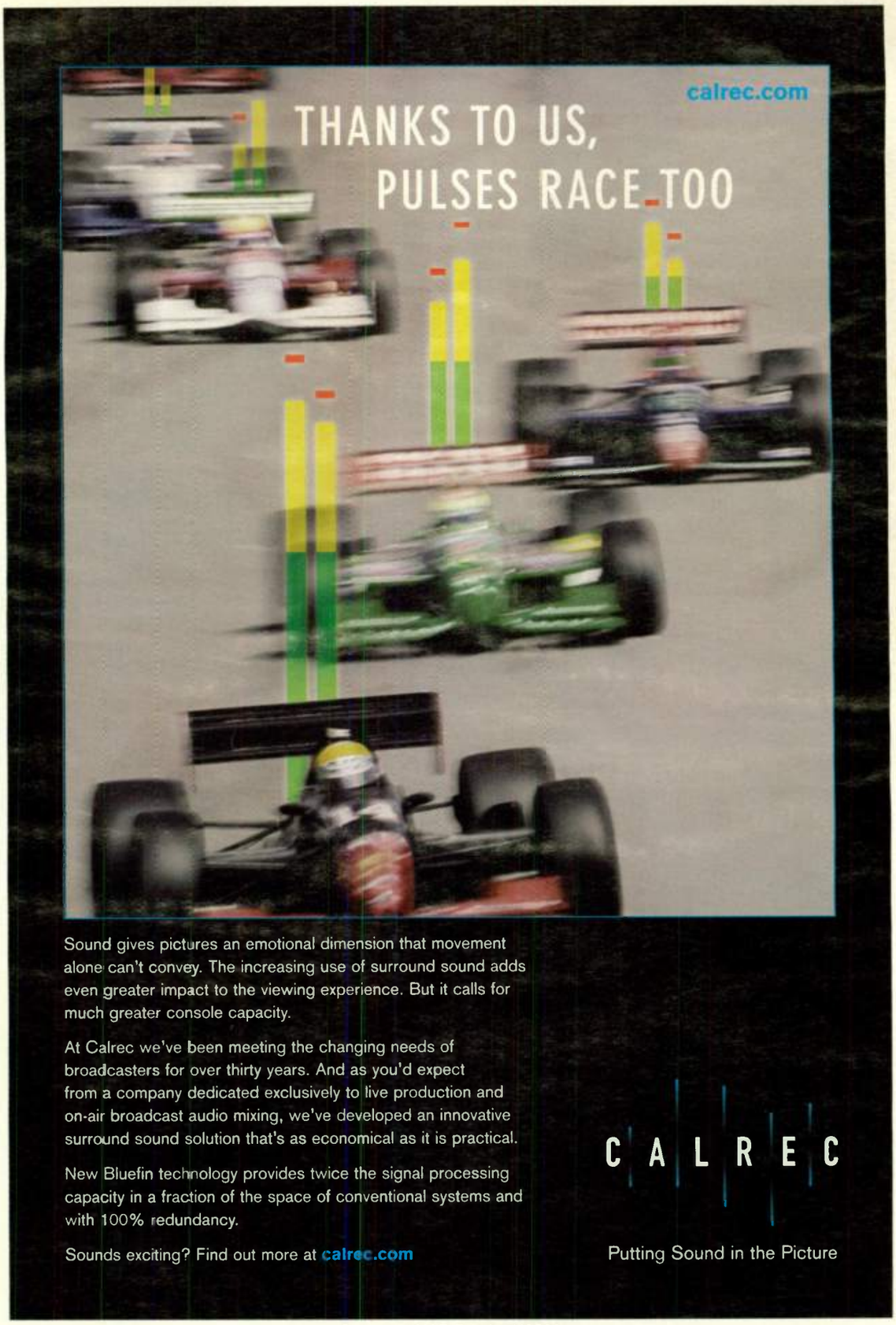
HD IN STEPS

For broadcasters who have already taken the HD plunge, their goals at NAB vary. The engineering staff from WFTV will be looking at live HD ENG equipment to add to their existing HD field and studio productions.

Having already made many of the HD infrastructure purchases for their plant, they recommend that those just entering the market pay special attention to audio issues. For handling audio in HD, they found that embedded audio needs extra careful attention at switchpoints; discreet audio can create issues with lip-sync; and Dialnorm is not a surefire answer to solving the loudness issue with commercials.

At Reuters Television, which handles international acquisition and distribution, the staff is always looking for improved technologies to do both. With a recent mandate that all new cameras be HD, the challenge for Reuters will be

WORKFLOW, PAGE 36



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RTNDA@NAB Unveils Newsworthy Agenda

Christiane Amanpour to receive Paul White Award

by John Merli

LAS VEGAS

News directors will advance toward their annual conference in Las Vegas, RTNDA@NAB, facing new competition and more opportunities than ever before in the emerging era of multiplatform information dissemination.

Paul White Award winner, Christiane Amanpour

Synergy between the annual gathering of the Radio-Television News Directors Association and NAB's own industry tent of conferences and seminars is once again apparent this year: Registration for RTNDA@NAB will include full access to the radio/TV sessions of the NAB Broadcast Conferences, and vice versa. RTNDA's own exhibits, as well as the NAB exhibit hall, will be accessible to all registered attendees of both the news directors' and NAB's conferences.

RTNDA will have its typical share of journalistic heavy hitters, gleaned from its own functions, as well as those done with the NAB—to round out its April 15-18 agenda. The docket includes NBC News Washington Bureau Chief Tim Russert, Chris Matthews of MSNBC, CNN's Miles O'Brien, and CNN Chief International Correspondent Christiane Amanpour, this year's recipient of RTNDA's annual award for excellence in journalism. Amanpour also periodically reports for CBS News' "60 Minutes."

Russert, host for the past 15 years of the longest-running program in broadcast history (60 years), "Meet the Press," will be on hand at the joint Television Luncheon on Monday, April 16, for the induction of the show in NAB's Broadcasting Hall of Fame.

On Monday evening, Amanpour will be guest of honor at RTNDA's Paul White Reception at 5:30 p.m. The veteran broadcast journalist has covered virtually all the major global conflicts of the past 20 years, and most recently, the wars in Iraq and Afghanistan. (Amanpour is the first full-time international journalist to ever receive the coveted award.)

RTNDA's opening session on Sunday, April 15 at 4 p.m. focuses on "News 2.0: Surviving and Succeeding in the New Journalism World" and will immediately precede the Opening Reception. And two sessions, among others, geared toward less experienced news execs, are scheduled for Sunday as well. So is "Jump-start your Journalism Interactive Session for New Professionals and Students," from 9 a.m to 3 p.m.

"Incoming! Advice for the Newly Named News Director," is set for Monday at 10:30-11:45 a.m. (immediately followed by 45 minutes of "unopposed exhibit time" and the subsequent Television Luncheon).

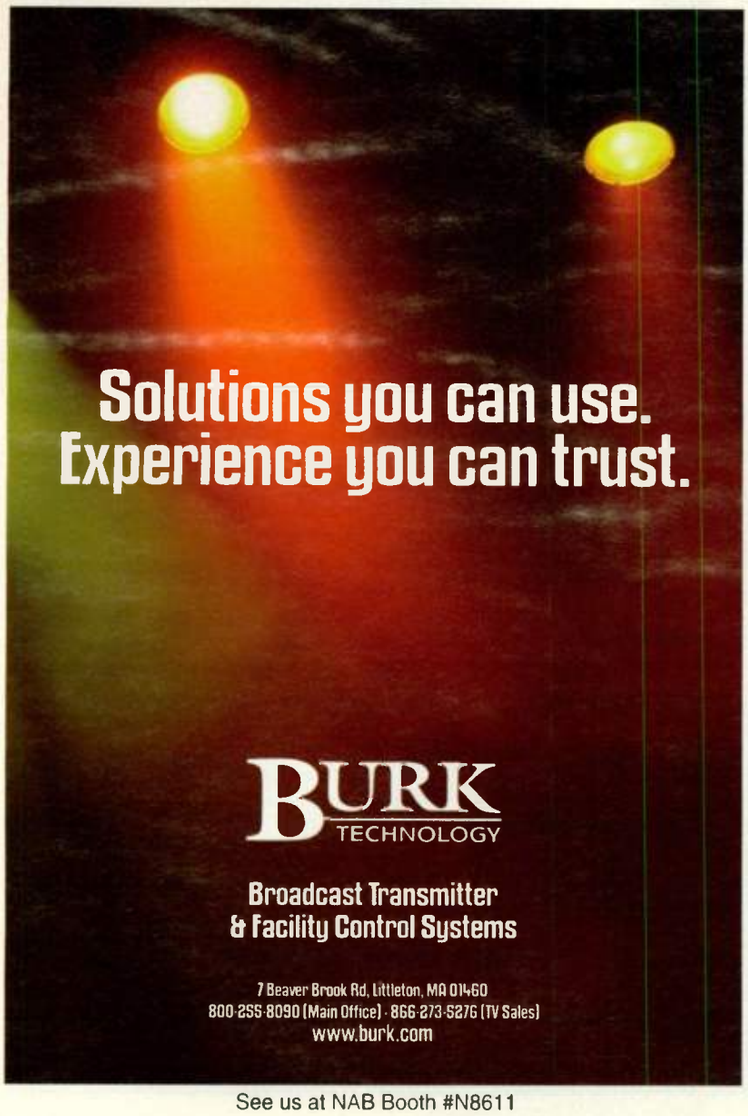
SORT OF A UTILITY

As RTNDA members gather in Las Vegas, their news organizations are in the midst of perhaps the most momentous technological changes in broadcast history. Terrestrial radio and TV stations, long lauded for their accent on local issues, are now technically accessible to much of the world, thanks to the Internet.

No longer are live newscasts and public affairs interviews traditionally aired once and then gone forever from a viewer's or listener's reach. Podcasts and station Web sites have seemingly changed those limitations forever. Linear programming has given way to nonlinear consumption of news product.

To sense how dramatically the world of broadcast journalism is evolving, simply consider the new title of veteran radio journalist Bill

RTNDA, PAGE 28



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Mobilizing

CONTINUED FROM PAGE 24

The first was budget. Since this project wasn't part of the original DTV conversion plan that the State of Iowa had already funded, we needed to look for a funder. We wanted a vehicle that would incorporate the existing hardware that we already had with the flight pack and the ancillary hardware that we needed to meet our goals.

Since our plans did not involve deploying a full tractor trailer rig and because many of these events would be in small rural communities, we also determined that the vehicle would be sized to not require any specialized driver's licenses—a second limitation.

With that in mind, we traveled to the Winnebago plant in north central Iowa to see if they could help with vehicle design and if so, if they had any interest in partially funding the vehicle. We looked at their designs for similar vehicles and refined them based on the needs of our staff. Unfortunately, about this same time, an analysis of a capital campaign that we were planning put funding for the vehicle in doubt. The only other potential funding source was the Iowa Legislature and we didn't know if there was interest in this project. To our surprise, a number of legislators viewed it as a way to reach out to the most rural Iowans and started adding funding to bills.

To determine costs, I sent our initial design to several vehicle manufacturers with a request for information and budgetary numbers. Most of the vendors' initial response was to ask if we were set on a Winnebago. We assured them that we weren't, but we were convinced that the design could be implemented in a vehicle that required a standard driver's license. Unfortunately, none of the vendors ever got back to us and I was left to ponder whether the design was impossible or the project was just too small to be worth looking at.

Our design questions were cleared up when we sent the design to South Dakota Public Television and they actually constructed the vehicle as an SD-only system on a Winnebago. However, they did do the construction themselves which made me wonder about the latter consideration. To find out for sure, I will be visiting with as many truck vendors as possible and handing them a project book that describes in detail what IPTV is looking for, what we have on hand and what our expectations are.

Immediately after NAB, based on the information we gather, IPTV will issue a bid document for an HD production truck and we'll see what comes out. It should be exciting because we'd like to have the vehicle deployed in time for the Iowa State Fair in August.

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

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RTNDA

CONTINUED FROM PAGE 26

Roswell, this year's RTNDA chairman-elect. As of Jan. 1, Roswell became known as "director of Digital News and Media" for KYW Newsradio in Philadelphia. A 27-year veteran of the news station, part of Roswell's new job description was noted at a recent industry meeting: "To oversee the expansion of the station's digital assets, integrating new media offerings with KYW's heritage broadcast product."

According to Roswell, "We really aren't radio and TV broadcasters anymore, we're actually information sources. The key for being a success now in this business is having your product readily available to as many people as possible on as many different levels as possible. We're sort of becoming like a utility. You turn on the light switch and suddenly ... the light is there."

In a joint RTNDA-NAB Super Session, "Upload, Download and Overload: 2008 Election Media Strategy," panelists will discuss how TV and radio broadcasters can take full advantage of these new platforms to deliver news and public affairs.

Chris Matthews, nightly host of "Hardball" on MSNBC, will moderate the session on Monday, April 16, at 2:30 p.m.

"Every election gets new technology, and when it comes, it's always different," Matthews said. "Howard Dean came from nowhere a few years ago to raising huge amounts of money on the Internet, setting up a true grassroots organization and lots of tiny contributors. We assume Barack Obama is going to make massive sums of campaign money now through even newer methods. And probably Hillary [Clinton] as well."

Matthews said "the battle will be between those who master the old media with those who master the new media. For 2008, it will be a battle in the big, early state primaries, which benefits the frontrunner, and the idea of a real good grassroots campaign where [a candidate] could really catch fire. So it's three battles in all—money, timing and ideology—all old media versus new media. In which direction is it going to explode?"

Roswell said many RTNDA sessions at this month's conference will allow journalists to take advantage of this new technology head on.

"We designed our sessions to serve as roadmaps for future programming efforts. Several of the sessions will intentionally marry together the news and technology aspects so we can consistently put out the best product," he said. "And where possible, we'll try to give attendees a crystal ball for what to expect as far as online streaming, video-audio podcasting and other platforms out there for the broadcaster."

RTNDA Chair-elect, Bill Roswell of KYW NewsRadio in Philadelphia

Roswell said one of the key benefits of multiplatform technology is allowing news operations to relay more information to consumers far faster than before.

"At the same time," he said, "we're telling our members to always make sure you get it right the first time, because with the speed that all this raw information is coming into the newsroom, and going out, the necessity to get it right from the start is essential."

Yet the RTNDA chairman-elect cautions that "skill levels are certainly different with new these delivery methods. But what RTNDA stresses is we're still electronic 'journalists' and those standards don't change. It's important with these new technologies that we don't forget our roots when we deliver stories." ■

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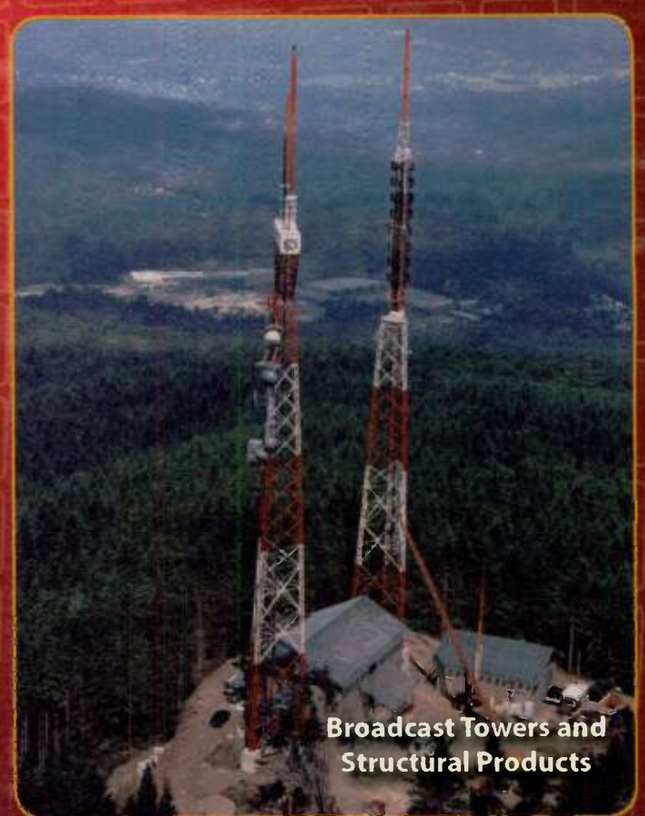

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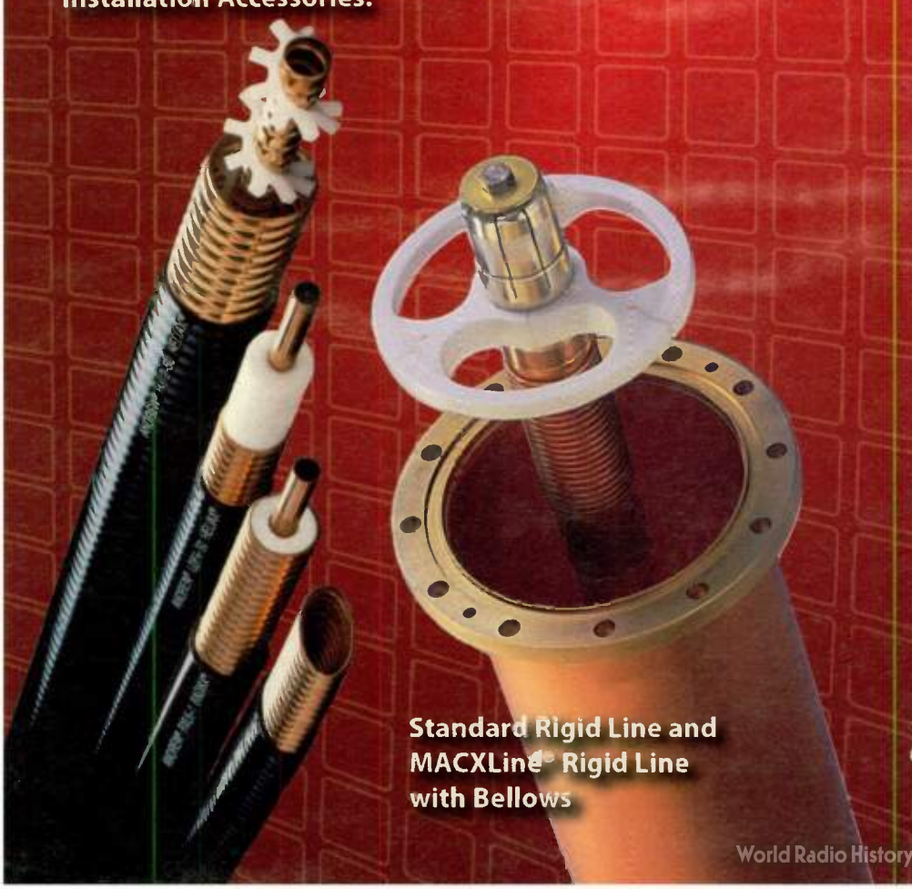

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Dolby Hears Call of the Market

Audio innovator expands third party solutions

by Susan Ashworth

SAN FRANCISCO

With the goal of reaching a wider range of broadcasters, Dolby will come to NAB both with revamped audio solutions as well as alliances with a growing list of third-party manufacturers who are incorporating Dolby technologies in their own solutions.

One of Dolby's most intriguing technologies will actually be a solution that debuted at NAB last year, but has not yet come available. Dolby plans to showcase the most current version of its DP600 Program Optimizer, a technology that has Dolby's Rocky Graham excited because it can be deployed to good use in big stations all the way down to small-market facilities, with everything in between.

The technology addresses a widespread problem that most stations have faced, he said: controlling the loudness between programs and channels.

The DP600 is the first technology designed to automatically adjust loudness to a target volume as well as automatically adjust corresponding metadata in a file-based program—meaning audio can be detected and automatically corrected as a program is being aired.

"In the past you've been able to apply measurements to a program, but [the available technology] didn't correct it automatically," said Graham, who is Dolby's director of broadcast products. "Now those corrections can be made to the bitstream... in a file-based environment."

The DP600 also has file-based decoding and transcoding capabilities, giving broadcasters the ability to handle many different file formats.

"If, for example, you are getting in Dolby E material, but it needs to go out as Dolby Digital, the DP600 can do this as well," Graham said.

DOLBY MEDIA PRODUCER

The company will also show the Dolby Media Producer, a suite of applications that were first introduced in 2006. At NAB2007, Dolby will show this group of applications, which include Dolby Media Encoder, Dolby Media Decoder and Dolby Media Tools as well as with the new Dolby Media Encoder SE, a new standalone encoder model designed for single workstations. These products are designed to support all Dolby coding technologies for disc-based media formats, including HD DVD and Blu-ray Disc, as well DVD-video and DVD-audio formats.

Dolby will also be showing off Dolby Digital Plus, an audio codec designed to deliver multichannel surround sound for next-generation services through IPTV, direct broadcast satellite and cable. An extension of Dolby Digital, the Plus version is designed to handle H.264 video, is compatible with Dolby Digital-equipped A/V receivers, is capable of handling 7.1 or more channels, and can handle the mixing of secondary bitstreams together.

The company is also making a push this year to demonstrate the open nature of Dolby's technology.

"We'll be featuring a combination of ways that we can offer technology" to broadcasters via integrated configurations using video encoders and set-top-boxes from OEM partners, Graham said.

Dolby will also highlight other technologies, including Dolby Digital Cinema, JPEG2000 SCC and the Digital Cinema Playback Stack. The company will also showcase products from the Dolby Live Sound lineup and share the latest news from Cinea, a Dolby division that addresses security and piracy issues. ■

Dolby Media Producer is a suite of applications designed to support all Dolby coding technologies for disc-based media formats.

OmniBus Extends iTX

New version software targets news

by Tom Butts

NEW YORK

Can one product transform a company overnight? Ask Ian Fletcher, chief technology officer with OmniBus Systems.

For years, the Leicestershire, England-based company has been known for providing solid, stable automation and media management systems that give customers the flexibility to customize to their own needs. In 2004, it launched its G3 software architecture. The advantage of G3, according to OmniBus, is that it simplifies the process of adding and modifying software modules to OmniBus automation systems without having to overhaul an entire software suite.

CHANNEL IN A BOX

G3 begat iTX, a software suite that replicates all of the functions of master control, serving as video server, master control, graphics and logo inserter with functionality including automation, ingest, editing and basic content management. Deployed on standard IT hardware, this "channel-in-a-box" solution "significantly reduces the investment required to launch and operate a channel," according to the company.

"iTX is a whole next generation solution," Fletcher said.

Heading into NAB2007, OmniBus is looking at nearly $10 million in iTX sales since it was launched last year, and will announce iTX customers at the show. The majority of deployments have been in IPTV and mobile TV; the biggest deployment so far, according to Fletcher, includes one customer who is using iTX to deploy 160 channels (80 channels, 100 percent redundant). Fletcher characterizes current iTX customers as a mix of new channel deployments and replacement systems.

Fletcher says that iTX is gaining traction with broadcasters, but that he's also been surprised at the type of customer interested in iTX.

"We thought it would be adopted by smaller players first, but it's been the reverse," he said. "We have some major players."

Ian Fletcher, chief technology officer, OmniBus Systems

For NAB2007, OmniBus will introduce Version 1.2 for iTX, targeting news and sports. New features include advanced 3D graphics options for news and live graphics transmission applications, as well as multiple audio tracks for multilanguage applications, open and closed captions, HD ingest, MXF and GXF support, and live instant playback for news, sports and entertainment programs.

"In this new version, we have focused on functionality that build on iTX's inherent advantages in fast-moving production environments such as news and other live programming, where it offers cost-effective and extremely flexible production capabilities," Fletcher said.

BROAD PORTFOLIO

Despite the response to iTX, however, Fletcher wants to emphasize that OmniBus is not turning into a one-product company.

"We're a broadcast automation software company," he said. "[iTX] has changed our business but we don't see it as our only product."

Nevertheless, OmniBus is extending the advantages of iTX to some of its other products, including its OPUS content management suite. At NAB, the company will demonstrate OPUS 2.0, which includes "soft-XML" support for customized logging and annotation, frame-accurate proxy generation and viewing, full-text indexing and searching, seamless integration with production editing systems like Avid and Final Cut Pro and standardized Web services data exchange with adjacent systems. Key modules include OPUS Ingest, OPUS View, PinPoint, Logging and Index, OPUS Workflow and OPUS Interchange.

OmniBus will also highlight its OPUS News and Sports Logging system. The system allows users to log live and recorded events with configurable buttons, and intuitive on-screen control of live and prerecorded feeds.

The ease with which iTX can be deployed has had a "dramatic effect" on the OmniBus booth design, according to Fletcher. Where once an entire room was dedicated to housing servers to run OmniBus applications, a coat room now occupies the space.

"iTX has reduced the power bill at our booth by 50 percent," he said. ■

World Radio History

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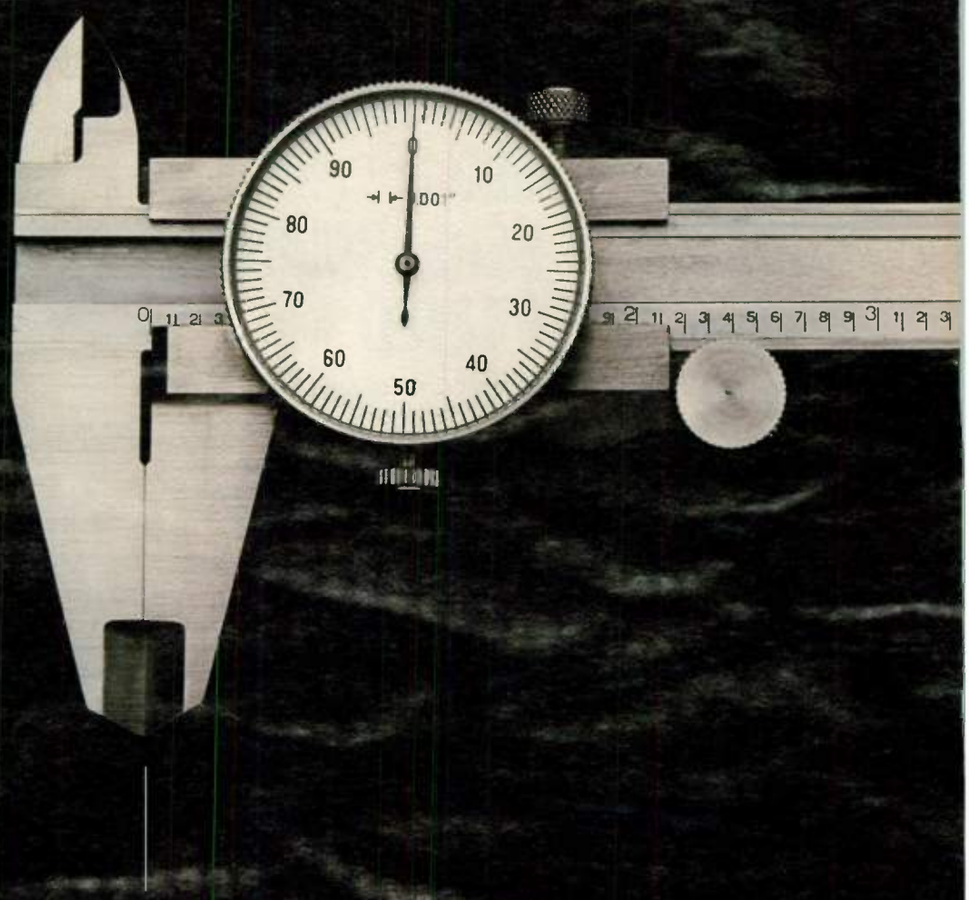

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World Radio History

Evertz Straddles the Worlds of HD, SD

Company addresses challenges of dual-format universe

by Susan Ashworth

BURLINGTON, ONTARIO

As the HD train keeps a rollin', Evertz hopes to be leading the procession with a slew of new product introductions—while continuing to offer a helpful hand to broadcasters who are still operating in the SD world.

"Many broadcasters are [continuing to] look at solutions that handle both HD and SD," said Orest Holyk, director of sales for Evertz. "Perhaps only SD is needed today, but HD is something that many are already doing. HD is simply becoming the way of doing business."

To address this issue, Evertz will introduce two new aspect ratio converters, the 7710 ARC and 7710ARC-F, designed for facilities where 4:3 content is to be used in a 16:9 environment. Using the 7710ARC, users can take in an SD source and convert it to a properly configured widescreen image. The 7710ARC supports input side WSS (widescreen signaling) and AFD (active format description) to automatically handle aspect ratio conversion. Likewise, the 7710ARC-F offers a new feature that allows users to add a fill input for side-panel keying. The module also supports WSS and AFD insertion.

Evertz will introduce its EQX router, a 576x576 router that can expand to 1152x1152.

Both products are modular, offer 10-bit video processing, provide 10 user presents for storing custom module configurations, and can be monitored and controlled through SNMP.

"Modular solutions capable of handling both HD and SD are necessary," Holyk said. "Today SD is more prevalent, but this may be a blip on the screen. With the HD push in the home, it looks like HD will be the mainstay, while SD with aspect ratio conversion and fill options will be the secondary."

> "With the HD push in the home, it looks like HD will be the mainstay, while SD with aspect ratio conversion and fill options will be the secondary."
>
> — Orest Holyk, Evertz

LOOKING AT JPEG2000

The company is also taking note of the trend to provide HD backhaul services for transporting HD signals over an SD infrastructure.

With this in mind, Evertz will showcase its JPEG2000 compression codec known as the 7772MFX-HD, a module designed to deliver HD signals over an SD infrastructure. This SNMP-enabled modular product can handle compression and decompression.

"With variable bit-rate compression settings, JPEG2000 modules allow users to move HD content over SD lines or even IP," Holyk said. "Why is this neat? Well, for HD backhaul applications in sports, news and events, JPEG2000 is a compression solution that offers a nonartifact picture unlike a DCT-based compression solution. And in the world of HD and compression, offering the best quality is paramount."

One of the company's other major product announcements at NAB2007 will be the EQX router, a 576x576 router that can expand to 1152x1152. This format-agnostic routing platform accepts digital signals from 19.4 Mbps thru SDI, ASI, HD-SDI and up to 3

EVERTZ, PAGE 34

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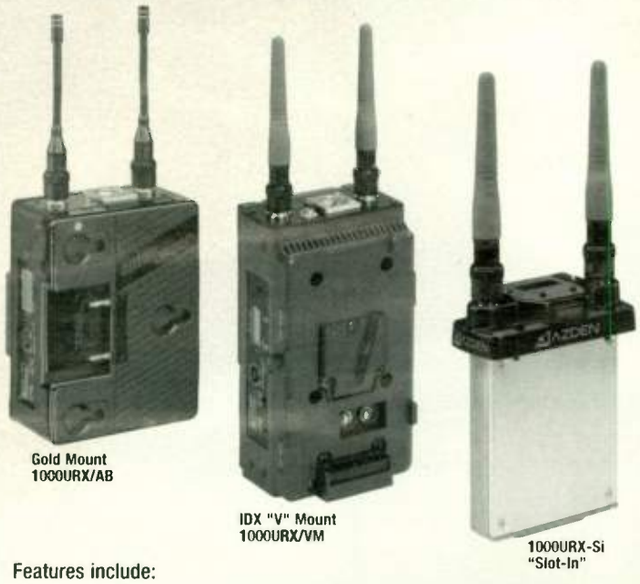

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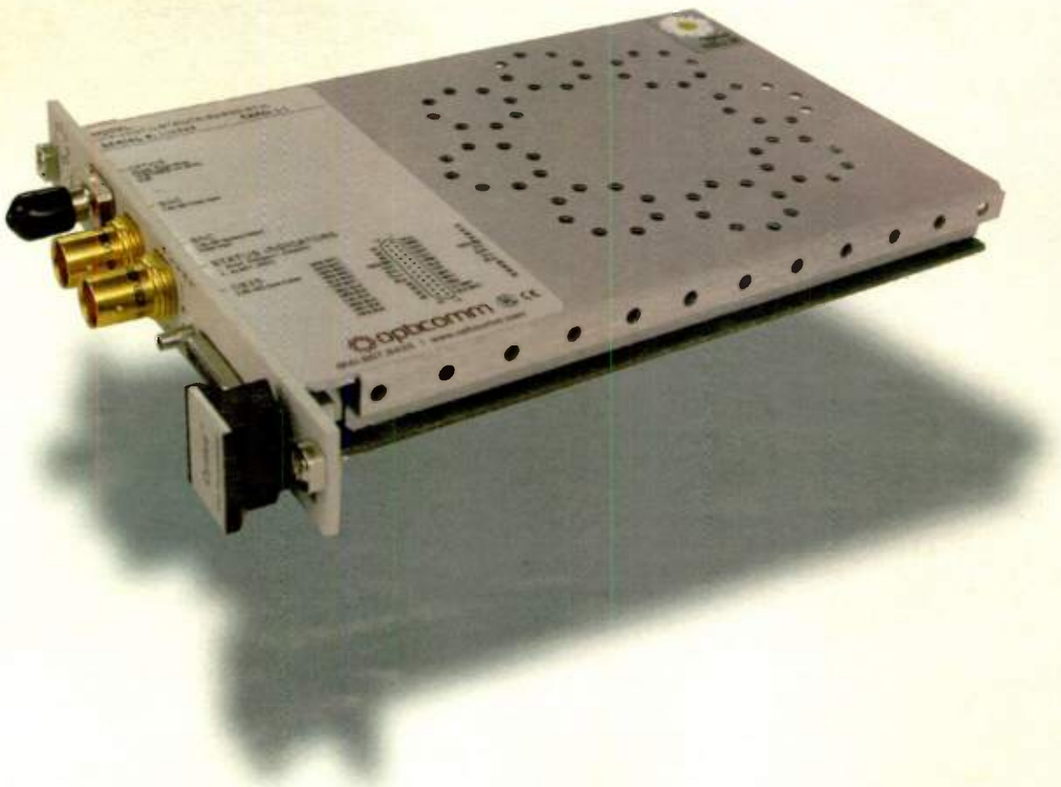

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World Radio History

Miranda Polishes Up its Imaging

Advances target easier use and better quality

by James E. O'Neal

MONTREAL

Miranda Technologies is a company well-known for its product innovation, and those attending NAB will find that this year is no different.

Among those new entries at the company's booth this year—Xmedia Suite template-based graphics automation, the Kaleido-X multi-image processor featuring signal repetition and iControl remote station monitoring.

The Xmedia Suite graphics automation system can be embedded in third-party systems, including Avid News and AP ENPS newsroom products. With the Xmedia Suite installed, journalists can easily access and update templates and image databases created previously by the station's or network's graphics department artists. The net effect is faster access, higher quality and more varied visuals to accompany news stories being aired.

"With the Xmedia Suite graphics automation, you can use the same workflow tools to create rich and dynamic graphics for both live production and channel branding," said Eugene Plawutsky, Miranda product manager. "The result is improved consistency, less duplication of effort and a faster time to air."

UNLIMITED REPETITION

NAB2007 marks the first appearance of Miranda's Kaleido-X multi-room and multi-image processor, which allows unlimited repetition of signals on up to eight high-resolution displays. The system can display any of 96 analog, standard-definition or high-definition digital signals at different resolutions and sizes up to full screen. There are no blocking or group restrictions in connection with Kaleido-X's use.

"People who haven't seen the latest generation of multi-image technology may be astonished by the image quality," said Louis Caron, product manager at Miranda. "Kaleido-X of-fers unmatched signal flexibility, and does not have any awkward display limitations for operators. We believe it delivers the richest and most detailed display ever for the most critical monitoring applications."

Kaleido-X will be one of many "purple" products on display at Miranda's NAB2007 booth.

Miranda's iControl Remote Station Monitoring is also set on launch at NAB2007. The system is designed to handle monitoring of multiple regional streams with a comprehensive set of tools that will enable operators to "drill down" through multiple facility views to access a desired signal or alarm data.

The system alerts operators to many types of faults and problems, including loss of video, freeze framing, black screen and audio silence. It auto-senses multiple signal formats, including SD and HD digital video, analog video and both AES/EBU and analog audio. The system relies on Kaleido-Alto-HD multi-image processors at each of the remotely located stations being monitored. Up to 16 stations can be monitored by the system.

"Miranda has led the SNMP-based television monitoring market, with many large and highly customized installations," said Francois Gourvil, Miranda product development manager. "By packaging the software, we can offer a highly affordable solution that is also remarkably quick and easy to configure.

These new entries add to the many familiar and trusted products available in the Miranda catalog.

Strath Goodship, Miranda's CEO, is looking forward to the show and the introduction of his company's range of products to more and more people within the television industry.

"We want our focus to be on the growing needs of the broadcast industry," Goodship said. "Our real strength is in innovation; we pride ourselves on a number of industry firsts." ■

Evertz

CONTINUED FROM PAGE 32

Gbps. The EQX sports a modular, hot-swappable, redundant design; independent monitoring bus; SNMP interfacing; advanced system control; and source-by-source intelligent auto-configuration.

"It really is a new routing paradigm," Holyk said. Instead of separate components, "the system allows for the total integration of router, modular and multiwall displays."

The router also wisely takes advantage of SNMP interfacing, a trend that started a few years ago but is beginning to take hold, Holyk said.

"Just now we are starting to see the benefits of this interoperable protocol," he said. "Many manufacturers are SNMP-compliant, and many others—depending on where their gear sits in the workflow—are planning to implement it."

VIDEO WALLS

As multisignal display wall processors continue to infiltrate the marketplace—finding a home in display wall markets including master control rooms, trucks, IPTV and even AV—Evertz plans to showcase a new high-resolution PPMX output display card for the MVP multi-image display processor.

The new PPMX16-4G output card fits within existing MVP frames and is capable of accepting up to 128 HD, SD or NTSC/PAL inputs, and outputting up to 4x WUXGA resolution displays. By adding input or output modules, the system is expandable, allowing users to drive hundreds of inputs to dozens of displays. Features include auto-sensing, scaling, signal monitoring and SNMP support. ■

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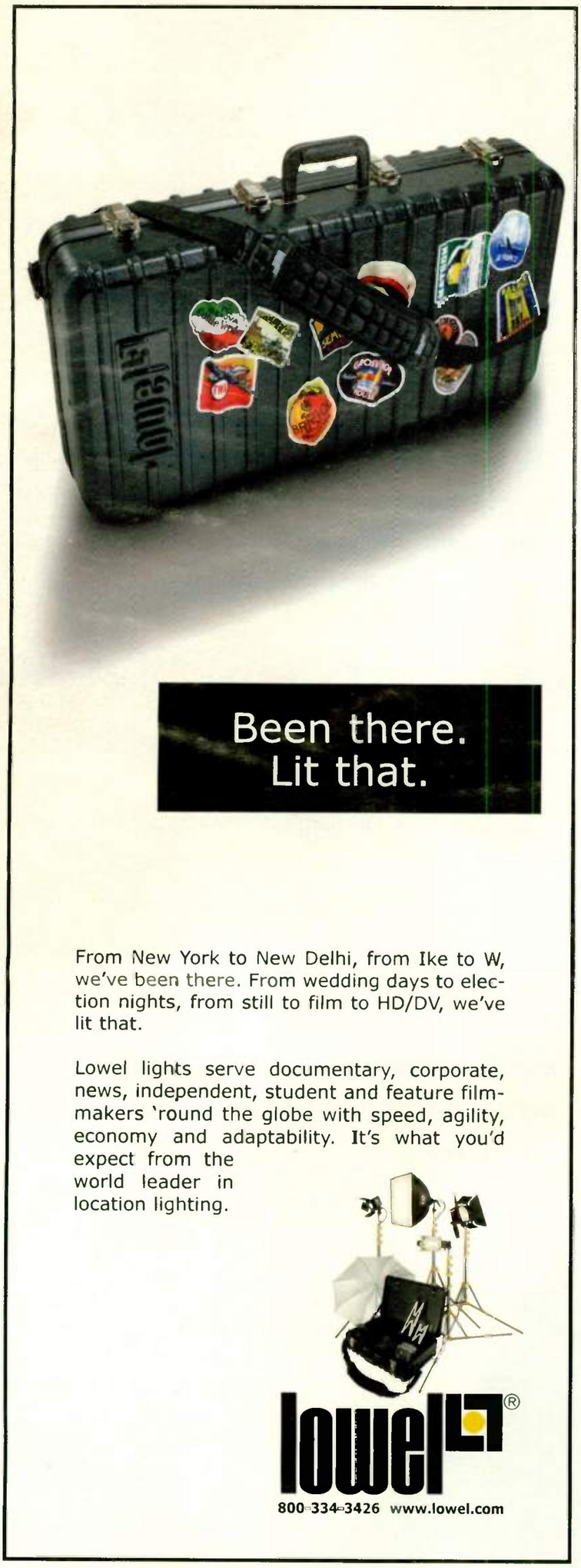

Pro-Bel Plans Ahead

Turnkey automation among highlights

by Craig Johnston

MELIVILLE, N.Y.

Broadcasters buying infrastructure equipment expect a long life cycle, said Neil Maycock, president of Pro-Bel Americas in Melville, NY. So even though he doesn't expect many customers to be passing 1080p signals through their plants any time soon, the company's new Cygnus router, to be rolled out at the NAB2007, is 3 Gbps-capable.

"Through this and other areas of hardware, we're focusing very much on 3 gig," Maycock said. The Cygnus is a 576x576 router packed into 26 RU. "So we're getting a bigger I/O into a smaller space, with 3 gigs," he said.

Maycock noted that though Pro-Bel is 30 years old, it has designed each new generation of equipment with backward compatibility in mind.

"Any Pro-Bel routing switchers over the past 30 years, you can plug into our current control system, and they'll work together," he said.

Another new Pro-Bel product is a variation on its Morpheus automation system. The company found that while network operators liked to custom design their automation systems to handle farflung tasks within their operations, local stations wanted more of a turnkey system.

MORPHEUS FOUNDATION

That led to Morpheus Foundation. Stations "want something that will work out of the box," Maycock said. "They've got a chief engineer and a couple of guys working for him who need to understand everything from the weather radar to the transmitter to the automation system, and they can't be experts."

The word "foundation" is key in the new product's name, because although it is an entry-level automation, capable of one to six channels, it is scaleable and can grow as the station's needs grow.

A wide range of new options for the Morpheus system itself, from ingest to media management and creativity tools, will also be introduced at the exhibition.

One product range that's being brought under the Morpheus umbrella is control and monitoring equipment.

"As a company we have quite a unique footprint in terms of doing automation, media management and then the hardware side of things," Maycock said. By bringing monitoring into the Morpheus system itself, operators can look at one screen and access all the information they need.

From its Vistek line the company will showcase the Cifer standards converter, which now offers full bidirectional conversion at 1080i and 720p combined with up/down format conversion.

"The Cifer standards converter is native HD that's already internally working at 1080p," Maycock said, "and it does full-motion compensation." It utilizes Advanced Sub-Pixel Motion Compensation.

To conquer the vexing audio/video sync problems that digital processing has thrown at the industry, Pro-Bel has upgraded its Valid8 SD/HD infrastructure analysis tool. "It has a signal generator which generates a special colorbars signal with some motion in it, and an associated time," said Maycock.

With the associated reader on the other end of the signal path, the Valid8 system can measure the audio/video sync error so it can be corrected. The updated Valid8 includes a new feature that uses compact flash memory to allow a user instant recall of up to 64 separate sets of audio and video identities. ■

Workflow

CONTINUED FROM PAGE 25

determining the best facility technologies to maintain the quality of content.

Kentucky's WLEX—in the midst of a migration to HD—gained most of their knowledge from research NAB2006. WLEX Operations Manager Sean Franklin suggested that broadcasters "not just look at one specific vendor, rather, they should take a look at everybody."

Franklin also advised that staff from comparably small markets keep their eye on the broadcast HD gear and not be lured away by the lower cost prosumer HD solutions.

"The equipment has to work, and work in a local news environment," he said.

One consistent complaint from broadcasters and vendors alike who attend NAB is that there is often too much going on at the same time. From seminars, to floor demos, affiliate meetings to station meetings, the week of NAB can seem like a whirlwind. It is a good idea to map out a schedule of what you need to see and do in advance.

For some broadcasters, the convention is all about seeing and testing the latest HD wares. For others, it's the educational opportunity and a chance to share ideas and experiences with colleagues. ■

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PBS is marking this special occasion by reflecting on the good work our member stations have done to bring television into the future. After all, we've been on the leading edge of broadcast technology from our earliest days.

In the 1970s, PBS became the first broadcaster in the United States to launch its own satellite system, and we also pioneered the use of closed captioning, making it possible for many deaf and hard-of-hearing viewers to enjoy television for the first time.

During the 1980s, PBS helped form the Advanced Television Test Center, an independent group that triggered the development of digital television technology and other innovations.

PBS introduced PBS.org in the early 1990s, becoming one of the first national broadcasters with a significant presence on the World Wide Web. Today, PBS.org is a portal to comprehensive Web sites for our signature programs, offering streaming video, games, interviews with filmmakers and producers, essays and other features that provide users with a enriching online experiences.

Today, PBS is leading television into the digital age.

Our member stations are working hard to prepare for the upcoming conversion to digital broadcasting, and many have already launched unique digital channels devoted entirely to news and public affairs, children's programming and Spanish-language content.

We're also working with our member stations to bring our key series to new platforms, including iPods, cell phones and other portable devices. Our goal is to ensure PBS goes where its viewers go.

Of course, none of these accomplishments would be possible without the dedicated PBS and station employees who work hard to keep public television on the cutting edge. This conference is a celebration of their success, and I look forward to working with each of them to keep PBS and its member stations moving forward in the 21st century.

Enjoy the conference!

Paula Kerger
CEO, PBS

INSIDE

all articles written by John Merli

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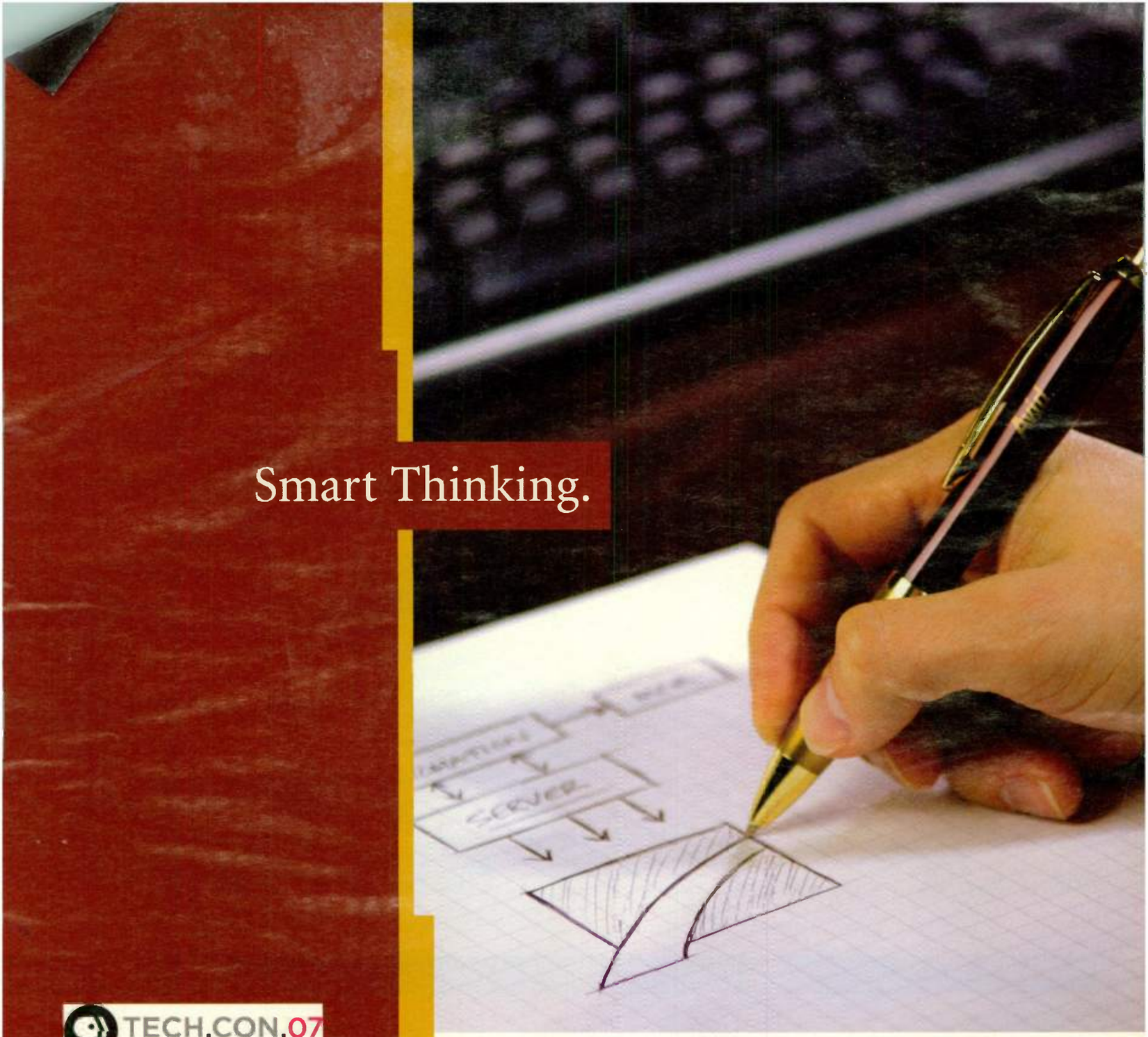

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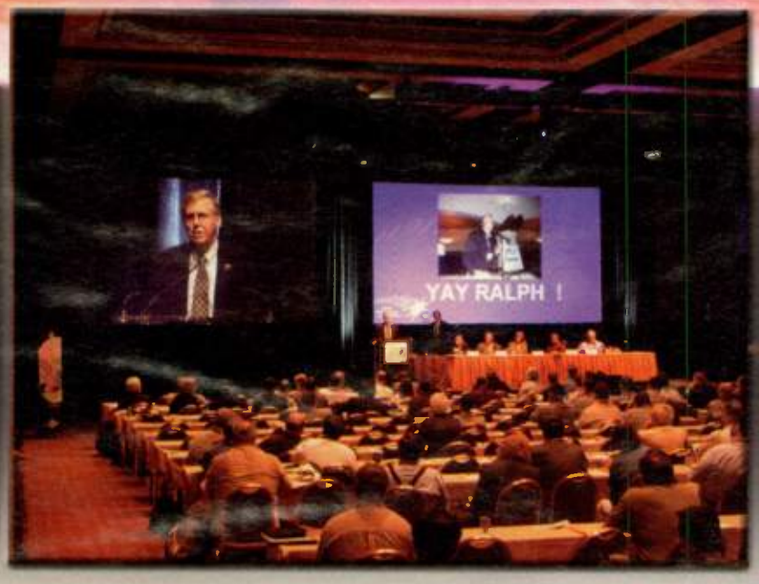
PBS... Technically Speaking



PBS Techno

PBS is born.

- Satellite Interconnect is introduced; PBS is the first network to have a satellite hook-up for stations.

- PBS receives an Emmy for Outstanding Engineering Development in recognition of its contribution to closed captioning.
- The PBS satellite broadcasting system, which uses Westar, begins operation.

- The Advanced Television Test Center is formed by PBS and six other broadcast entities.

1969

- The first PBS Engineering Committee meeting is held at KLVX Studios in Las Vegas.

1976

1978

- More than five years of PBS research result in the Digital Audio for Television system (DATE), a four-channel, encoded system for transmitting high-fidelity stereo audio via satellite.

1979

1980

1984

- PBS Headquarters at L'Enfant Plaza in Washington D.C., is destroyed by fire. PBS moves to Braddock Place in Alexandria, Virginia.

1988

- PBS is chosen by an FCC committee to oversee field tests of high-definition television.

1991

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gy Timeline

- Ku-Band Conversion implemented.
- PBS launches its new satellite—Telstar 401—creating the nation's largest "education neighborhood" in the sky.

1993

- PBS transitions to DigiCipher I Digital Satellite Distribution.
- VSAT & FirstClass introduced eliminating DACS.

1994

- PBS opens the first all-digital television broadcast facility in the United States.

1996

- Digicipher II IRDs introduced.
- Telstar 401 fails, moved to GE 3, T402 & GE1 Satellites.
- PBS and WebTV join forces to provide Web users with TV and Internet content over the same platform.

1997

- PBS begins full time HDTV satellite transmissions.
- The Harris/PBS DTV Express, a traveling DTV education center, begins its nationwide road show, demonstrating the possibilities of digital technology in 40 U.S. cities.

1998

- PBS Headquarters moves to Crystal City, Virginia.
- PBS Technical Engineering moves to Springfield, Virginia.
- The Next Generation Interconnection System (NGIS) Phase 1 of NGIS DVB satellite transition implemented, DigiCipher retired.

2006

- The PBS Technology Conference celebrates 30th anniversary.

2007

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PBS Tech Conference... Through the Years

LAS VEGAS

The PBS Technology Conference will mark its 30th anniversary this month in Las Vegas, preceding the opening of exhibits at NAB2007, and conjoining events with the start of the NAB Broadcast Engineering Conference (BEC)—a synergistic scheduling strategy that allows public TV engineers to make the most of their annual spring visits. As many veteran public TV engineers can tell you, the annual event—Tech.Con.07—has come a long way in three decades.

MEETINGS BEGAN AT KLVX

In 1976, a small group of engineers made up the PBS Engineering Committee, now called the PBS Enterprise Technology Advisory Committee (ETAC). Taking shape only a few years after public broadcasting was nationally supported and federally funded, the committee began to meet (usually in the fall) in a former school building which was then-home to PBS station KLVX, in Las Vegas. The committee's agenda usually encompassed one day, sometimes a little more.

Marty Vodovoz

"We had this small 40-by-30-foot TV studio and that's where the committee first met," said Marty Vodovoz, whose technical career at KLVX began right out of college in 1971. "They had maybe 30 people, including the panel and everybody." When the station moved to new facilities, the annual committee meetings followed, for the most part. The get-togethers were not always held in Las Vegas.

In 1986, it took place at public television station KERA-TV in Dallas, the location of the NAB convention that year. And it gathered at Georgia Public TV in Atlanta in 1990, as the NAB conference was held in that city then. (NAB did not designate Las Vegas its exclusive convention site until the early 1990s.)

Meanwhile, Vodovoz, who, almost 36 years later is still at KLVX, said the yearly PBS committee meetings had slowly begun to evolve into larger events over its first decade—an evolution that he was happy to see, he said, because the gathering started to "become more universal in its approach" to issues within the entire industry.

ENTER RALPH SCHUETZ

Track the second half of Ralph Schuetz's career in public broadcasting and inevitably you'll also get a good sense of the history of the PBS conference. Until he retired in 2004 (after 32 years at PBS in Arlington, Va.), the nuts-and-bolts logistics of the annual meetings were Schuetz's responsibility for more than half of the conference's existence.

"In the early days, and continuing until the mid-nineties, the Las Vegas gatherings were little more than open meetings of the PBS Engineering Committee—replete with subcommittee meetings, mostly PBS staff reports and updates, and a little time for Q&A," Schuetz said. "There were few, if any, outside speakers. There were few, if any, vendors present. There were definitely no exhibits."

In 1978 PBS had become the first TV network in the United States to begin distributing programs via satellite, and some years later during Schuetz's tenure, the tech conference used KLVX's uplink to make the meetings accessible to local engineers back home via closed circuit. "That may have been my busiest time ever, because I had to manage the conference and direct the 'TV production,' too," Schuetz said.

There were no registration fees when the small meetings began to evolve into conferences. Schuetz simply asked engineers to let them know if they were coming "so we'd know how many chairs to set up and how much food to supply. We always had a lot more people show up than we had counted on. We would eat our deli lunches on KLVX's front lawn."

CONTINUED GROWTH

As the annual meetings continued to grow in the late 1980s and early 1990s, Schuetz knew it was time to find a larger venue. Then in 1995, it became a vital necessity, as KLVX needed its studio for its all-important Pledge Week fundraiser. Since the conference was still a bit small to interest any of the big convention hotels that catered mainly to NAB-related events, Schuetz said he somehow "stumbled upon" the Thomas and Mack Sports Center on the University of Nevada (UNLV) campus.

While the Center's 18,000-seat arena accommodated such events as the National Finals Rodeo and big-time college basketball, the relatively smaller PBS meeting happily moved into one of the 225-seat conference rooms.

"Now we had to start charging a registration fee for the first time to cover expenses—and we also had our first sponsors, along with some outside speakers, and technology demonstrations," Schuetz said. "One year the Thomas and Mack had a rodeo going on in the arena, so we got the operator of the mechanical bull outside to let the engineers try their hand at bull-riding during the lunch hour."

Ralph Schuetz

In 1997, which marked the third year at the Thomas and Mack Center and was also the start of the now traditional "conference shirt" handouts, the event had once again outgrown its meeting place.

Andy Butler, senior director of engineering at PBS, moderates a panel at the 2003 PBS Technical Conference.

The MGM Grand has served as the host of PBS Tech.Con since 2004.

MOVE TO THE ALEXIS PARK

At the suggestion of Ed Caleca, who was then senior vice president of technology at PBS, Schuetz contacted the Alexis Park Resort, but learned that the hotel's facilities were fully booked. Later, in what Schuetz termed one of those "serendipitous events," an Alexis Park's client abruptly cancelled, allowing PBS to move into the hotel's new convention facility. The 1998 meeting was held there and registrations numbered about 250.

After four years at the Alexis Park, the success and growth of the PBS Technology Conference required additional rooms dedicated for exhibits, as well as for breakout sessions for IT and traffic professionals who had been added to the mix of participants.

By 2003, the meeting's combined tally of registrants, presenters and exhibitors had grown to nearly 600, and once again, the conference was obviously outgrowing its latest home. This year would also mark another turning point in the conference's history. On the final day of the 2003 meeting, Schuetz informed Caleca (and then announced at the meeting) that he intended to retire after the 2004 conference. Schuetz said Caleca responded, "Not before we go to the MGM, Ralph," referring to the conference center adjoining the Las Vegas MGM Grand—then the largest hotel in North America.

Finally, the tech meet had become large enough to warrant the interest of one of Las Vegas' most impressive properties. Schuetz also noted that it didn't hurt that MGM's vice president of national sales was the same person who had been sales director at the Alexis Park six years earlier, and she remembered that she had liked the PBS crowd.

AN IMPORTANT TRADITION

As the PBS tech gathering continued to grow, one aspect has become a tradition—a big social event on the final night. Over the years, these have included receptions at Liberace's Las Vegas mansion, Madame Tussaud's Wax Museum, "Cirque de PBS," a trek to Old Las Vegas (downtown) for a bowling tournament and a barbecue aboard a paddle wheeler on nearby Lake Meade. (This year's Friday night bash is at the House of Blues at Mandalay Bay.)

Last year, for the first time in two decades, Schuetz didn't make it to Las Vegas. But this year he plans to return to see old friends on the meeting's final day to help celebrate the 30th anniversary and help kick-start the meeting into its fourth decade. ▲

"On the occasion of its 30th meeting, NAB is pleased to again welcome our public broadcasting friends to the NAB Spring Show in Las Vegas. For three decades, we have been honored to have this conference held in conjunction with the NAB show. NAB supports the mission of public television and its vision for serving America with high quality programming."

David Rehr
President/CEO
National Association of Broadcasters

World Radio History

Two Tech Hats for Lew Zager

Lew Zager

ARLINGTON, VA.

Lew Zager is co-producer with Ann Tucker of this year's PBS Technology Conference (Tech.Con.07) in Las Vegas, as well as chairman of the committee overseeing the Broadcast Engineering Conference (BEC) at NAB2007. Most recently, Zager served as director in the DTV Strategic Services Group at PBS, and is former vice president for technology at WETA-TV in Arlington, Va., where his technical responsibilities included both local programming and national content, including "The NewsHour with Jim Lehrer."

Zager spoke with John Merli of **TV Technology** on the eve of the 30th anniversary of PBS Tech.Con.07:

TV TECHNOLOGY: You're wearing two hats this month, helping to assemble the agenda and moderating the PBS Technology Conference, and also serving as chair of the Broadcast Engineering Conference, which is NAB's premiere tech event in Las Vegas.

ZAGER: I was invited to be on the BEC committee a few years ago and served for various periods, and then last year they asked me to be chairman. It certainly provides some good synergy for preparing our PBS conference agenda, because it helps with the ongoing dialogue with NAB and what they're doing, and allows us to make better plans for our own [PBS] sessions early, knowing we won't be duplicating events.

TV TECHNOLOGY: So do the conferences complement one another?

ZAGER: They do in that PBS is able to bring a very large number of member station engineers together for the PBS Conference who can then stay on to attend NAB. The opportunity is terrific for our engineers and provides vendors lots of meeting time with our engineers at the PBS Conference and on the NAB floor.

Regarding BEC synergy with the PBS Conference, NAB does their conference planning fairly early on, and it's a little different than the PBS process. The NAB gathers the BEC committee to review TV and radio paper submissions, and then they choose what they think are the most timely and informative. PBS has specific program distribution and related engineering responsibilities to our member stations, which is different from NAB's responsibilities to its members and attendees. So PBS has to maintain the focus on technical education and specific PBS technology issues to assist our member stations in fulfilling missions as non-commercial broadcasters.

TV TECHNOLOGY: Do most of the engineers at the PBS conference also stick around for the BEC?

ZAGER: A majority do stay, yes. And certainly one of the big differences in the past couple of years has been joining together with the Ennes Workshop on Saturday, which serves as the final day of the PBS meeting and the first day of the BEC.

We found that both groups were offering good content, so rather than duplicating efforts, we decided Ennes works well for everyone's purposes. That synergy has more than doubled the audience for the Saturday workshop. This year it's on April 14 and it's called "Ennes/PBS—Everything Audio." [The workshop is scheduled from 8 a.m. through 5:15 p.m. in Room S219 of the LVCC.]

TV TECHNOLOGY: You've worked in public TV at both the local and national levels. What are a couple of issues that interest you most, going into Las Vegas?

ZAGER: Several issues, really. From the stand-

ZAGER, PAGE 44

"SBE heartily congratulates PBS on 30 years of emphasizing the importance of continuing education for its engineering staff through the presentation of its PBS Technology Conference."

John L. Poray, CAE
Executive Director
Society of Broadcast Engineers

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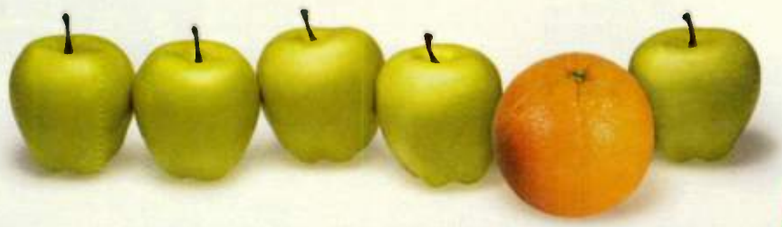

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Zager

CONTINUED FROM PAGE 43

point of PBS as a major program distributor to member stations, HD content is very important. We are looking toward developing more HD content distribution and providing any available HD and DTV tools to aid the local stations. I'm talking about everything from acquisition to distribution. And we're closely watching changes in workflow, which is something that's happening across the industry, not just in the public [TV] sector.

TV TECHNOLOGY: Why are changes in workflow important?
ZAGER: It's primarily driven by the huge change from linear to file-based [nonlinear] workflows where everything is acquired as a file, whether it's from Panasonic or Sony cameras or from someone else, where you move the file directly from the camera to a workflow process. You have these files from the get-go and it represents quite a change from the past in how the digital content is moved around and shared among editors and others in the process. It makes it easier to do rough edits and other post-production work, among other things, and it saves a lot of time over the old [procedures].

TV TECHNOLOGY: Actually, didn't PBS go to a virtually all hard-disc infrastructure for program distribution several years ago? "Antiques Roadshow" being fed from a hard disc, not tape?
ZAGER: Yes, but while those recordings were on a disc and not tape, they were still treated as linear recordings, so the tools did not allow for much more than that. We gained efficiencies in moving the content into and out of the system. Now instead of having to go into a complete file and make changes in a linear process, we can 're-version' programs by editing various elements inside the files, inside the programs—such as changing the credit bed slightly because of underwriters changing for the same programs in different time slots.

TV TECHNOLOGY: Is it harder for PBS corporate and public stations to do much forward-planning with the DTV transition because your likely funding from various sources is not always well known more than a couple of years in advance?
ZAGER: That's always a complication, but I must say it's one that is not unique to PBS. Commercial guys have it, too. It's all about capital budgets. Technology changes all the time and the job of technology and operations people is to recommend when changes are appropriate—depending on the available budgets. PBS has a budget based largely on the availability of what member stations have to spend, from their fundraising and grants. They pay us membership dues.

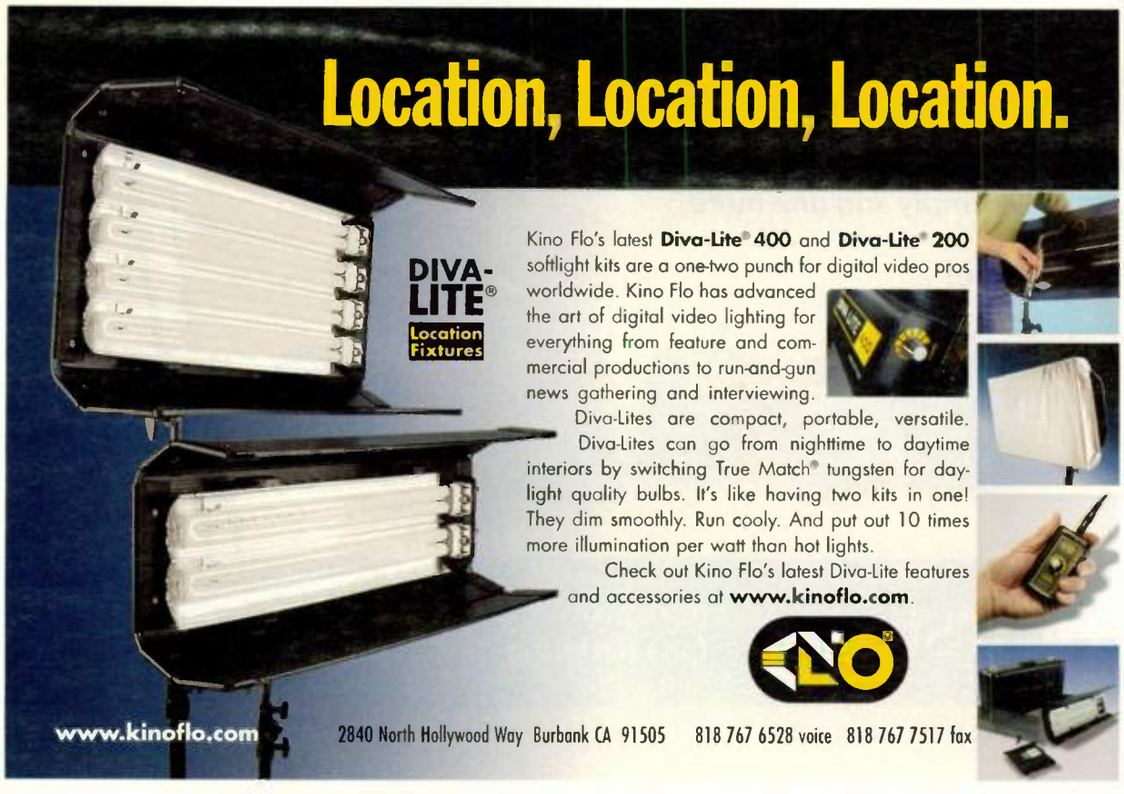
TV TECHNOLOGY: Is your digital transition complete yet within your national broadcast operations center?
ZAGER: The most recent appropriations which the president signed [in February] provide for what we hope will be the addition of non-real-time distribution to stations. Right now, it's still a linear distribution scenario. In a perfect non-real-time world, a program already recorded at the local level would only need an update of the specific small element that requires it, such as the credit bed I mentioned, or some other segment—but not having to record the whole program again with the minor changes.

TV TECHNOLOGY: Apart from the network itself, how is the transition going across the public TV system?
ZAGER: It's going very well. PBS has been ahead of the curve in its build-out of digital transmitters. We have more than 340 stations on the air with their digital channels right now, from a total of about 355. A large number of them have built, or rebuilt, their master controls, too.

TV TECHNOLOGY: Funding aside, do PTV engineers face any problems different from those of their commercial colleagues?
ZAGER: There are different problems, but everyone is challenged by funding issues. We're not driven specifically by ROI, because ROI can be difficult to assess in the non-commercial world. From local stations, it most often has to do with finding a marriage between equipment needs and currently available budgets; it can be difficult to plan ahead. But what often happens is simply that equipment fails and cannot be repaired. So you have to find the money to replace gear unexpectedly.

TV TECHNOLOGY: When the transition first got underway, PBS execs were saying DTV was a technology tailor-made for public broadcasters. Did you agree, and do you still?
ZAGER: Absolutely. The real value to our stations from pushing different ideas around at our tech conference this month is the fact that digital technology enables so much more to be offered in order to expand our [public TV] mission. Our licensees now have the technical opportunities for each of them to create their own multicasting services, with kids' programming, instructional shows, more local content, and of course, HD. That's a very good fit. Public stations have taken the lead with multicasting. Most commercial networks didn't initially buy into the idea and now they are coming around because they've been forced by competition. ▲

> **"The real value to our stations... at our tech conference this month is the fact that digital technology enables so much more to be offered in order to expand our [public TV] mission."**
> —Lew Zager, PBS



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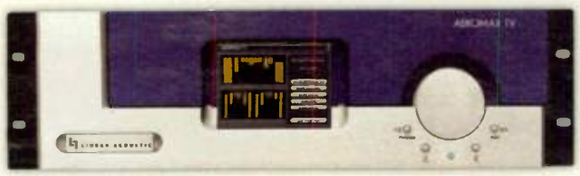

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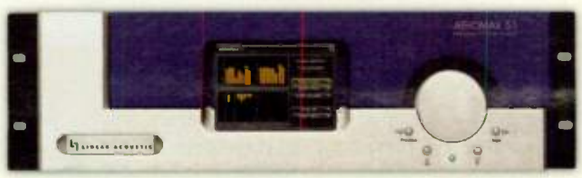

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In the Beginning, Before PBS

SPOKANE, WASH.

A year before the official birth of public television, Ron Valley of KSPS-TV participated in an experiment dubbed "Public Broadcasting Laboratories." Here in 1968, the lab concluded that a potential system to be run as a Public Broadcasting Service could succeed in distributing national programming to ETV (educational TV) stations like KSPS throughout America.

"A year later at the 1969 conference of the National Association of Educational Broadcasters," Valley said, "the very new system called 'PBS,' decided to rent a hotel suite for the express purpose of beginning to meet station personnel from around the country. For a technical demo in the suite, PBS used a DATE audio decoder system." Valley, who retired from KSPS-TV a few years ago, had been elected to the PBS Engineering Committee in 1970 and remained an active member until 1982.

Ron Valley

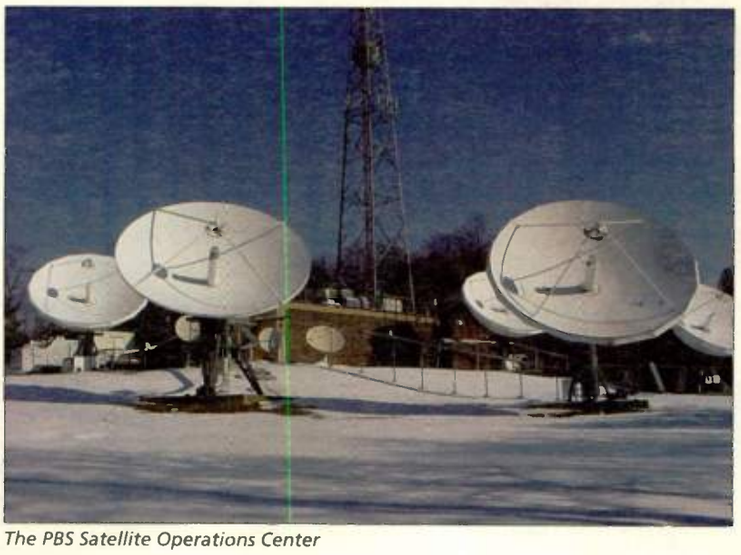
"Back then our initial agenda was to develop the TOS [technical operating specifications] for 2-inch videotape," he said. "We were still the 'Greyhound Network.' An interconnection was being developed using AT&T Long Lines and it experienced a lot of outages. KSPS was considered the 'end of the line' for AT&T since we were up in the Pacific Northwest, and if any part of the system had technical difficulties, we saw it."

SATELLITE LAUNCH

Bill Ramsay remembers it well. Now retired from Nebraska Educational Telecommunications (NET), Ramsay helped build the nine-station state network starting in 1963 and after a stint with RCA in Kansas City, he returned to Lincoln in 1973, where he remained involved in a myriad of issues for another 24 years, both as chief engineer and as early member of the PBS Engineering Committee.

"We had a scheme whereby PBS was able to use back-up AT&T landline microwave facilities to interconnect stations around country," Ramsay said. "It was configured in such a way that PBS could be broken up into regional networks. The transition from this very piecemeal facility to becoming the first TV system to use satellites [in March 1978] was a big issue early on for us."

Jack Kean, who retired from Connecticut Public TV after nearly 50 years in broadcasting, recalls "this patchwork network certainly was somewhat [crude] as an AT&T device" prior to the satellite era.



The PBS Satellite Operations Center

Jack Kean

"I remember one particular segment of the line from San Francisco north, which was unbelievably bad, but it certainly gave us real impetus to push for satellite! And push we did. PBS was first to transition to satellite and our actions were being followed by the commercial guys pretty closely because we were really kind of sticking our necks out, technically, on all this," Kean said.

While on the engineering committee, Kean devoted much of his efforts to working on UHF issues.

"Most public stations were UHF and there were some tremendous problems out there. We tried to improve the efficiency of the transmitters because we had some huge costs for trying to maintain enough power, and we had some real unsatisfactory signals."

Kean said the committee conducted some early UHF experiments that showed a good deal more efficiency could be obtained than was being provided by the manufacturers. "These early UHF transmitters had maybe 12 percent efficiency," Kean said. "A new tube developed in the early 1970s could be maxed up, and by tuning them differently, we could get up to about 40 percent. And by using some other techniques like the klystron tube pulser—which was actually a radar technique—we could achieve up to 55-percent."

Eventually, following a three-year research project, Kean said tube efficiency got so good that it prompted a change in the efficiency parameters to accommodate the vastly more efficient equipment.

TECHNICAL ACHIEVEMENTS

Valley said prior to jumping to satellite, the Engineering Committee was already well underway in developing standards for the interconnection.

"We also had projects going dealing with [the growth of] cable TV—as well as closed captioning for the deaf, which was a big issue. But I remember we lacked the methodology to update and train station staff on these new technologies. PBS had started operations with an outstanding staff and very few resources," said Valley, who received an Environmental Hero Award from the federal government in 2004 for his work on fine-tuning emergency alert warnings for the Pacific Northwest in association with the National Weather Service.

Ramsay fondly recalls the days of the big satellite dishes, and the fact that he had "a big love" for C-band.

"I did think the move from C-band to Ku-band may have been premature, although going to Ku did eliminate some interference problems. But the whole thing was an interesting issue and not without some controversy."

Jan Pazral

When Jack Kean began his broadcasting career in New England in 1954, Jan Pazral, chief engineer at WXXI-TV in Rochester, N.Y., was only a year old.

"Everything we have right now is based on these pioneers who actually built the [public TV] system from the ground up," said Pazral, who has addressed the PBS Technology Conference on several occasions in recent years.

With nearly 17 years in public TV, Pazral had a vastly different background than most of his colleagues. He began his career at the state-run Czechoslovak Television Network in Prague before relocating to the United States in 1984. During those years, his country was part of the communist block.

"Believe it or not, working in a communist country, the media were very important on the priority scale and we always got the latest equipment," he said.

While Pazral has been primarily responsible for the design and integration of WXXI's digital infrastructure as part of a multi-million dollar reconstruction project, he recalls his early days in Rochester, which included "a 10-meter dish and two microwave links. Our studios were downtown and we had no clean C-band reception."

TIME MARCHES ON

Today Pazral welcomes new digital technology with open arms—especially multicasting—for which he said public TV is especially well-equipped because of their mission of commitment to education, kids, the arts, and other non-commercial priorities.

Despite his younger age, Pazral is very much a broadcast purist who prefers to receive all his television at home terrestrially. His basic hardware consists of a Radio Shack antenna mounted in his attic and he refuses to subscribe to cable or DBS.

"Today people simply don't even realize they can receive digital TV directly over the air [via antennas] because of all the market-

"The PBS Technology Conference has come a long way since I first attended the gathering in the early Eighties. Back then, it was not known as the Technology Conference; it was actually a meeting of the PBS Engineering Committee. The Committee would sit in front of the room and have a meeting while other public television engineering representatives sat on hard seats listening. Over the years the event has morphed into one of the pre-eminent technical conferences in our industry. Congratulations to PBS and its member stations on reaching this milestone."

Mark S. Richer
President
Advanced Television
Systems Committee

World Radio History

ing of these cable and satellite companies," he said.

In Connecticut, Kean pulls in OTA signals with his "four-stack bowtie and low-noise amplifier on a self-indexing rotor where I get nine [digital] stations in the Hartford area," although he acknowledges with a chuckle that most viewers may not want to gather similar hardware to capture terrestrial signals.

In Lincoln, Ramsay still maintains a 50-foot tower in his backyard, equipped with no fewer than five Yagi antennas to pull in Omaha and other markets. (He also has two DirecTV dishes.) But in a world where more than 85 percent of all U.S. dwellings now have cable or satellite connections, and "new media" are knocking on the door for their slice of the consumer pie, the former Nebraska engineer thinks "there could come a time when OTA should be discontinued. That's certainly heresy for someone like me who helped put up the big steel towers."

Lew Zager, who began his career at NET in Lincoln and is currently consulting for PBS, disagrees.

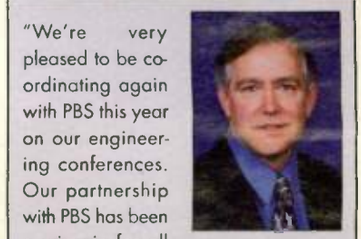
"I wouldn't predict the demise of terrestrial at all right now, with all due respect to my former boss. I don't think we'll ever go back to the '50s with rooftop antennas, but we're already seeing smaller antennas and USB and internal receivers on computers, and mobile TV on small devices. All kinds of things are happening." Zager is coproducing this year's PBS tech conference and chairing NAB's Broadcast Engineering Conference in Las Vegas.

Pazral, for his part, believes terrestrial broadcasting remains a vital technology for public broadcasters, especially, because "PBS has always traditionally served the underserved"—those viewers who, for a variety of reasons, must rely solely on free, over-the-air transmissions.

PBS continues to be dedicated to all the audiences it reaches, the "under-served" and technology mavericks alike. Moving forward in this fast changing broadcast landscape, one impact of today's technology found common ground among both the retired and working public television engineers.

"I think the faster pace and lack of sufficient time is pretty much universal," said Kean, with his colleagues in agreement. "And the commercial stations probably have it much worse than the public guys. It's amazing sometimes just to see a master control that isn't located in a different city now. In the early days, it was the commercial guys who ran a tight ship and we public TV people were able to devote a little more time to thinking about the state-of-the-art, and consider the industry issues that affected most of us. I certainly think back then we were fortunate." ▲

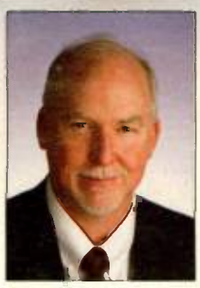
> **"We were first to satellite and our actions were being followed by the commercial guys pretty closely because we were really kind of sticking our necks out, technically, on all this."**
>
> **—Jack Kean**
> **Connecticut Public TV, retired**



"We're very pleased to be coordinating again with PBS this year on our engineering conferences. Our partnership with PBS has been a win-win for all broadcast engineers, no matter what your call letters are. We congratulate PBS for 30 years of excellent technical conferences and look forward to 2007 and beyond.

Lynn D. Claudy
Senior Vice President
Science & Technology
National Association of Broadcasters

Kutzner, McCoskey Talk Technology



John McCoskey

Jim Kutzner

ARLINGTON, VA.

On April 2, John McCoskey began his duties as PBS's first chief technology officer. He most recently served as vice president of product development for Comcast Media Center. Jim Kutzner is senior director, PBS Enterprise Technology. He is vice chairman of the ATSC Planning Committee, and he has served as vice chairman of the ATSC Implementation Subcommittee and in other standards groups involved in digital television.

In the run up to PBS Tech.Con.07, **TV Technology** sat down with Kutzner and McCoskey to discuss McCoskey's new role and some of the hot topics facing PBS, its member stations, and the industry at large:

KUTZNER: John, welcome to PBS.

MCCOSKEY: Thanks, Jim. I am thrilled to be here, and I look forward to attending my first PBS Technology Conference [April 11-14] in Las Vegas.

KUTZNER: Actually, this year Tech.Con.07 will be marking the 30th anniversary of our annual meetings during NAB, so it's an especially great time for you to join us for this event.

MCCOSKEY: Thirty years is fantastic. To be able to meet and collaborate with such a special group of professionals is something I'm greatly anticipating. I plan to do a lot of listening at the conference and will try to capture a "mental snapshot" of what's top-of-mind with member stations, and, of course, meet as many station representatives as I can.

"I congratulate PBS on this milestone. Public broadcasters have been an important partner to CEA in bringing consumers the benefits of the transition to digital television. This forum, now celebrating its 30th anniversary, is a key technical resource that assists broadcasters in meeting consumer demand for high-definition content. CEA commends PBS and its public broadcasting partners for their continued leadership in the digital era."

Gary Shapiro
President/CEO
Consumer Electronics Association

It really is quite an opportunity to join such a highly respected organization within the industry, especially now while it's going through such an exciting technological change with DTV. I'm looking forward to helping keep PBS on its industry leadership track and to help support the member stations in everything we do.

KUTZNER: About all this change now underway... please drill down a bit for us into how you view these vast changes and what expectations you have for PBS.

MCCOSKEY: I think the changes will certainly provide a great opportunity for everyone. There are now more ways to reach the public, more new distribution modes that will prove to be beneficial from both ends, and the potential for creating entirely new forms of content. Expanded broadband distribution, for example, shows promise as it matures. While we navigate through all these new media, I still expect PBS to be on the cutting edge of these very exciting initiatives.

KUTZNER: It's exciting having someone of your caliber join our shop with such a broad and varied experience in video distribution. How do you think your background might help you—and us—in your new post with PBS?

MCCOSKEY: I believe my background covers all the key focus areas. Primarily I've been in satellite, cable, terrestrial distribution, linear and nonlinear delivery systems, and had the responsibility to support a large number of diverse affiliates. I cut my teeth on satellite when I was with Comsat and GTE Spacenet. I was at Discovery when they branched out into the digital network arenas. Most recently at Comcast, I had the opportunity to head a product development group, and ran a service that directly supported multi-channel linear and nonlinear distribution to thousands of headends.

KUTZNER: Any lessons learned?

MCCOSKEY: Several, to be sure, but one thing I learned about the relationship between content distributors and local systems is that local systems expect a lot of support from distributors—but they also want and deserve to be respected; they value their independence. I think you hit the nail on the head. I had the pleasure of working at KTCA-KTCI in Minnesota, where I'm from, in two different periods and recently I went back to visit them in St. Paul to see what they're planning. They've always been a very progressive broadcaster, both technologically and in their varied programming, and it was good to see their DTV plans firsthand. Speaking of which, from your current vantage point, how do you see the analog shutoff in February of 2009 affecting local broadcasters?

MCCOSKEY: I think the good news is the [DTV] transition has been top-of-mind for several years now and I believe the industry, as a whole, is prepared for it. Actually, I think a lot of engineers are probably looking forward to it by now. A lot of them have aging analog transmitters and they probably have a reluctance to invest in any more legacy gear, so it wouldn't surprise me to hear a big sigh of relief come 2009.

KUTZNER: Yes, I agree. Today, most member stations will say analog is still their prime program service. As viewers become more accustomed to DTV, each market is going to have to make that mental flip that says, "My DTV services are now more important than analog." And we have to make sure PBS has the services on this end for what we present to stations. It's going to involve a lot of marketing, a little bit of internal change at stations, and some behavioral changes by viewers. Actually, I see this as our biggest challenge in 2009, especially as the rollout of new and emerging media like YouTube and mobile devices continue to accelerate.

MCCOSKEY: Yes, but I think it's also important for us to remember to maintain a good balance between new technology and our current operations. We know it's important to have various trial activities going on—and we certainly may choose to take some of those new paths. But, most of the changes we're facing now and in the next few years will really be incremental to our current infrastructure and to our core business.

KUTZNER: Absolutely. We still have businesses to run and we still need to keep the ship afloat. There's little doubt to me that the next few years are bound to be just as exciting, if not more so, than the last decade has been. ▲

> **"One thing I learned about the relationship between content distributors and local systems is that local systems expect a lot of support from distributors—but they also want and deserve to be respected; they value their independence."**
>
> **—John McCoskey**
> **PBS Chief Technology Officer**

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World Radio History

Agenda

TECH.CON.07
PBS TECHNOLOGY CONFERENCE

April 11-14

Wednesday, April 11
Premier Ballroom

8 a.m-5 p.m.
VSB Seminar: Gary Sgrignoli's renowned DTV VSB transmission fundamentals seminar.
Gary Sgrignoli, Principal Engineer & Founder, Sgrignoli Consulting

2 p.m.-2:15 p.m.
Traffic Welcome and opening remarks
Nick Agresti, Dir., Scheduling Implementation, PBS; Michelle Nesmith, KRMA Traffic Technician, Rocky Mountain PBS

2:15 p.m.-3:30 p.m.
Meet Your Representative: Talk with your your Traffic Advisory Committee member.
Nicole Quirk, KOCE Broadcast Traffic/Spectrum Manager, KOCE

3:45 p.m.-end of day
And Now A Word From Our Vendors
Andy Myers, Pres., Myers ProTrack; Michael Atkin, Pres./CEO, BroadView Software

Thursday, April 12
Premier Ballroom

8 a.m.-9 a.m.
Conference Welcome
Paula Kerger, CEO, PBS; John McCoskey, CTO, PBS; Jerry Butler, Sr. Dir., Interconnection Replacement Office, PBS

9 a.m.-9:30 a.m.
PBS Content Roadmap
John Boland, Chief Content Officer, PBS

9:30 a.m.-10 a.m.
Opportunities and Threats in the Changing Media Landscape
Jason Seiken, Senior VP, PBS Interactive

10:30 a.m.-11 a.m.
Money, It's A Gas...: Funding prospects for public television.
Bill Cooperman, Dir., NTIA/PTFP; Mark Erstling, Senior VP and COO, APTS; Don Lockett, Senior Dir., Media Technologies, CPB

11 a.m.-Noon
Workflow Supersession: The Times They are a Changin' Our Workflow: PBS and member stations adjust their organizations and workflows to meet their changing business requirements.
Jim Kutzner, Sr. Dir., Enterprise Networking, PBS; Nick Agresti, Dir., Scheduling Implementation, PBS; Michael Hunt, VP, Enterprise Applications, PBS; Alan Popkin, Dir., Engineering, KLCS; Bill Sanford, GM/Dir. of Engineering, Lakeland Public Television

Noon: Lunch
Keynote: Paula Kerger, CEO, PBS

1:30 p.m.-2:30 p.m.
Workflow Supersession: Advanced Workflows, Alphabet Soup or Hearty Stew? MXF, content delivery systems, traffic, and automation systems—how can you really achieve file-based workflows today?
Paul Turner, VP, Product Marketing, Omneon; Chris Lennon, Program Manager, Harris; Frank Graybill, WNET

2:30 p.m-3:30 p.m.
Workflow Supersession: Join the Resolution... Designing and Integrating for HD
Karl Paulsen, CTO, Azcar Technologies; Kip Campbell, Dir., New Technologies, UNCTV; Chris Lane, Dir. of Production, WETA; Joe Strobel, Sr. Project Mgr., Communications Engineering, Inc.

4 p.m.-4:45 p.m.
Against All Odds: The Truth and Consequences of Feb. 17, 2009
Matt DelNero, Attorney, Covington & Burling LLP; Dennis Wallace, Partner, Meintel, Sgrignoli, & Wallace

4:45 p.m.-5:45 p.m.
Audio Supersession:
Can Your Viewers HEAR YOU NOW? Panel discussion about the challenges of DTV audio.
Mike Babbitt, Customer Support Manager, Dolby Laboratories; Frank Graybill, Chief Engineer, WNET; Bruce Jacobs, Chief Technologist, Twin Cities Public Television; Jim Kutzner, Sr. Dir., Enterprise Networking, PBS; Mark Schubin, Technology Consultant

Breakout I
1:30 p.m.-2:30 p.m.
"Other Duties As Assigned..." The ever-changing role of today's traffic teams.
Charles Cole, Manager, Broadcast Operations and Traffic, ThinkTV Network; Theve Thum, TV Programming Assistant; South Dakota Public Broadcasting; Lynn Veltrie, Operation Coordinator, KSPS

2:30 p.m.-3:30 p.m.
PBS Connect Task Force Update: A glimpse at the road map of the changes in store for PBS Connect.
Leon Messenie, Dir., Engineering & IT, KPBS TV/FM; Claire Bowes, Online Communications and Systems Analyst, PBS Thomas Crockett, Senior Director of Member Affairs, PBS; Christine "Cricket" Masson, Director of Traffic Services, WMPT

4 p.m.-5:30 p.m.
F.I.N.E.! FCC+"Indecency"=Now Edited: FCC update and Q&A for traffic pros.
Kevin Latek, Attorney at Law, Dow Lohnes

6 p.m.
Opening Reception

Friday, April 13
Premier Ballroom

8 a.m.-9 a.m.
Security Challenges in the Face of Convergence: Integrating broadcast processes into corporate IP networks can be a challenge for every engineer and vendors involved. Solutions require security awareness, compromise, and creativity.
Matt Burrough, Technical Researcher, NPR Labs; Scott Gebhardt, Manager, Enterprise Networking, PBS; Ken Walters, Sr. Dir., Enterprise Platforms, PBS

9 a.m.-9:45 a.m.
Disaster Preparedness: Are You Ready for the Worst?
Karl Fontenot, Chief Engineer, KRVS-FM; Jerry Butler, Sr. Dir., Interconnection Replacement Office, PBS

10:15 a.m.-11 a.m.
Tower Safety for Smarties
Tom Silliman, Pres., Electronics Research, Inc.

11 a.m.-Noon
Cross Platform Workflows: The Multiplatform Universe
Moderator: Al Kovalick, Strategist & Fellow, Avid Technologies; Michael Atkin, Pres./CEO, BroadView; Paul Stackhouse, Dir., Web & Multimedia Services, KET; Bill Weber, VP/CTO, WHYY

AGENDA, PAGE 54

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Agenda

CONTINUED FROM PAGE 50

Noon-1:15 p.m.
Special Lunchtime Sessions & Meetings
Grid Computing: Grid computing and grid storage concepts; some of the details of the Preserving Public Television model grid storage system.
Unni Pillai, New York University

Small Stations Meeting: DTV Multicasting: The Nuts & Bolts of Making it Happen...:
Bill Sanford, GM, Dir., Engineering, Lakeland Public Television

My Life Since September, or a Brief History of Metropolitan Opera Broadcasting, from 1910 radio to 2007 HDTV.
Mark Schubin, Technology Consultant

1:15 p.m-2 p.m.
The Byte Stuff: Video Over IP in Your Facility
Thomas Edwards, Sr. Mgr., Interconnection Engineering, PBS; Stéphane Billat, Product Mgr., Evertz Microsystems, Ltd.; Michel Proulx, CTO, Miranda Technologies

2 p.m.-2:45 p.m.
The Big Squeeze: H.264, VC-2 and VC-3, and more.
Matthew Goldman, VP, Technology & Compression Systems, Tandberg Television; Dr. Tim Borer, Principal R&D Engineer, BBC Research; Al Kovalick, Strategist & Fellow, Avid Technologies

2:45 p.m.-3:30 p.m.
Nielsen Schmielsen: Everybody's Watchin' at Me... Or Are They? Nielsen engineers explain the new Nielsen rating system and what it means to engineers.
Paul Mears, Sr. VP, Engineering and Technology, Nielsen Media Research; Mark Ficco, Sr. Engineer for Electronics and Technology, Nielsen Media Research

3:45 p.m.-4:30 p.m.
Fast, Cheap, and Good...Can HDV Provide All Three? Also, what's all this noise about noise?
Bruce Jacobs, Chief Technologist, Twin Cities Public Television; Jim Kutzner, Sr. Dir., Enterprise Networking, PBS

4:30 p.m.-5:15 p.m.
NGIS: The NOW Generation Interconnection System: Learn about NGIS changes since last year's Tech Conference and the latest plans for the Next Generation Interconnection System.
Jerry Butler, Sr. Dir., Interconnection Replacement Office, PBS

5:15 p.m.-6 p.m
The Annual Grill: PBS Q&A
Moderator: Leon Messenic, Dir., Television and IT, KPBS PBS Staff

Breakout I
8:15 a.m.-9:45 a.m.
The Traffic Breakfast Club: The newest innovations in viewer retention.
Alicia Glasgow, Mgr., Schedule Operations, thirteen/WLIW 21; Lili Bell, Sr. Traffic Coordinator, KUAT Communications Group; Judy Diaz, Sr. Dir, Primetime & Corporate Brand Management & Promotion; Erika Shernoff, Assistant Dir., Brand Management & Promotion, PBS

10:15 a.m.-11 a.m.
PBS Programming Pipeline: Program highlights from new and returning PBS programs.
John Boland, Chief Content Officer, PBS

11 a.m.-Noon
National Distributor Programming Pipelines: APT, NETA, KNME.
Cynthia Fenneman, Pres./CEO, American Public Television; Ginny Hamilton, Sr. Operations Associate, American Public Television; Suzanne Kembel, Mgr., Content Distribution, KNME-TV/Westlink Satellite Services; Greg Tillou, Dir., Operations, NETA

1:15 p.m.-2:15 p.m.
The Multicasting Mystery: The digital conundrum has multiple solutions; which will your station choose?

2:15 p.m.-3:15 p.m.
Future-Proofing Your Library: Archiving and Preservation
Mandy Yates, Traffic Dir., WTIU Winter Shanck, Archival Media Librarian, thirteen/WNET; Jack Brighton, Assistant Dir., Broadcasting for Internet Development, WILL AM-FM-TV; Glenn Clatworthy, Dir., Program Data & Analysis, PBS

3:45 p.m.-4:30 p.m.
And Now For Something Frequently Asked...: FAQ, TAC, NOC, MOC & SOC, Traffic Q & A
Kevin Ruppenthal, Assistant Dir., Scheduling Implementation, PBS

Breakout II
10:15 a.m.-11 a.m.
Feed Me! Web Content Syndication and Mash-Ups:
Drew Engelson, Dir., Content Applications & Technologies, PBS; Lee Banville, Editor-in-Chief, Online NewsHour

11 a.m.-Noon
All Together Now: Readying Your Program Streams for the Last Mile: A discussion and overview of HD and SD splicing and encoding technology.
Terry Harvey, Chief Engineer, KAET; Jean Macher Dir. of Marketing, Video Network Systems, Grass Valley; David Price, VP, Product Marketing and Marketing Communications, Harmonic

1:15 p.m.-2 p.m.
Protecting Your Assets Management/ Archiving
Alan Popkin, Dir., Engineering, KLCS; Joe French, Sr. VP, Sales, Masstech

2 p.m.-2:45 p.m.
When Every Bit Counts: PTV Projects for Digital Broadcast of Emergency Information.
Moderator: Mark Erstling, Sr. VP and COO, APTS; Mark O'Brien, Chief Technologist, SpectraRep; Tina Hauser, Digital Project Mgr., Wisconsin Public Television

Saturday, April 14

SBE Ennes Workshop-Everything Audio
Las Vegas Convention Center S219

8 a.m.-9 a.m.
Tutorial: Audio 101-A Brush Up For Broadcast Engineers
Fred Baumgartner, MediaFLO USA

9 a.m.-9:10 a.m.
Opening Remarks
John Poray, Society of Broadcast Engineers

9:10 a.m.-10:10 a.m.
One Hundred Things you Should Know About Audio Wiring
Steve Lampen, Belden Cable

10:10 a.m.-10:25 a.m.
The State of Broadcast Audio 2007... A quick tour of the second city
Gordon Carter, CPBE, CBNT, WMFT

10:25 a.m.-11:25 a.m.
Dolby Broadcast Technologies
Rocky Graham, Dolby Laboratories

11:25 a.m.-12:30 p.m.
Building Broadcast Audio on IP
Steve Church, Telos Systems and Axia Audio

12:30 p.m.-1:25 p.m.
Lunch Break

1:30 p.m.-2:30 p.m.
Audio for High Definition TV
Tim Carroll, Linear Acoustic

2:30 p.m.-3:45 p.m.
Audio Metadata Demystified
Mike Babbitt, Dolby Laboratories

3:45 p.m.-4:30 p.m.
The Trials and Tribulations of Managing Multi Channel Audio in a DTV Facility
Birney Dayton, Jay Kuca, Nvision, Inc.

4:30 p.m.-5:15 p.m.
Managing the Transition to 5.1 Audio for HD
Roger Charlesworth, Charlesworth Media

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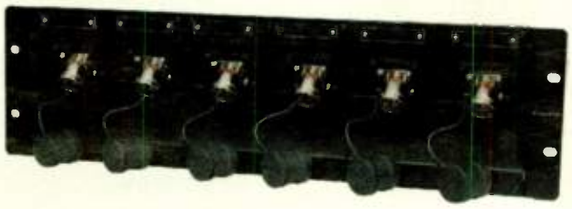

The EO-500A Transmitter and OE-501 Fiber Optic receiver takes eight unbalanced AES Digital audio sources and broadcast them up to 20km over a single mode fiber optic cable. Both the EO-500A and the EO-501 are designed to be installed into the 161UPS & 6PS (field use) Power Supply. The 161UPS is 1 RU high and is designed to hold multiple Electro-Optical and Optical-Electro modules. The 161UPS has an optional redundant AC Power Supply available for mission critical applications.

Hybrid Fiber Optic Splice Enclosures; the enclosures are designed specifically for the Hybrid Fiber Optic cable (LF-2SM9), making installation and operation easy. The enclosures can be installed on walls or placed flat. Mounting bracket (connector protection cover) can be detached from the box when installing in a limited space. Lastly the connection with the Hybrid Fiber Optical receptacle cable is done by use of connectors, thus enabling easy interchanging of lines after installation.■

CANARE

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NAB Booth #SU4805

World Radio History

DataDirect Networks Silicon Storage Appliance - The choice for High Quality Acquisition and Asset Management to Advanced Network Production and Final Output...

S2A NAS Storage Solution for Real-time News Acquisition & Content Sharing

DataDirect Networks is the recognized global leader in high performance, high capacity NAS, SAN and tiered storage solutions for the broadcast, digital intermediate, content creation and post production arenas. Focused on driving customer-centric innovation, DataDirect Networks has created the award winning Silicon Storage Appliance (S2A) as the essential building block for its rich media and IT based storage solutions. Each storage solution offers unsurpassed performance, high availability, cost effective scalability and simplified management for high throughput, high capacity and multiple operating system environments found in today's broadcast, digital intermediate and post production environments - empowering efficient storage consolidation and real-time workflow collaboration. DataDirect's S2A delivers the industry's best price per performance and best per capacity per square foot solution. DataDirect's industry proven S2A technology fully integrates a parallel, non-blocking architecture with SAN functionality in one simple, easy-to-use, easy-to-scale intelligent device. The S2A's unique open architecture and consolidated functionality removes the complexity, congestion, latency and contention of generic RAID systems, and with its hardware based RAID 6 and double parity protection capability, can maintain peak sustained performance, even in the event of drive rebuilds or multiple drive failures. This optimal block level and file system performance design supports a broad range of NAS and SAN solutions powering some of the video, graphics and animation industry's most notable suppliers including Autodesk, IBM, Dell, Sony SGI, Thomson, Matrox and others.

DataDirect NETWORKS
Performance. Capacity. Innovation.

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NAB Booth #SU5605

NAB Product Solutions in Booth SU5605:

S2A NAS Solution (NASS)

Scalable, High Performance Cluster NAS export of NFS, CIFS and HTTP and Fault Tolerant
- Animation, 2D/3D rendering and Digital Intermediate
- Active Archive NAS Solution with NFS, CIFS, http, ftp, &
- LDAP support

Scalable fault tolerant NAS cluster

Shared File System with Parallel Processing Storage
- Up to 4.8 GB/s per cluster; Up to 300 MB/s per cluster node
- Support up to 1 PB per cluster and up to 24 cluster node support

S2A HPC Storage Solution (HPCSS)

Real-time, Scalable High Performance Cluster Storage Solution
- Broadcast, VoD streaming, post production and 2K/4K DI
- Eliminates islands-of-storage; better cost-efficiency than DAS

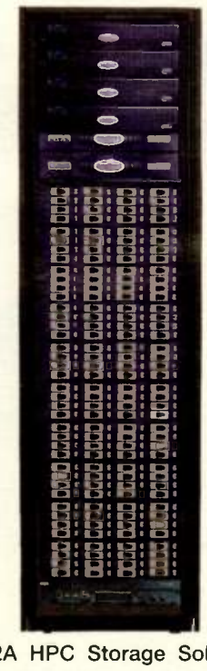
Overcomes Scalability Limitations of Block-Based Solutions
- Up to six 2K and two 4K real-time streams to multiple workstations with 2.5 GB/s per solution building block
- Up to one 4K real-time stream to single workstation with
- up to 2 GB/s client I/O
- Linear scalability supporting thousands of streams in a single name space and hundreds to thousands of hours of content

Parallel File System with Parallel Processing Storage
- Large block size options, up to 4MB
- Extremely high sustained multiple concurrent read & write performance for every workstation
- Extremely high-performance from single disk target (S2A PowerLUN)

S2A Active Archive and Nearline Solution

Scalable, NFS File Serving, RAID 6 Reliability
- Secondary DI storage; DAM and MAM nearline solution
- Backup and Recovery: Up to 10TB/hr

Best Footprint: Store per Solution . . . All in two floor tiles
- Up to 125 hours of 4K, 10 bits resolution, or
- Up to 500 hours of 2K, 10 bits resolution, or
- Up to 650 hours of high resolution HDTV (1080i) 10 bit, or
- Up to 7,300 hours of SD video uncompressed
- Up to 24,000 hours of 50Mb/s video (DV50 or MPEG 2 – 50Mb/s)
- Up to 48,000 hours of 25Mb/s video



S2A HPC Storage Solution for Rendering & Animation

S2A Active Archive & Nearline Solution for Disk-based Active Digital Archive

World Radio History

A LEGACY OF ADVANCED ENGINEERING & PERFORMANCE

LEMO has been designing precision connectors for decades, delivering the superior craftsmanship and reliability for demanding projects. Specify LEMO, the premiere architect of premium connectors and custom design solutions for your next project. LEMO's reputation for quality and performance is still growing.

LEMO® — PIONEERS OF TODAY'S CONNECTOR TECHNOLOGY

LEMO has been producing the highest quality push-pull electronic, fiber optic and hybrid connectors since they first introduced the technology in 1957. Over the past half-century, design engineers around the world have turned to LEMO whenever they've needed a new solution in high-performance circular connectors.

Founded in Switzerland in 1946, LEMO is now a worldwide leader in the design and manufacture of circular connectors, with products sold in more than 80 countries. Offering connector solutions for a broad range of applications, from medical and military, to the fast paced world of broadcasting.

Commitment to quality from concept ... to connection

LEMO has integrated its legacy of Swiss craftsmanship and ingenuity into every stage of the production process. From product engineering to precision tooling and manufacturing, they manage the full production cycle to ensure the product you receive maintains the highest quality and performance integrity.

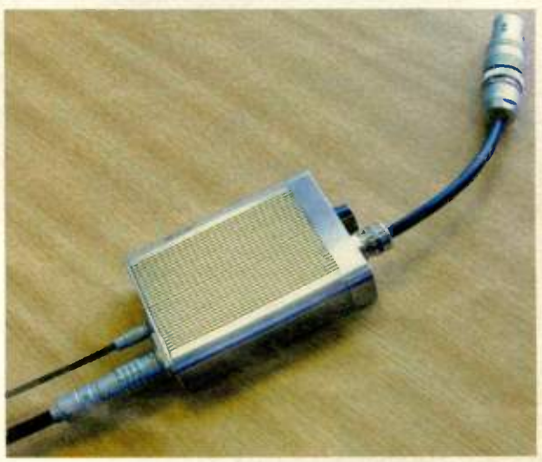
As a result, LEMO connectors are known for the most reliable performance in the industry. LEMO connectors are designed for long-lasting operation and maximum interconnect stability in even the harshest environments. This means an excellent return on investment for all customers through superior durability and reliable performance.

Investment in precision manufacturing process

LEMO is committed to maintaining a state-of-the-art manufacturing process, acquiring and developing sophisticated technology to ensure optimal efficiency in producing the highest quality products.

LEMO controls the vast majority of our manufacturing operations, from procuring raw materials and tool making, through production, plating, final assembly, and testing. Control of these processes gives LEMO the flexibility to react more quickly to special or high volume customers' needs, delivering connectors, cable assemblies and components more quickly.

All LEMO facilities are ISO 9001:2000 certified.



Dedication to excellence in everything LEMO does

Everyone at LEMO is dedicated to providing their customers with the best possible products and services. Whether they're developing manufacturing equipment or designing custom connectors, they stand behind their pledge of "Uncompromising Commitment to Excellence through Innovation and Quality".

Stop by LEMO's Booth During NAB

Be sure to stop by and visit LEMO during NAB to see their latest and greatest Fully Digital Triax-to-Fiber Video Media Converter (MEERKAT™), SMPTE Connection System and Pre-Termination Demonstrations. ■

LEMO
The Original Push-Pull Connector

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NAB Booth #C9432

World Radio History

Moseley: Taking High Definition Wider

Broadcasters face a challenging issue with continual changes in video encoding and transmission schemes. This has lead to confusion in the broadcasting industry. Moseley however, has created products to fulfill the needs of the entire broadcasting industry. We have leveraged technology from other business sectors that specialize in point-to-point and point-to multi-point wireless solutions, for industrial, broadband, and network service providers.

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 10-100 frames), JPEG2000 (est. delay 1 frame), require flexibility of high data rates.

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.

The Event IP product allows broadcasters to convey ASI video over ordinary high-speed Internet Protocol connections. Video can be transported anywhere in the world that has a high-speed connection.

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.

Moseley Broadcast, Axxcelera and Carriercomm comprise the Moseley Wireless group. With offices and manufacturing in Santa Barbara, San Diego, San Jose, CA, Richmond, VA, China, United Kingdom, and Brazil. ■

2GHz BAS Relocation

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NAB Booth #N7711

World Radio History

Nucomm: Defining the Future of HD News

Through the broadcast industry's most advanced microwave link solutions. From Wireless Camera Systems to Cellular Diversity Systems to IP File Transfer Systems, Nucomm continues to innovate and develop microwave systems that offer the most advanced features and technology available in the world.

Features such as integrated multiple modulation modes, integrated multiple RF bands, built-in spectrum viewer (in all receivers), and intuitive ease of operation — plus excellent performance and reliability — are propelling Nucomm equipment to the forefront of digital transitions like local HD news. Two newly developed products in this area are the Messenger IP encapsulator/decapsulator, and the NewsHub Cellular Diversity networking system.

The Nucomm *Messenger* system enables broadband IP connectivity between an ENG truck and the broadcast studio. With the deployment of editing systems into ENG trucks, new workflows are emerging, where stories can be edited in the field and delivered to the studio over alternative networks.

With an IP network in place, other applications, such as remote queuing and remote truck control, can also run between the studio and the ENG vehicle.

The Nucomm Messenger can be used in trickle or broadband mode. In trickle mode, live video is sent using the MPEG encoder, reducing the IP traffic to a rate in the range of 100 kbps to 1 Mbps. The Messenger does this transfer by replacing null packets with IP packets.

In the broadband mode, nearly the entire link is dedicated to IP traffic. The user either turns off the MPEG encoder or removes the video source to the encoder, creating a transport stream nearly full of null packets. In this mode, the encapsulator responds automatically to the changing network conditions.

IP Microwave Transmission from the Field

IP data from the news gathering vehicle to the studio flows through the existing ENG infrastructure. The outbound IP traffic enters the *Messenger* IP encapsulator. The IP traffic is encapsulated into the MPEG stream from the MPEG encoder in the ENG transmitter. The resulting ASI stream, containing the IP data and video data, returns to the ENG microwave transmitter, where it is transmitted back to the studio.

IP Reception in the Field

An ATSC 8VSBT receiver captures inbound IP Traffic from the studio. The MPEG transport stream then enters the Nucomm Messenger IP Decapsulator, from which the IP traffic is routed from the Ethernet port to the network inside the truck.

Advantages of Local File Stores

A file store in the ENG vehicle will enhance the capabilities of the transfer process. With this capability, the system will transfer files into the local file store and the files are then automatically transferred to a remote file server. The local editor can be used for other applications while the files are being streamed back to the studio.

Nucomm NewsHub for Versatile Cellular Receive Networking

As news operations incorporate more HD newsgathering capabilities, the technical advantages of diversity receivers are leading them to become an integral part of the migration to HD. First, diversity receivers employing maximum ratio combining of multiple antennas offer better performance at the higher order COFDM modulation required for HD; second, diversity receivers outperform single input receivers in a high RF multi-path environment. Third, multiple diversity receivers can be interconnected to form a cellular diversity network, enabling broadcasters to cover most or entire urban downtown areas in HD. Finally, cellular diversity receive networks will improve IP file transfer rates from the ENG truck to the studio and enable transfer while the truck is in motion.

The new Nucomm NewsHub is an ideal way to implement a wide-area urban cellular diversity receive system. A single NewsHub features 4 ASI inputs with loop-through packet switching that will provide seamless switching of up to 4 cellular receive sites. Coverage areas can be expanded as required by cascading NewsHubs.

Featuring a switchable HD/SD full-format MPEG2 decoder as well as NTSC/PAL capability, the NewsHub has an extremely low signal acquisition time—ideal for fast-moving news operations.

The NewsHub offers genlock in all analog format inputs, and provides 2 SDI/ASI outputs. Controlling the NewsHub is easy, with USB/Ethernet and RS232 remote control, and the downconverted SD monitor with status overlay is ideal for monitoring.

Singular Focus on Television Broadcast

The Nucomm Messenger and NewsHub are the latest products in Nucomm's continuous history of solution innovation—a history that is possible only because Nucomm remains clearly focused on the microwave requirements of television broadcasters.

For 17 years, broadcasters have turned to Nucomm for the best and most capable solutions. Nucomm is committed to continuing that record of innovation for many years to come. ■

Nucomm

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World Radio History

Longevity, Stability and Functionality Made Simple

For over 15 years, vendors and end users alike have sought out the engineering team at NVerzion to design and develop software solutions to run their broadcast and associated A/V processing facilities. Working closely with broadcast engineers and large hardware manufacturers, NVerzion has developed an extensive suite of software products including: television automation software, traffic interface software, satellite delivery solutions, archive interface software, asset management software, fully integrated hardware/software solutions, and complete facility design.

NVerzion engineers were among the first enlisted to develop and implement digital technology software solutions. With that expertise, NVerzion has been called upon to engineer solutions for educational facilities, the space industry, various government agencies and a wide variety of other industries not traditionally associated with broadcast. Nearly two decades after the company first opened its doors, NVerzion is now positioned among the top software solutions providers in the broadcast and content delivery markets and has software operating and supported around the globe. Support is paramount to NVerzion which has never backed away from a product. Solutions created in the 80s are still running and fully supported by NVerzion. To ensure smooth, economic upgrade paths for its customers, virtually every previous generation product can be integrated into NVerzion's newer solutions. Support continues to be one on one. Calls in to NVerzion's support staff, are answered by an experienced engineer dedicated to finding an immediate solution to the problem at hand.

Longevity and Stability are of key importance to NVerzion whose employees truly love the business. Wholly owned, NVerzion is one of the oldest in the industry and continues to make plans to offer even better services and support for its customers in the future. In 2006, NVerzion moved into a 5700 sq ft building, providing the company space for a brand new sales department as well as complete demo and training facilities. NVerzion's customers have always been considered the company's greatest asset, and in response, the majority of NVerzion's business is either repeat business or referral. Today, NVerzion solutions are installed in over 100 locations, managing billions of dollars of assets.

At NAB 2007, NVerzion will be demonstrating a new solution marrying two operating systems, Linux and Windows. These two operating systems each offer certain benefits over the other, and this new solution will take advantage of the best of both. This new solution harnesses Linux to manage back end applications such as machine control, archive management and data movement. Front end applications, including a brand new fully configurable GUI, will be performed by Windows. As always, all communications between applications is across the network giving the user control from anywhere to anywhere as well as virtually unlimited expandability.

In February 2007, working with two other major software/hardware vendors, NVerzion was able to demonstrate a 10 year dream of creating a file–based-only distributable solution for Public Television Stations. This fully automated system allows the movement of audio, video and meta data from any point to any point. It interfaces traffic at every station in concert with the local video server, the local archive and the local automation system. The conceptual solution was so elemental, that it took just a few hours to setup the demonstration and have it theoretically functional. This same PTV solution is fully useable in any other industry that wishes to have a simple, cost efficient and powerful solution for the movement and management of their assets.

NVerzion sells automation packages as straightforward as small, single channel, cost-effective modules to full scale, multi-channel stations with integrated near and off line solutions, as well as automated asset preparation and distribution.

During NAB 2007, visit NVerzion at booth SU 4228 to see a little of what NVerzion can do for your environment, or tell us what you want to do. We love this business and we look forward to any opportunity to talk about it.■

NVERZION
Broadcast Automation Solutions

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fax: 801-293-8616

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sales@nverzion.com

NAB Booth #SU4228

World Radio History

ROI & Technology Leadership for Routers, Router Control, Master Control & Modular Broadcast Products

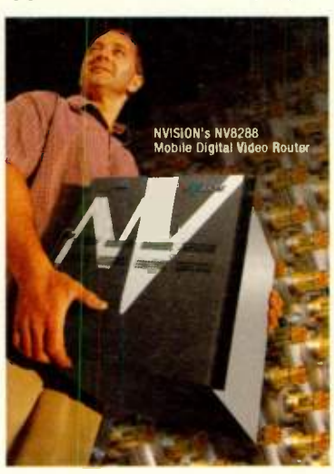
If your business depends on managing large numbers of high quality video and audio signals, you can rely on NVISION's router, router control, master control, and modular broadcast systems to get the job done more reliably, efficiently, and cost effectively than those of any other vendor on the market.

Since its founding in 1989, NVISION has led the industry in advancing the technology of video and audio signal management. Some of the biggest names in TV broadcast, satellite, entertainment and post production, as well as government agencies, trust NVISION's technology innovation behind the scenes to keep them years ahead of the times. A sampling of NVISION's customers includes Verizon, Qualcomm, DirectTV, Turner Broadcasting, ABC New York, PBS, Comcast Sports, ESPN, Fox Sports, NFL Films, Corplex, Ascent Media, and ILM's Letterman Digital Arts Center.

NVISION's industry breakthroughs include:

- FIRST hw/sw maintenance to include new replacement product (NV9000), 2007
- FIRST 3Gb/s and HD-enabled full product line of routers, 2006
- FIRST Dolby modular products, 2006
- FIRST large-scale digital video router small enough for mobile trucks, 2005
- FIRST integrated multi-channel master control switcher and multiformat router, 2003
- FIRST large-scale HD-SDI router (US patent awarded),1998
- FIRST bi-directional machine control router with dynamic port management (US patent awarded),1996
- FIRST time code router with digital signal processing (US patent awarded),1992
- FIRST synchronous AES router for audio,1992

"Two factors play a role in our ability to develop breakthrough routing systems -- our single focus on innovating technology, and listening and responding to our customers about their applications and requirements," said Chuck Meyer, CEO and President of NVISION. "Because of this focus, as well as building our products for the best ROI on the market, our list of satisfied customers in the broadcast, post, and communications markets continues to grow at a rapid pace. Superior products, cleanly executed, and developed with advanced technology help put our customers at the forefront of their markets."



Long considered the gold standard in high-performance, scaleable, cost-effective, and error-free routers, router control, master control, and modular broadcast products, NVISION's offers the latest broadcast technologies for the future, such as HD and 3Gig capability.

NVISION product-line highlights include the following:

New - HD H.264 Encoder: NVISION's new HD H.264 Encoder uses breakthrough video processing technology based on the H.264 compression standard to deliver low-latency, high-quality HD video at bit rates of 6 to 12 Mbps for building cost-effective HDTV services.

NV5128-MC Master Control: A highly flexible master control system, and the first to combine digital master control and multiformat routing in the same frame. It offers choices for numerous system configurations and control panels.

NV9000 Router Control with Java-based Utility: The NV 9000 has a robust and scaleable architecture, and an all-new Java-based NV9000-SE configuration utility gives users a new simplified, intuitive, and powerful interface.

NV8256-Plus Large-Scale Digital Video Router: Installations around the world use the NV8256-Plus for mission critical applications where NVISION's world leading HD-SDI SWB (Super Wide Band) signal transport technology and patented n-on-1 redundant crosspoint technology are required. A single 256x256 frame scales with a second frame for 512x512 by simply adding modules.

NV8288 Mobile Digital Video Router: The "smallest big router in the world" is ideal for mobile production trucks or facilities at half the size, weight, and power consumption of other routers on the market today. It incorporates NVISION's HD-SDI SWB (Super Wide Band) signal transport technology and is future proofed with 3Gb/s capability, HD-SDI, and SDI.

Compact Router Series: Enabled with 3Gb/s HD/SDI operation, the expanded Compact Routers Series offers new GUIs and delivers high-performance, NVISION quality for budget-conscious applications and where compact size and operational simplicity are critical factors.

Synapse Modular Product Line: Synapse comprises over 100 modules for HD/SD signal processing and transmission that can be cost-effectively integrated into one powerful media system over time. Synapse modules seamlessly integrate with all NVISION products to add specific features, increase system functionality.

NVISION's customers can rely on local service and customer support from real people, located across three continents. Their customer service, support team, and world-class, third-party system integrators are committed to helping customers with rapid response, answering technical questions and keeping systems on air or in production around the clock. ■

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www.nvision.tv

NAB Booth #SU9605

Pro-Bel: Engineering the Broadcast Future

Pro-Bel enters its 30th year with its traditional values of reliability, integrity and innovation intact and with an exciting range of ground-breaking new products due to be launched during the year.

Masterpiece, with Pro-Bel's wide range of control panels.

Pro-Bel offers the systems, the services and the know-how to help broadcasters design and implement the infrastructures they need to achieve business success. The Pro-Bel range covers routing & switching, automation, media management control & monitoring and modular infrastructure.

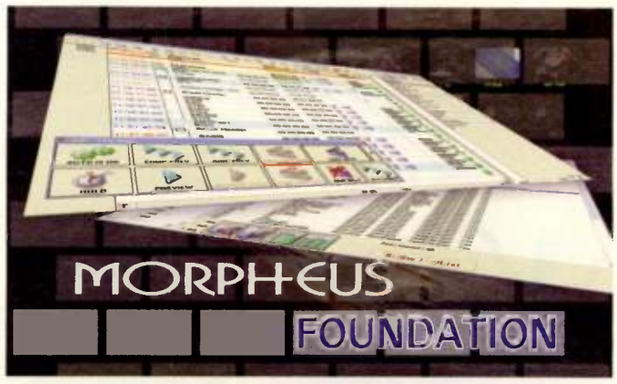
NAB 2007 Highlights Include:

CYGNUS – A brand new router, **Cygnus** combines a compact form factor with the latest technology in a cost-effective package. Cygnus is 1080p 3Gbit/s native and offers up to 576 x 576 routing in a single 26U housing, including PSUs with industry standard BNC connectors. There is also a 288 x 576 18U version. Other features include redundant crosspoints and dual redundant power supplies and controllers as well as four reference inputs. This allows for frame accurate switching at the correct point for multi-standard operation or simulcast HD/SD. Cygnus adds significantly to Pro-Bel's existing comprehensive router range, which covers all options from the very large to the very small.

MORPHEUS FOUNDATION – NAB 2007 is the show debut for **Morpheus Foundation**, announced earlier this year. As Pro-Bel's new entry-level automation system, it offers many of the advanced features of the company's flagship Morpheus system (as used by some of the world's leading broadcasters) but in a compact and low-cost package suitable for one to six channels. A wide variety of new features and options for **Morpheus** itself will also be on show, ranging from ingest, to media management, to advanced creativity tools.

MORPHEUS CONTROL AND MONITORING – The latest version of **Morpheus Control and Monitoring (MCM)** will be demonstrated. This is Pro-Bel's emerging enterprise-wide management application, which is designed to provide an over-arching command-and-control capability across the entire content production and delivery infrastructure. New for NAB 2007 is the interface to Pro-Bel's extensive Vistek range of modular products, complementing the existing suite of Pro-Bel router and master control management tools available in MCM. The latest version of the designer permits users to fully customize their own displays and create control sets that are abstracted from the physical hardware and signal flow. Status feedback from Morpheus Automation software is also provided in the MCM environment. Moving forward MCM will also include control for third party devices. This will be highlighted at the show with control of a VGA switcher forming part of the demonstration.

VISTEK MODULAR INTERFACING – **Cifer,** Pro-Bel's groundbreaking standards converter now offers full bi-directional conversion at HD 1080i and 720p combined with up/down format conversion, and uses the unique ASP-mc (Advanced Sub-Pixel Motion Compensation) technology to guarantee breathtaking picture quality. Also on show is the latest version of **Valid8**, Pro-Bel's unique SD/HD infrastructure analysis tool, the complete answer to lip sync issues, which now includes a new feature using compact flash memory to allow a user instant recall of up to 64 separate sets of audio and video idents.



MASTERPIECE – housed in a single 2RU frame, Masterpiece is Pro-Bel's HD and SD master control switcher. Based on many years experience of designing state of the art digital switchers, it is the most advanced and most cost effective solution yet conceived. As well as an HD DVE, which provides 3D perspective effects on two planes of video, Masterpiece options include Dolby E decoders and encoder, a logo store and a clip player for inserting short audio clips and jingles into the 'Audio Over' paths. Masterpiece benefits from four downstream keyers, each with external Key and Fill inputs and a Preview output. Unmarried audio selections and offset timings (audio lead and lag) are supported. All embedded channels of audio are mixed or faded in a multi-level audio mixer whilst video transitions include Mix, Wipe and Fade. ■

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NAB Booth #SU8511

World Radio History

openGear is Revolutionizing the Terminal Equipment Industry

The terminal equipment industry has long been a commodity type business with multiple vendors selling similar conversion equipment. This leads to customers being locked into one vendor's frame standard for terminal equipment solutions. Ross Video initiated a movement at NAB 2006 to completely revolutionize the industry with the launch of openGear.

openGear is based on the open-architecture 2RU modular frame designed by Ross Video, a leader in video switching, processing, and distribution technologies. The platform allows other vendors/partners to design and participate in developing a common broadcast standard frame and control system. As technology continues to advance it is imperative that the industry move toward common standards to give broadcasters maximum flexibility of choice in equipment solutions.

For the Industry

openGear is moving the industry towards a common platform with common standards and accelerating technological advancements for terminal equipment. In the past, the general business case was to lock the end user into a proprietary solution, forcing the customer to return to a single sourced supplier for all of their solutions. openGear has evolved with numerous manufacturers, worldwide, designing and developing solutions for a common platform.

For the Broadcaster

openGear as a broadcast standard offers the broadcaster the ability to standardize on a frame architecture using a multi-vendor solution with a consolidated control system. Broadcasters have the ability to select solutions, best of breed, from numerous manufacturers, no longer being forced to a single source offering. Many manufacturers specialize in areas of expertise, video processing, audio processing, fibre, compressed domain processing, etc. An open architecture allows the broadcaster to select the best solution from a variety of manufacturers without having to sacrifice interoperability.

For the Manufacturer

The open architecture allows broadcast manufacturers the ability to excel in their areas of expertise without being penalized for not offering a complete portfolio of products. A well-defined communication standard, internal to the frame, ensures that all openGear modules communicate to the control system. The flexibility of the rear module I/O allows all manufacturers the ability to design custom connections for their specific application. openGear allows manufacturers, large and small, some that may otherwise be excluded from the industry, to participate and offer solutions in a card modular format.

openGear as a common platform with common standards is taking the broadcast industry to new levels, allowing manufacturers to concentrate on innovative solutions and offers broadcasters the flexibility of choice in selecting their terminal equipment.

openGear Partners

Ross Video
Cobalt Digital
Ward-Beck
Claratech
B&M
Wohler
Telecast
Chromatec
Practel
Algolith
BAL Broadcast
Norpak
Redbyte Design

Award Winning

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VCI Solutions: Automate the Journey with a Point-of-Sale to Point-of-Air™ Solution

VCI Solutions will present, at NAB2007, an integrated Point-of-Sale to Point-of-Air™ solution entitled "The Journey of Content". The Point-of-Sale to Point-of-Air solution encompasses the movement and management of all content in the digital supply chain from ingest to playout, thus "The Journey of Content". VCI and some of their most trusted partners, with whom they provide full integration with, will be demonstrating the expanded product offering available today.

Take the Journey of Content tour with VCI Solutions in Booth #SU11620. They will show you how to save time and money with sales, traffic, and automation systems from Point-of-Sale to Point-of-Air. VCI will also unveil their latest product, autoXe™ MC, an automation system designed for multi-channel operations.

VCI's Journey

VCI's acquisition of Digital Transaction Group (DTG) last year has brought forth an expanded product portfolio, global presence, and a further commitment to success. VCI's world class product line includes sales, traffic, accounting, and automation systems.

VCI has also developed a unique, forward-thinking, service-oriented architecture and software platform called Xe™. The Xe platform shares common elements and a core database in a highly scalable and reliable framework. It provides an extensible and resilient foundation for today and the future. Most media companies are entrenched with many different broadcast systems, data silos, and applications with isolated, proprietary data. This limits interoperability and restricts data to flow seamlessly from one application to another. With its open, comprehensive database, Xe provides an environment that allows the metadata to be managed, shared and exchanged for a seamless flow of data throughout the broadcast chain.

autoXe's Scalable, Future-Proof Architecture

autoXe is VCI's latest cost-effective software solution for multi-channel broadcast automation. It is an innovative suite of tools and applications built on the Xe software platform. Its functionality enables scheduling, monitoring, managing and playback of 1, 25, 50 or more channel streams. The scalability of the system allows you to easily add more channel streams. The system utilizes off-the-shelf hardware, standard networking, and first-class service and support.

autoXe gives you the tools to automate your workflow and manage your content throughout the digital supply chain. With Xe platform as its foundation, autoXe provides greater interoperability, seamless metadata and flexible workflows. The integration is transparent, whereby content and its associated metadata flows throughout various broadcast operation systems. autoXe's integration with the Pathfire Content Delivery System is a great example of a completely hands-off automated process from ingest to playout. The streamlined flow of content between these systems and multiple devices increases productivity and maximizes workflow efficiencies to in turn provide a greater return on investment.

VCI will introduce their newest multi-channel automation system, autoXe MC, at NAB2007. The new system features dynamic functionality that revolutionizes the way in which content and channel streams are managed. One of its astounding capabilities is to provide management by exception and the ability to drill down to schedule events as needed. This allows a single operator to monitor 10 or 50 channels, and, with a single glance, know the status of all the channels. Management by exception means you monitor the status of all the channels and the system alerts you when a channel needs your attention. The autoXe interface provides multiple views of the schedule and facilitates an operations center approach to managing facilities with high channel counts. Managers and operators have individual privileges for security and simultaneous custom views of both channels and schedules. Combined with the scalability of Xe to manage devices with minimal hardware, the autoXe system is an ideal tool to manage and automate multicasting, multi-channel environments. Visit VCI at NAB Booth #SU11620 to learn more.

VCI Solutions: Partner for Success

VCI Solutions, supplier of media revenue solutions for the broadcast and cable industry for the past 23 years, is committed to developing new, innovative products that give clients better business planning and operational tools for a greater competitive advantage in the marketplace.

VCI supports industry standardization and is a major contributor for current initiatives, such as SMPTE BXF (S22-10), AAAA eBiz, and the TVB ePort initiatives. Choosing VCI as a business partner brings industry experience and vision, a history of innovation and development, and thoroughly tested and reliable technology. ■

VCI

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NAB Booth #SU11620

World Radio History

Videssence Fluorescent Lighting and HDTV

The onset of High Definition TV has really raised the bar for lighting design on sets and broadcast studios. Many "old school" lighting designers that would never consider fluorescent fixtures in the past, are now taking a second look. Why? Because the good news and bad news about HDTV is that it shows infinitely more detail in the broadcast image than prior technology. This creates particular problems for Quartz fixtures, while Videssence's fluorescent fixtures offer solutions. The harsh, hard edge shadows created by quarts fixtures might be fine for artistic interest, but your "talent" does not want every flaw and wrinkle in their face highlighted in the same fashion. Fluorescent lighting fixtures produce a much softer, flattering, more diffuse light. Not only will your "talent" look better, but because of the low heat emitted, they will also be more comfortable!

Videssence originated energy efficient fluorescent lighting for television, studio, ENG, and corporate video conferencing in 1981. 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.

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. Debuting at NAB 2007 is the new *"Colorcaster"* which offers a full pallet of color to accent your set design. All studio style fixtures may be ordered in dimming or non-dimming versions and numerous accessories provide control of intensity and beam angles.

Power Key

The ***POWER KEY*** fixtures are the super-stars of our studio line. These patented fixtures are the only fluorescent, adjustable beam fixtures in the world. They provide concentrated even coverage and a beam adjustment without additional accessories from 60° to 90°.

Additionally, Videssence offers several ***"Lighting System Packages"*** to take the guess work 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.

Colorcaster

The most exciting kits right now are the ***BABY BASEKIT*** and the new ***SHOOTER KIT.*** Both are light weight with low power consumption - - perfect for Mobile Media!

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 in 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.

Videssence continues to take advantage of new technology to engineer quality products that the industry has come to recognize and expect. They set the pace, while others follow. ■

Videssence

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NAB Booth # C8212

RF TECHNOLOGY

Doug Lung

Determine Real Coverage With SPLAT! 1.2.0

Two years ago, in the Feb. 2, 2005 RF Technology column, I wrote about John Magliacane's (KD2BD) excellent propagation program SPLAT!

(See "Doug Lung on RF" at *www.tvtechnology.com/features/On-RF/*).

John noticed the column and asked for my help in adding antenna patterns to the program. I provided some of the basic information and John did the complicated work. Version 1.2.0 of SPLAT! was released in late December 2006 and includes the ability not only to add azimuth and elevation antenna patterns to the analysis, but to include mechanical beam-tilt as well.

STRM DATA

John also added the ability to use SRTM (shuttle radar terrain mapping) mission elevation data. As I pointed out in my July 6, 2005 column, this data allows more accurate Longley-Rice studies by including manmade structures and forests in determining elevation and potential obstructions. That column is also available on the **TV Technology** Web site.

Fig. 1 shows the path loss from the Richland Tower site at West Orange, N.J., based on the USGS elevation data.

Fig. 2 shows the same facility, but using the SRTM elevation data, which includes the impact of the New York skyline. East of Manhattan, several areas have much greater attenuation.

If you look closely, you can even see the impact of individual buildings (or clusters of buildings) on the path loss. Richland Tower is planning to install an antenna on the Bloomberg building at 731 Lexington for use with an on-channel synchronized transmitter to fill in coverage in this area.

Download the high-resolution images covering a much wider area at *www.xmtr.com/splat/* and switch between them. This will allow you to see the extra loss due to manmade structures and forests that USGS-based Longley-Rice studies don't include. (Before you get too excited about SRTM, read the caveats in my July 2005 column.)

Fig. 3 shows the topography of the New York City area based on the SRTM elevation data. I plotted this using SPLAT!, which displays topography using a logarithmic scale. Higher elevations show up as lighter colored pixels. As you can see, the building heights appear to drop off more slowly to the west than to the east. While SRTM data may include some errors due to poor radar reflections, the final result should be more accurate than with the standard topographic data alone.

When creating the SPLAT! terrain files, the program gives you the option to use USGS digital elevation model terrain data when there is a void in the SRTM data. When USGS DEM terrain data isn't included for a location, SPLAT! uses the average of surrounding sites to generate it. That's how the maps here were generated.

While obvious in hindsight, I didn't realize until I compared field test data with signal levels predicted using SRTM elevations that if the elevation of a location is based on roof-top height and, for example, a 30-foot antenna height is used, the receive antenna will be considered to be 30 feet above the roof top—the high point of the radar reflection! SPLAT! allows you to enter elevations that override the SRTM (or USGS) data, which should help correct for that.

There are a few other things to keep in mind when using SPLAT! Since the terrain data is based on WGS-84 or NAD83 datum, the NAD27 coordinates used by the FCC for broadcast facilities have to be converted to NAD83. See *www.ngs.noaa.gov/TOOLS/Nadcon/Nadcon.html* for a program and online converter, or you can look at the FCC tower registration, which has the NAD83 coordinates. While the difference has little impact on flat terrain, in mountainous areas, the error can put the transmitter on the wrong side of a ridge!

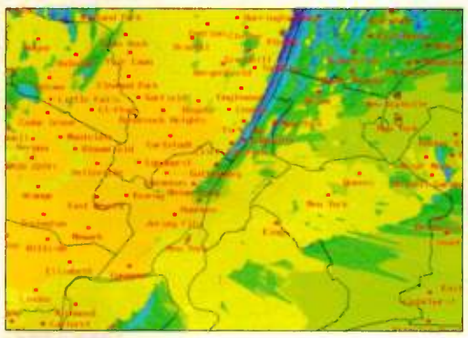

Fig. 1: Path loss from the Richland Tower site at West Orange, N.J., based on the USGS elevation data

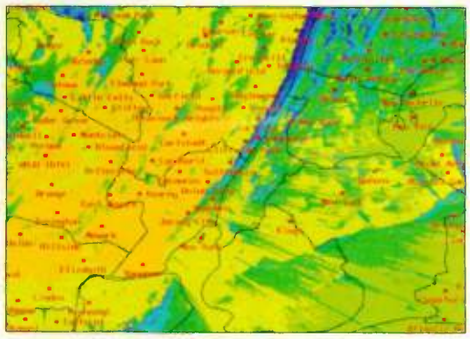

Fig. 2: Richland Tower site at West Orange, N.J., using the SRTM elevation data

Fig. 3: Topography of the New York City area based on the SRTM elevation data

Fig. 4: Longley-Rice path loss from the KVEA Channel 52 auxiliary broadcast facility on Mount Wilson, north of Los Angeles

SPLAT!, PAGE 78

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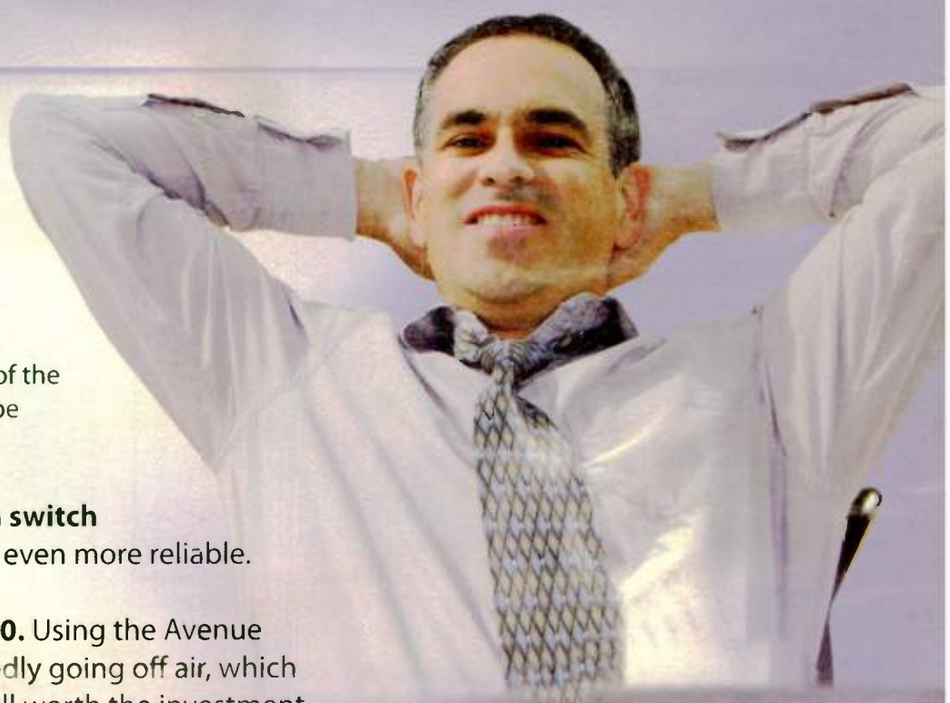
World Radio History

TV Broadcast and Satellite

Engineers: How to Avoid Going Off Air Unexpectedly

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

Superior circuitry detects black levels, TRS, audio presence, freeze and EDH for HD or SD signals. For ASI signals PIDs are evaluated. You set the parameters for when a switch occurs. You might decide 10 seconds of signal below 12 IRE or 14 seconds of no embedded audio should cause a switch to the secondary feed.



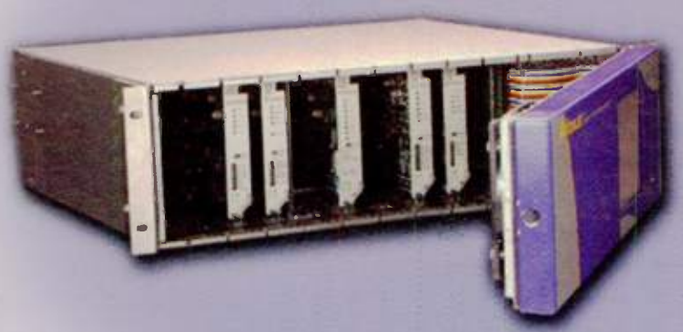
You can use the **sophisticated detection system** to your advantage by adjusting the switch's parameters for *your* facility's needs. For example, the black detection system allows you to set both the threshold and the percentage of non-black pixels. But that's not all, you can also determine the portion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

This is the smartest, most reliable protection switch on the market today. And relay bypass makes it even more reliable.

So consider spending $3000 to save $300,000. Using the Avenue Protection Switch can save you from unexpectedly going off air, which can cost thousands. This kind of insurance is well worth the investment.

No more worries.

Try it 10 days for free. Satisfaction guaranteed.



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Signal Processing and Infrastructure – That's All We Do

World Radio History

INSIDE AUDIO | Dave Moulton

Evaluating a Surround Sound Audio Meter

To measure is to know, as Lord Kelvin noted about 100 years ago. The corollary to this is, of course, that *until* you've measured, you *don't* know.

It's been my experience that this statement is in fact true. I've found that the quality of my technical work, artistic endeavors and financial rewards have all been directly related to the quality of my measurement gear and the time and trouble I've gone to measure what is going on.

Keep in mind that I'm not a techhead. I'm a broken-down musician who went into audio because I thought synthesizers were cool. My last math course was HS algebra in ca. 1958.

I share this with you in order to emphasize the importance of a piece of gear like SpiderVision, which is a surround sound meter and display from Modulation Sciences aimed directly at the television broadcast industry.

Just in the brief time I've had it on loan from Modulation Sciences, I've learned a lot, and managed to catch and correct a number of errors, as well as see a lot more errors in various channels coming in through my set-top box.

SPIDERVISION

SpiderVision is a standalone box that will fit in a standard half-rack waveform monitor sleeve or sit on any reasonably flat surface. It has a screen size of approximately 4-by-5.3 inches that is touch-sensitive. It accepts analog or digital stereo audio inputs (Lt and Rt). In addition, it has ports for Ethernet, a mouse, and VGA and composite video outputs.

Along with some setup screens, there are three primary screen displays that can be stepped through:

- SpiderVision itself, which displays a "mesh" derived from instantaneous vectors of the Dolby Pro Logic decoded channels and two separate "vector lines," which show the central tendency over time of the front and surround information;
- An XY or "Lissajous" display of the instantaneous values of L and R (or sum and difference, if you wish);
- A level meters screen that shows six level meters: Lt, Rt, Lo, Ro, Center and Surround. Each meter shows both a column and a bar, typically set for VU and Peak ballistics respectively (under user control).

In addition, the SpiderVision and XY screens each include two meters, which can be set to whatever the user desires.

SpiderVision gives us a tremendous amount of information (the SpiderVision mesh itself encompasses approximately 40 dB!) about the levels and temporal/phase relationships of the various decoded channels of any matrixed signal pair, particularly Dolby Pro Logic. I also found it quite useful for simply studying stereo recordings.

It also very quickly and easily reveals channel balance problems, clipping, polarity issues, channel mis-assignments and related badnesses, as well as letting us know, in no uncertain terms, when all is well.

WHERE IT COMES FROM

The SpiderVision screen was originally developed by Neil Muncy (I've mentioned him in other columns—he's one of the leading engineering lights in the audio industry over the past 40 years). Around 2000, Neil and Eric Small of Modulation Sciences decided to develop Neil's concept into a viable digital product, engineered to provide the most relevant information for people in the broadcast industry.

At the time of development, it was decided to focus on Dolby Pro Logic, based on two assumptions. First, the bulk of surround production in television broadcasting involves Dolby Pro Logic. Second, the issues inherent to discrete 5.1 are comparatively straightforward and less problematic.

Personally, I would love to be able to see either discrete 5.1 or Dolby Pro Logic levels. In fact, it is possible to do something like that by using a Dolby DP564 Decoder in conjunction with SpiderVision. The 564 will decode just about any format for monitoring purposes, thereby allowing the engineer to determine what will happen in any of a number of downmix configurations for any particular surround approach.

The first thing I noticed after I set SpiderVision up and patched in a 0 dBu 400 Hz sine wave to the left input was that (a) the meter column settled right on zero and (b) the peak bar settled on 3. This is *exactly* what should happen with a good meter—the peak value is in fact 3 dB greater than the VU value for a sustained sine wave. A great comfort.

The second thing I noticed was that there was a 2 dB level imbalance between L and R when I sent the sine wave to both inputs simultaneously, using my stereo buses. Uh-oh! After a little digging around and measuring, the problem turned out to be in the console, which is brand new, digital and in service for just a week. Tucked away in a menu was a balance control for the stereo output buses that was offset from equal level. Nice catch!

Some days later, I set SpiderVision up in my living room/home theater, patched into the spare stereo analog feeds on my DirecTV set-top box. And here is where my education really began. Right away, I began to notice some startling L/R balance problems on a variety of channels.

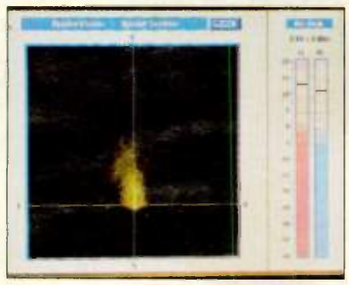
The details warrant more than a paragraph here. What I can tell you is that there is a lot of somewhat shaky stuff coming from the service providers, that it may not all be their fault, there's still a fair amount of mono, some bogus stereo, and very little surround sound out there. There are enough problems that it's clear we need meters, a lot of them, in service around the country.

If you have any responsibility for audio quality, you might want to invest in one of these. It's an awfully good meter, period. In addition, it is extremely well implemented for broadcast surround monitoring, and will quickly reveal, for all to see, how good your work is vis-a-vis the competition. Further, it will allow you to quickly and easily correct any problems in your signal prior to transmission. Finally, to the best of my knowledge, it is unique in its ability to show compatibility between stereo and surround signals.

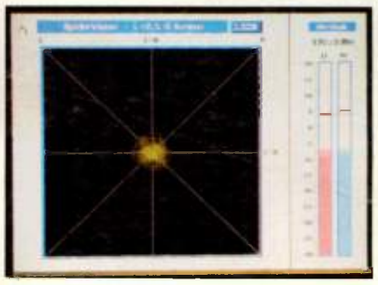
As I said, to measure is to know. And a short stretch with SpiderVision has taught me that there is a lot more for us to know about this quirky stuff called surround sound. We aren't there yet. Stay tuned.

And . . . thanks for listening.

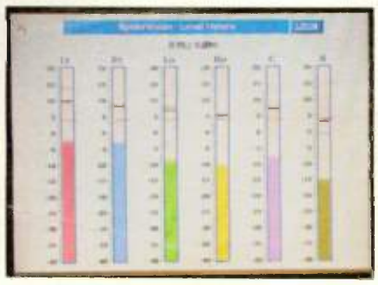
Dave Moulton is a measuring fool. You can complain to him about anything at his Web site, www.moultonlabs.com.



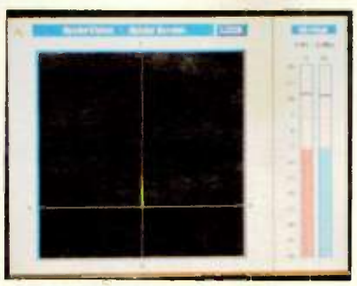
A typical Lt/Rt or stereo signal, with a solid center, good stereo component, moderate surround component and no problems.



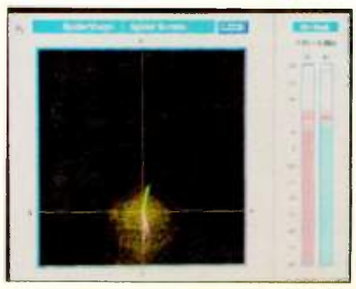
A similar signal, as seen on the XY screen, where vertical is in phase and horizontal is out-of-phase.



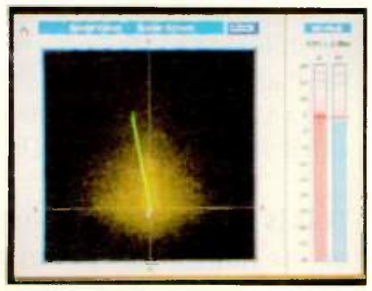
A similar signal, on the level meters screen. Notice that center is louder than either Lo or Ro, and that the surround channel is down a bit, as it should be.



A completely mono signal, well centered; no stereo or surround components.



A signal with serious polarity or phase problems. This would appear primarily in the surround channels in a Dolby Pro Logic signal. Careful!



A very loud signal, with primary energy drifting off the left (probably temporarily).

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INSIDE PRODUCTION Walter Schoenknecht

Doing a Script Check For Accuracy

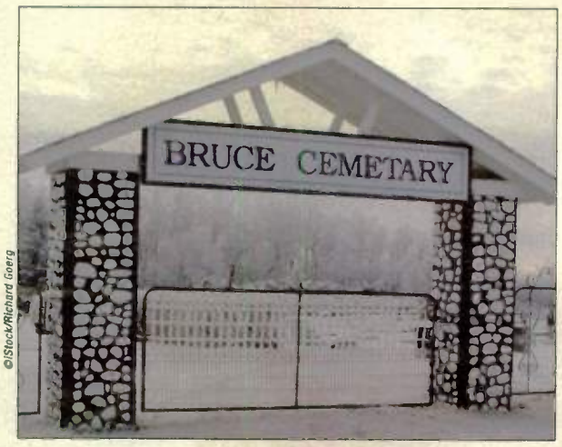
In our area, there's a popular extra-credit assignment from elementary and high school English teachers: Get out your blue pencil and proofread the daily newspaper.

Thanks to embedded spell-checkers, it's no longer a matter of hunting for misspellings alone; students are told to search for more serious infractions, such as misplaced modifiers, mistaken plurals and the dreaded "wrong word."

Split infinitives are a big favorite. With a little effort, the enterprising—and literate—student can boost a flagging grade in a hurry, courtesy of the "new breed" of print reporters and editors who appear less interested in style than in substance.

So what's the equivalent exercise for audio and video media?

True, it's much harder to red-line errors in spoken text, or even on-screen graphics. I've tried grease-penciling the face of the CRT, but it's just not the same; and it's murder on the plasmas and LCDs. But is accurate, clear language any less important in nonprint media?



©iStock/Richard Goerg

It's hard to even begin to enumerate the dozens of infractions we can all find each day. Ticker feeds on the major news channels are especially poor, compounding the mental challenge of caching and interpreting horizontally moving type by clumping it in incomplete and badly-stated phrases. Local television newscasts... don't even go there. Miserable.

It would be a cheap shot to pick on our beleaguered president's problems with mangled language, since for the most part, these gaffes are either unscripted (and, therefore, not edited and proofread), or qualify as a reading by a nonprofessional.

More startling is the illiteracy commonly seen and heard in locally produced spots and in nonbroadcast projects. The skills required to use language correctly aren't taught exclusively at Oxford or Harvard or even UCLA Film School; if you made it through 10th grade, you've got no excuse.

I've always wondered how sign makers seem to absolve themselves from all accountability when executing their customers' misspellings—"Fine Dinning," or "Chinise Food."

One of the short speeches I routinely deliver to clients at the start of a project involves the recognition that by its nature, television is a medium better suited to conveying a broad impression on a given topic, rather

ACCURACY, PAGE 75

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World Radio History

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4/11/07 M78

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- ☐ G. Network/Group Owner
- ☐ R. Broadcast Consultant
- ☐ S. Mfg, dist, or dealer
- ☐ L. Corporate TV facility
- ☐ M. Medical TV facility
- ☐ N. Government TV facility
- ☐ P. Educational TV facility
- ☐ W. Systems Integration
- ☐ K. Other_____

2. JOB FUNCTION *(✓ only one):*

- ☐ A. Corporate mgt/owner
- ☐ B. Engineering mgt
- ☐ C. Engineering staff
- ☐ D. Prod/Oper mgt or staff
- ☐ E. News mgt or staff
- ☐ G. Training
- ☐ H. IT mgt or staff
- ☐ F. Other_____

3. PURCHASING AUTHORITY *(✓ only one):*

☐ A. Authorize ☐ B. Evaluate ☐ C. None

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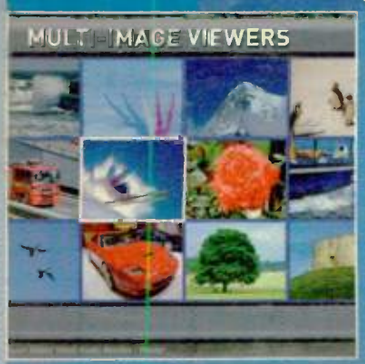

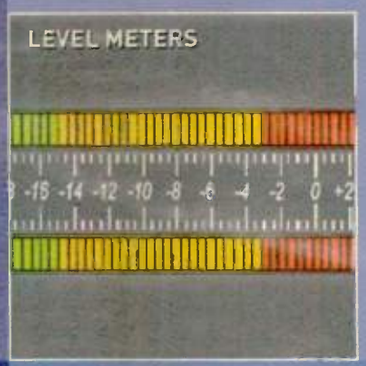

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NEWSROOM TECHNOLOGY **Harlan Neugeboren**

Internet TV: Coming to A Screen Near You...

Although my column is about newsroom technology, I have written the last few articles about other forms of distribution to reinforce a point I made a few articles ago.

Making video for the Internet, cell phones and iPods is not merely about putting the video you put on air through an encoder and compressing it. That's only a small part of it. Having more and differentiated content is the bigger part, and most of us in the news business are focusing on the wrong end of the pipe.

It's all about content.

So what does this have to do with Internet TV? A lot. Over the past few years, viewers have gotten used to viewing certain kinds of content on their computer and iPod. However, when it comes to watching traditional TV programs, newscasts and sports, most viewers prefer their television set.

There have been a number of trials where cable providers have streamed 30 to 40 channels on their broadband service. Most of these trials have had little success because people haven't watched TV on the Internet... until now.

At this year's CES and Macworld, a number of products were announced that bridge the Internet TV gap. The first was Apple TV. The other significant one was Sony's Bravia Internet video link.

Both of these devices connect to the Internet and interface directly with a television via HDMI, and you can use a TV-type remote to navigate the screen. Also, Digeo announced their Moxi Muti-Room HD DMR.

At this year's CES and Macworld, a number of products were announced that bridge the Internet-TV gap. The first was Apple TV.

INTERNET TV GEAR

The Apple TV device currently only allows you to view iTunes content. Rumors are that Apple will open this up to other Internet content in the future.

You set one computer in your house as the master library and the Apple TV looks at this for all its content. You also can add other computers in the house, but only one computer will be the master that syncs with the Apple TV. This is all done via 802.11b, g or n.

What makes Apple TV so great is the user interface. It is very similar to Apple's Front Row. It is very simple and straightforward. There are big bold categories, and when you drill down, the selections are clear and easy to select.

What Apple has done with Apple TV is what I call "User-interface Nirvana." They have the same interface on your Apple desktop, your iPod and now your Apple TV. No more learning different things for different devices. Add to that the coming iPhone with its icon-based navigation and you have the perfect storm.

At this year's CES, Sony showed an Internet TV box for its line of Bravia TVs (for now). It is a slim unit that hooks to the back of a Bravia and connects via HDMI. Content is currently limited to AOL, Yahoo and Grouper video, but the box is capable of streaming live HD content.

Given that Sony is a music and movie company in addition to an electronics company, it has the potential to offer a robust programming lineup. Beyond video, RSS feeds can be used, allowing for custom "channels" of news, sports, and weather information.

The Internet user interface is integrated into the TV's user interface so navigation is easy and you don't have to learn another way of looking at content on your TV.

Digeo has been supplying its software and boxes to cable companies, mostly Charter. The box is called Moxi and here is how they describe it:

"Meet Moxi. A media center featuring a superior user interface with

a two-tuner HDTV DVR unit. Moxi makes it easy for users to seamlessly record television programming to an internal hard drive so they can watch what they want, where they want."

At this year's CES, Digeo announced that it would begin selling Moxi, which can connect to cable (if the provider supports it) and broadband connections. Again, the same interface is used to look at cable content and Internet content, making it easy to use.

In addition to watching news on cable and satellite, viewers will soon be able to watch In-ternet news on TV. No-tice I didn't say they could watch *your* news content from *your* Web site over the Internet. Your stories will need to be formatted for a large screen. Also, you will need to provide the necessary metadata, and to understand the user interface on these devices to allow your viewers to easily navigate your content.

The operative word is "easily"—content providers who make it easy will win.

We all need to take the time to learn more about these devices and how they will affect the way we produce and deliver content.

If you think that viewers will continue to watch TV the way they've been watching it for years, on a TV connected to an antenna or cable box, you may start losing viewers to those who decide that they can get all they want from the Internet. Although it may not a significant issue now, it soon will be...

Harlan Neugeboren is CEO of The Workflow & Technology Group. He can be reached at Harlan@wftgroup.com.

World Radio History

Accuracy

CONTINUED FROM PAGE 72

than delivering highly accurate, detailed data. Turn to a companion print piece to fill in the fine print, I often counsel. But to suggest that all video and audio scripts degenerate into soft masses of sloppy chat is to miss the opportunity to communicate well.

The rise of the blog as a form of writing hasn't helped. For the most part, there are few hard facts found in the blogger's ramblings, and that style seems to spill over into other language-based media as well.

Whether gauged by the price of air time or by the viewer's eyeball time, visual media are too expensive for stream of consciousness (or, as one friend calls it, "stream of participle").

Often, casual talk is proffered in the name of reaching "the simple folk." Ironically, eschewing grammar and structure, whether by design or by accident, actually results in poorer accessibility and comprehension, not better; the "average" reader, listener or viewer is seldom served by making meanings less precise.

For me, this trend is beginning to transcend mere "pet peeve" status, provoking strong, if not violent, reactions to badly written or spoken language in public communication. I need a way to channel this rage, and so, as always, I turn first to the clients.

In most cases, they originate the script—bingo. In some cases, I may write the script; but while I may be a big fan of using plain language, I really try to avoid constructions that are out-and-out wrong. My first analysis: In this, as with so many other imperfections in the work we deliver, we are but hapless pawns, hamstrung, unable to control the quality of our finished product. Right?

GRAMMAR POLICE

To paraphrase the Bard: The fault, methinks, lies not with our clients, but with ourselves.

As the gatekeepers of our projects, it's our job to press for high standards in language. It's not enough to throw up our hands and say, "What can I do? This is the way the *client* spelled it." I've always wondered how sign makers seem to absolve themselves from all accountability when executing their customers' misspellings—"Fine Dinning," or "Chinise Food."

Mind your social skills, though. There's nothing a writer or producer or client likes to hear more than those two magic words: "You're wrong." Ego is a fragile thing, and offering to clean up problems in grammar or spelling needs to be a pleasant, helpful-seeming effort, not an indictment.

Among our roster of favored voiceover artists, one or two have the annoying habit of loudly announcing, "This script is terrible," in full earshot of the offendable party.

Most performers are happy to share a role in smoothing out the language they're asked to read, but a few seem to view every session as an opportunity to overhaul and rewrite on-the-fly. Walking into the session with a clean, proofread script is good insurance.

To be sure, we aren't all equipped with the skills for recognizing and correcting the fine points of verbal communication. And that's no crime—but as a professional communicator, be sure you've got such a person close at hand, ready to double-check your script, or your lower thirds, or even the label on the one-off DVD.

Whether in new media or old, one thing hasn't changed: Doing things the right way is the mark of the true professional, and when the competition gets tough, professionalism wins out every time.

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.

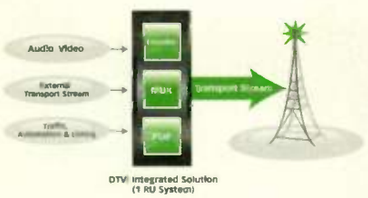

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Photo: Steve Jordan

NET SOUP

Frank Beacham

Webcasting Gives Rise to New Tools

Noticed the number of new electronics products with the word "Webcasting" slapped on the box? It's enough to make you wonder if this studio-in-a-box concept has become today's shake-and-bake version of broadcasting.

Of course, this is mostly a marketing gimmick for the low-end of the company's product line. Some manufacturers probably think the cheapest mic or preamp they make is well-suited to some guy "broadcasting" at home in his pajamas.

carnations of what we have used in professional environments.

For pure innovation, the new $99 See Eye2Eye personal teleprompter for Webcams takes the cake. As with professional teleprompters, See Eye2Eye allows Webcasters to avoid shifty eyes and make proper eye contact with members of the audience.

The device works like a periscope. When placed over a Webcam, a set of mirrors allows the user to read any text document while making perfect eye contact with the lens. Coupled

The See Eye2Eye personal teleprompter

As you might expect, much of this stuff is junk. That said, the requirements of Webcasting are unique and some savvy designers are reimagining appropriate broadcast gear in a more compact, lower-cost form.

OUTSIDE THE STUDIO

What Webcasters (both audio and video) genuinely need is to know that much of this grassroots production takes place outside of the confines of a professional studio. That usually means homes and offices—places used for multiple activities and where outside intrusions are commonplace.

As one who has produced audio podcasts from an often noisy New York City apartment, I've recently spotted several ingenious new tools that may have value for producers who work outside the studio. None are new inventions, just clever rein-

with Bodelin's $125 ProPrompter software or Vara Software's $40 Videocue, the device turns into a sophisticated teleprompting system for personal computers.

See Eye2Eye's manufacturer, Bodelin Technologies, also offers compact teleprompter systems for video camcorders used in field production.

For Macintosh users, an essential Webcam extra is iGlasses, an $8 software application that enables adjustment of your video image.

A product of Ecamm Network, iGlasses has presets that allow Webcam images to be brightened, rotated or manipulated into special effects. Users can tweak the white balance and enable a night vision mode to do a viewable Webcast in near total darkness.

Another innovative tool for sound

World Radio History

The Reflexion Filter

producers helps control audio in non-studio environments. The $299 Reflexion Filter from SE Electronics is a portable device for recording live sound with reduced room ambience.

Essentially a filter shell that sits behind the microphone, the Reflexion uses six layers of acoustic material to help obtain a dryer vocal sound in locations without proper acoustic treatment.

Reflexion's treatment is also useful in reducing the background noise in home or office "studios" where the performer has to operate the recording equipment. Sound can be made darker or more open by sliding the microphone in or out on the Reflexion's assembly.

What Webcasters genuinely need is to know that much of this grassroots production takes place outside of the confines of a professional studio.

Finally, here's a product that not only solves a common audio problem for Webcasters, but one that comes at no cost. That's right, as in "freebie."

Called the "Levelator," it's a software application that smoothes out varying sound levels from the different segments of a Webcast. For example, it can fix an interview where your audio level is different from the person that you are interviewing.

A drag-and-drop application that operates on both the Windows and Mac platforms, the Levelator requires zero user adjustment or set-up. I'm not sure how it works, but its maker, Gigavox Media, says it would be a mistake to call it a compressor, normalizer or limiter, even though it contains all three of those functions.

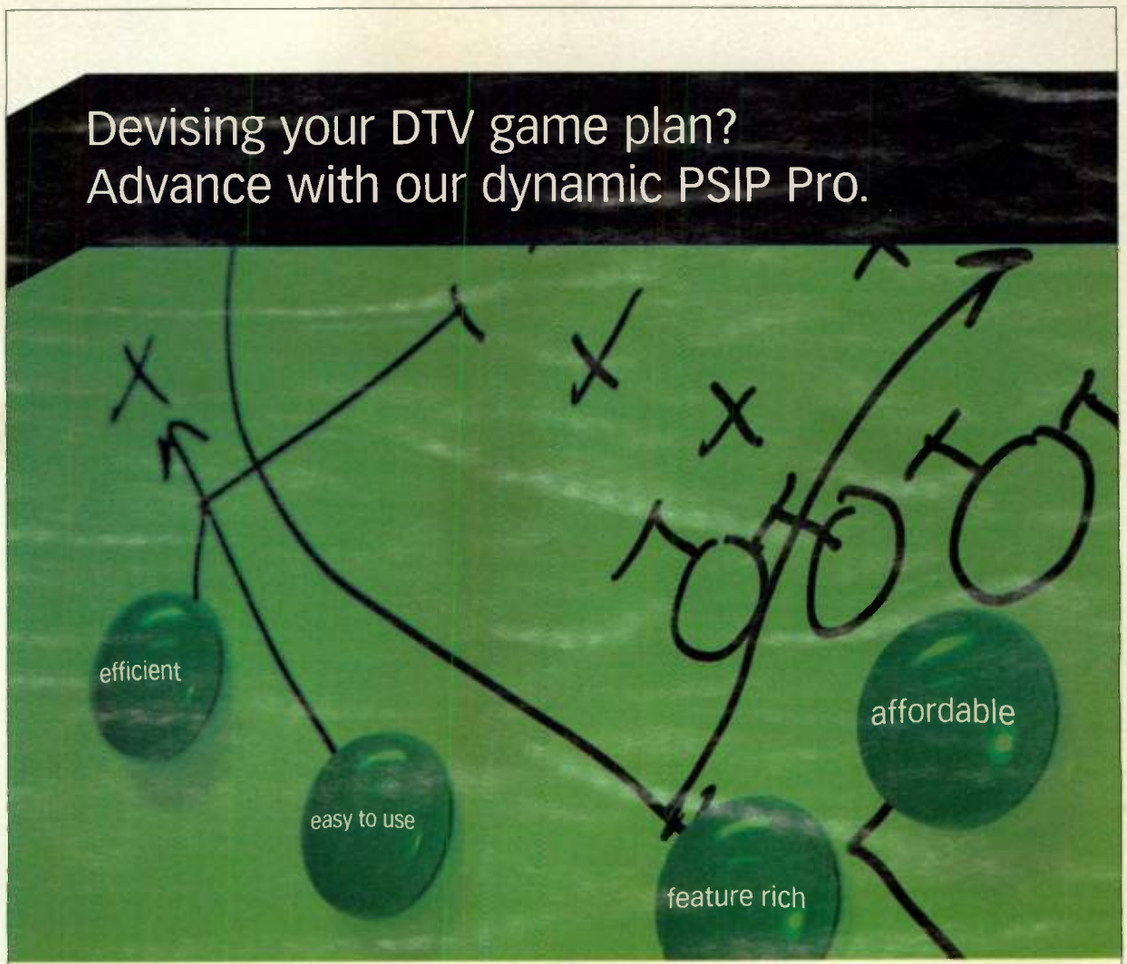
What I do know is that I open the Levelator, drag my AIFF or WAV file onto its window, and minutes later the sound is, well...leveled. Of course, broadcasters use all sorts of sophisticated tools, both hardware and software, to equalize audio levels. The frustrations of using those broadcast tools, its designers say, is exactly why the Levelator was created.

Not only has Webcasting spawned a new generation of broadcasters, it's also spawned many new tools. More are on the way. Even the ubiquitous broadcast audio console, the kind we all know from radio and TV stations, is being reinvented for the Webcasting era.

Word is a manufacturer will soon release full blown professional-quality audio console targeted to Webcasters for under $2,000.

That, my friend, is progress.

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



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SPLAT!

CONTINUED FROM PAGE 68

Terrain database files are required for the area you are studying. They can be downloaded at no charge. The SPLAT! Web site at *www.qsl.net/kd2bd/splat.html* shows where to obtain this data for almost any location on the Earth. If you run the program without the terrain data, it will list the areas needed. If terrain data isn't available, it uses sea level as the elevation.

If you want USGS data to fill in holes in the SRTM data or for comparisons, it may not be obvious which files you need due to the way the files on the USGS site are named. Visit *http://store.usgs.gov/* for a catalog. Click on "Enter the store" to load a Web site that allows browsing map listings. Click on 1:250,000 in the column on the left. When you go to the ftp site listed on the SPLAT! page, note there are "east" and "west" sections for most maps.

COMPENSATING WITH TILT

Until now, without expensive propagation programs, it was difficult to analyze the impact of electrical and mechanical beam-tilt (EBT and MBT) on coverage. Tilt is important at high elevation sites, where the desired service area is likely to be well below the radio horizon.

I've found several cases where stations were not putting the strongest signals possible over the areas with the greatest concentration of population due to less than optimum amounts and direction of beam-tilt.

SPLAT! uses simple text files consisting of the angle and the relative field (zero to 1). Both the Dielectric and ERI antenna system planning software can generate the data, although you may need to run it through a spreadsheet (using text import/export) to remove unwanted columns and format it for SPLAT!

While SPLAT! won't substitute for a program that allows interference analysis and coverage population counts, it can give a quick indication of whether coverage is optimized. Fig. 4 shows the Longley-Rice path loss from the KVEA Channel 52 auxiliary broadcast facility on Mount Wilson.

The tilt had to be adjusted to stay within the contour of the main facility on Mount Harvard. Notice the reduction in path loss around Montclair (increased signal strength), where the main elevation beam of the antenna hits the ground. Extra tilt at 130 degrees was necessary to protect Channel 52 DTV in Palm Springs, Calif. This map was based on a standard Dielectric TFU-24-DSB-M antenna with 2.0 degrees EBT and 1.0 degree MBT at 130 degrees rather than the slightly different custom antenna actually used.

One of the features John has added in SPLAT Version 1.2 is the ability to output path loss data to a text file. This file contains a listing of each point covered in the study by latitude and longitude. The data for each point includes the azimuth angle and elevation angle to the first obstruction and the path loss without considering the antenna pattern.

Since it can take awhile to run a large coverage study, this file can be loaded into SPLAT! to avoid the need to recalculate the Longley-Rice path loss when studying the same location with a different antenna pattern, orientation or mechanical tilt. This should make it easier to zero in on the optimum antenna configuration.

What if you want to calculate field strength rather than path loss? John has added the ability to include field strength, with the antenna pattern taken into account, in the output data file. This will be a big file!

He's working on adding the ability to plot field strength on the map. When John updates the program to add this feature, I'll include a note about it in my weekly RF Report newsletter, available at *www.tvtechnology.com*.

John continues to update the program to improve accuracy and add features. You will need to have Linux on your computer to run this software. It's not as difficult to add as you may think if you have a few extra gigabytes on your hard drive. Try MEPIS Linux at *www.mepis.org* for its combination of features, ease of installation and ease of customizing or one of the Ubuntu (*www.ubuntu.com*) variants.

NAB RF EXPECTATIONS

For an idea of what I'll be looking for at NAB2007, read last year's pre-NAB column at *www.tvtechnology.com/features/On-RF/*. Not much has changed!

One new area I expect will attract a lot of attention is mobile ATSC TV. Samsung demonstrated A-VSB at CES in January. It will be interesting to see if they and Rohde & Schwarz show anything different at NAB. Harris will be showing its mobile ATSC DTV solution as well. Harris has released little technical data on its system.

In the microwave area, we will finally see a demonstration of digital return link for ENG at the ATSC DTV Hot Spot.

As usual, I'll be looking for useful, inexpensive test equipment. While it's probably too early to expect to see test equipment for the proposed mobile ATSC standards, test equipment for distributed transmission systems will be shown.

Look for a report on what I found in my June RF Technology column!

Comments and questions are welcome. E-mail me at dlung@transmitter.com.

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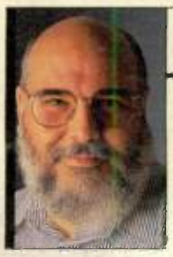


LET THERE BE LIGHTING

Andy Ciddor

The Incandescent Light At the End of the Tunnel

If you're brave enough to pay attention to the brouhaha pouring from the world's media right now (including the output of the news studio down the corridor from where you may be reading this), you probably have noticed that our politicians are starting to acknowledge that climate change may, more or less, given the balance of probabilities, perhaps, actually be happening.

This is an intriguingly cautious approach, considering the overwhelming body of scientific evidence available in this case, and how starkly it contrasts with their certainty about the presence of weapons of mass destruction in a country they so desperately wanted to invade. As you would expect from this great innovative country, almost overnight, the United States has become a global leader in exploiting the political capital that can be extracted from this planet-wide catastrophe.

In March's Let There Be Lighting, California Assembly member Lloyd E. Levine's proposal to ban incandescent lamps in that state was dismissed as a political stunt with no sound basis in practicality. Sadly, this was a grave error of judgment: Levine must be acknowledged for his political acumen in kick-starting a worldwide movement among desperate politicians who are looking to do something headline worthy about climate change, without offending their coal-mining, auto-manufacturing, or oil- and gas-producing constituents.

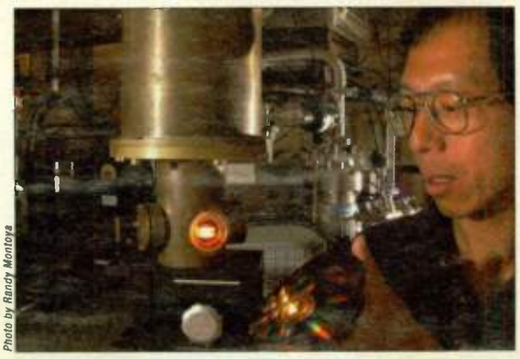


Photo by Randy Montoya

A tungsten photonic lattice glows in a vacuum chamber as Sandia researcher Shawn Lin inspects an iridescent disk that contains approximately 1,000 tungsten photonic lattices.

Seeing the media success of Levine's announcement of possible future legislation prompted politicians in Canada, Germany and the 27 member states of the European Council to issue media releases about investigations into similar legislation and questions to be raised in many more countries.

However in Australia, that Pacific island the size of the U.S. mainland with a population just slightly greater than New York State, they have gone even further. Australia's increasingly unpopular conservative federal government faces an election towards the end of 2007 and is currently going through a series of policy backflips in an attempt to improve its chances of re-election.

Overnight, its federal government metamorphosed from a global warming denier into the first country in the world to announce a policy on incandescent lamps.

The policy change was so abrupt that only the prime minister and the environment minister were aware of it at the time of the media release. It certainly came as a surprise to Philips Lighting and the environmental group Planet Ark, which planned to promote the spread of compact florescent lamps by launching a "Ban the Bulb" media campaign later that very week.

On peeling away some of the hoopla, it appears that Australia's policy is not targeted at the incandescent lamp in general, but only at the very inefficient standard GLS (General Lighting Service) bulb that is used almost exclusively in household fixtures.

The mechanism for implementing the change is to set a standard for light source energy efficiency that must be met by every product being sold. There will also be a list of exempted specialist

TUNNEL, PAGE 80

World Radio History

Tunnel

CONTINUED FROM PAGE 79

applications that don't have to meet the standard. ALIA, the association that represents most of the entertainment and production lighting industry, is watching closely to see that the promised exemptions for these industries are included in the final standard.

There's no need to remind anyone in the television industry just how long it can take to arrive at a standard. It certainly won't be happening before Australia's 2007 federal election. To make absolutely certain that the politicians won't have to face any bad response to the abolition of GLS lamps, the date for the cessation of sale is a couple of years away, well into the next term of the parliament.

Added in to this circus comes a vague announcement from GE that they have developed a new high-efficiency incandescent lamp that will be from two to four times more efficient than current lamp technology. The various content-free media releases that were splashed across the networks and the newspapers talked about a wondrous new technology that would be available by 2012. GE was careful not to confuse the public by giving them any details of what the technology is or how it may work.

Then there is the tungsten photonic lattice that was announced in 2003 by the U.S. Dept. of Energy's Sandia National Labs. This development promises a 60 percent efficient tungsten lamp, but understandably hasn't progressed very far from fundamental research to public availability.

Strangely enough, the one technology that may give us real high-efficiency incandescent lamps in the foreseeable future has its origins in entertainment technology.

Not that this has stopped the story from being dredged up by every journalist who can type a few words into an Internet search engine to prove the United States has the situation in hand.

Strangely enough, the one technology that may give us real high-efficiency incandescent lamps in the foreseeable future has its origins in entertainment technology.

Lighting wunderkind David Cunningham, the astounding brain that brought us Multi-Q, Light Palette, the CD80, ENR and the ubiquitous Source Four lamp and optical system, filed a patent for a more efficient incandescent lamp last October.

Cunningham's simple but elegant concept is to put a coating on the inside of the lamp's envelope that will trap the infrared emissions inside the bulb, but let the visible light get through. Instead of losing 95 percent of the input energy as radiated heat, that energy is used to keep the filament hot and produce more visible light.

The coating described in his patent application sounds like the inverse of the coating on a Source Four reflector: It keeps the beam cool by reflecting only visible light while allowing the infrared energy to escape out of the back of the luminaire.

Our full-spectrum, warm-colored and fully dimmable friend the incandescent lamp looks set to stay with us for sometime yet, despite the dire warnings of its imminent demise.

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

LightViper In The Real World

Super Bowl Pre-Game Show • Jacksonville, FL • Production by Audio Specialties

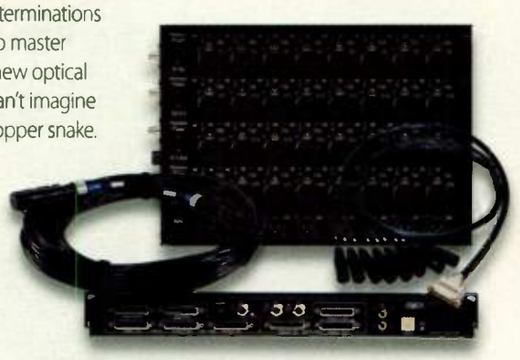
February 2005 & 2006: For six days leading up to the Super Bowl, live broadcast of the *Best Damn Sports Show Period* streamed live audio to Fox SportsNet, then went live to Fox Television before the game on Super Bowl Sunday. Audio Specialties of Burbank, CA deployed the portable fiber optic LightViper system to handle the audio feeds.

"I was extremely pleased with how well the LightViper performed in this high-profile network TV live broadcast situation. The main fiber run to the F & F Productions High-Def broadcast remote truck was approximately 1,000 feet away from the venue's live stage and we also needed to provide a separate monitor split from the LightViper system for the audience. The audio quality was excellent; we used all 32 mic inputs on the head end of the snake system.

"The LightViper digital snake elegantly solved one of our larger planning headaches for this show which was the long run to the broadcast truck's distant location. The terminations into both Yamaha digital consoles for live PA and audio master control in the remote truck went without a hitch; the new optical audio path was 'invisible' and performed flawlessly. I can't imagine doing a critical job like this now with a conventional copper snake.

"LightViper also saved us a lot of time and we all know what that translates into."

—Steve Cormier, Audio Specialties, Burbank, CA



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MEDIA SERVER TECHNOLOGY Karl Paulsen

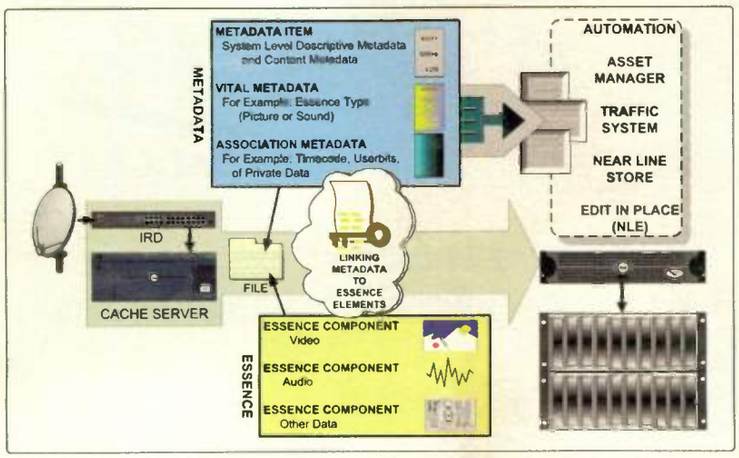
Fitting Metadata Into The Content Life Cycle

Recently we looked into how media makes its way from origination through the production and transmission chains. It's the part of the content life cycle when material moves through core systems, information about it is collected, and is associated in an absolute or relative format. This information contains high value for the future of the content and its objects.

The importance of these media elements is often catalogued by varying, application-specific sets of information attached to those elements in a variety of means. The type and degree of that information is usually determined by the content owners or facility operators, and is based upon any number of parameters.

The information is set through a course of action using external software or by labels, attachments or references to the physical media itself. The information may be loosely attached (relative), as in an external database or a spreadsheet; or rigidly attached (absolute), such when wrapped in a file structure, embedded in a transport stream, or directly linked on an information track of a disk drive.

As our industry heads toward operational models that reduce retention of content on conventional portable sets of media (e.g., videotape); the means and structure of attaching that information to the content is shifting from separate unattached documents, to embedded data structured for longevity, ease of portability and security.



Metadata Flow: File Elements Include Essence Components and Metadata. Essence components must be properly linked to the metadata that may be used by some or all of the devices or systems (dotted line). Essence components will be routed to the server and storage and eventually reconnected to the metadata following modification or processing.

The term associated with those attachments is bundled into metadata that, by its very name, connotes flexibility yet promotes ambiguity.

FORMAT FRENZY

Digital media technologies have resulted in an explosion of formats, becoming an archivist's nightmare. Myriad format preservation techniques risk obsolesence long before the real value of its content is realized.

Varying video storage platforms complicate issues beyond just the file format or compression scheme employed.

Cataloging and structuring of metadata is further exacerbated by the overabundances of applications and specialty solutions available for the end user to deploy. Metadata, as we've seen, has value only when extensible and usable beyond the initial scribing itself.

To set some ground rules, terminologies adopted from documents created by the EBU and SMPTE, under the auspices of a joint project called the "Task Force for Harmonized Standards for the Exchange of Program Material as Bitstreams," will be used to clarify these and future discussions of metadata.

Its final report, in the September 1998 SMPTE Journal, provides direction, insight and vision into the many elements that have since evolved into real applications, products and technologies for media-centric environments.

The reader is encouraged to review this comprehensive work, as it sets the tone for the advances in digital architectures, objects we use today.

Metadata remains an overutilized, ambiguously defined and frequently exaggerated or misunderstood topic. The variances in describing and prescribing metadata as applied to elements in media management are defined more by the level, amount or quantity of that data compared to the functionality and structure of the metadata itself.

To place metadata into perspective, anything that relates information about media may be termed "metadata." Conversely, anything associated with the media that isn't the actual media itself, might be construed as metadata.

Thus the subject of metadata, in whole or in part, becomes an extremely broad topic. In its colloquial form, metadata is described as "the data about data," or in the digital sense, "the bits about the bits."

In a more sensible description, metadata is "'information that describes, supplements or refines the subject matter associated with that

METADATA, PAGE 82

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Metadata

CONTINUED FROM PAGE 81

central data." Thus, metadata is information about data; or moreover, it is information about information.

A good implementation of a metadata scheme is well organized. It is constrained by a structure dependant upon those applications that set the parameters by which the information (about the information) is entered or attached to the primary data.

Metadata needs to contain encoded information describing the characteristics of its information, or its information-bearing entities. This in turn aids in the identification, discovery, assessment, and management of those entities; and therefore provides additional value to the asset itself, (the asset being a set or combination of sets of Essence).

Historically, before the thrust of moving media-related metadata, digital library systems began to establish a standard set of schemes for encoding descriptive, administrative, and structural metadata for objects within a digital library.

For this industry segment, the Metadata Encoding and Transmission Standard, an XML schema language of the World Wide Web Consortium, maintained in the Network Development and MARC Standards Office of the Library of Congress, is being developed as an initiative of the Digital Library Federation.

The DLF is a consortium of libraries and related agencies that are pioneering the use of electronic information technologies to extend collections and services—and those concepts can be applied to moving media.

For digital and computer media, the avenue for describing the interchange of media and metadata began in earnest with Apple's Bento Specification (1993) and Avid through its Open Media Framework Interchange Specification (1995). These initiatives helped formulate and establish a more general set of structures, which helped to promote the harmonization of multimedia systems and files.

'E' IS FOR ESSENCE

Moving media metadata is bound to Essence; whereby the capital "E" represents "elements uniquely defined as video, audio or data."

Within a studio, metadata is influenced by a number of studio-specific applications, e.g., capture, modification and reproduction, and transposition.

Limitations in facility infrastructures set the effectiveness of the metadata, and thus the value of the effort placed in attaching metadata to Essence.

Structurally, the layered capabilities of metadata allow for a number of priorities, and thus a level of activities to be performed on the bounded Essence. Layering prescribes the depth of the metadata, beginning at its broadest form and working down in granularity to the details. The depth of the metadata is set by the application or by the user and establishes descriptive parameters that, once associated with the Essence, remain throughout the content life cycle.

With this introduction to the evolution of metadata in terms of the content life cycle, next we will look into how metadata is presented, extracted, linked to and utilized in modern digital facilities; and in the future we'll discover how industry efforts and standards are associated with metadata.

Making sense out of these structures and variances developed over the previous decade will help us understand the management, manipulation and processing of moving media and related intellectual properties.

Karl Paulsen is chief technology officer for Azcar Technologies, a SMPTE Fellow and an SBE Life Certified Professional Broadcast Engineer. Contact him at karl.paulsen@azcar.com.

See us at NAB Booth #SU13205

World Radio History

TECHNOLOGY CORNER **Randy Hoffner**

Tech Advancements: Friend or Foe?

Any reader who has been in the television broadcasting business for awhile is very much aware of the meaning of the expression, "The only constant here is change."

For lo, those many years from the dawn of television broadcasting after World War II until the 1980s, television was in essence, a three-part monopoly, albeit arguably a benevolent one.

A major reason for this monopoly's hold on the business was the fact that the cost of distributing programming nationally via cables and microwaves was so high that it effectively prevented any new players from getting into the game.

Then came television satellites, and this spawned cable networks, later joined by home video recording, the Internet, and cheap advanced data storage techniques, and the result is a very competitive television marketplace.

Have all these technological advances helped or hurt traditional television broadcasters? The record is mixed. Here are two recent developments that represent respectively, the "help" side and the "hurt" side.

The first reaction to any new, additional system to distribute programming is negative and even combative—witness the fight against home video recording in the 1980s—but frequently, the owners and distributors found they ultimately profited from such new systems.

The broadcast networks have recently begun offering many of their primetime programs on their Web sites. What has been the result?

Surveys and research show that Internet viewing and broadcast viewing are mutually augmentative—people who watch the shows online also watch them on the air, and vice versa. That is, online distribution not only has not harmed broadcasters, it has helped them.

Further, a recent study found that those who watch TV shows on network Web sites tend to have high opinions of the brands that sponsor them, with 49 percent of network Web site viewers saying that sponsorship of the streaming or downloading of an episode would increase their tendency to consider the sponsor's brand.

Further, viewers of streamed or downloaded video are more likely than Internet users overall, by about 30 percent to 22 percent, to buy from companies that advertise on their favorite programs. If that isn't enough, 78 percent respond that being able to see episodes online increases their involvement with a program, and 25 percent report that they are watching a particular program more often because of what they have seen online.

The bottom line is that although traditional broadcast networks initially feared the distribution of their programming on the Internet, it has proved to be a boon to them.

Those depending on off-air signals represent around 20 percent of all television households, a number that broadcasters would surely be distressed to lose.

ON THE OTHER HAND

Now for the bad news. A survey by the Association of Public Television Stations found that more than half of the estimated 22 million U.S. households that rely on over-the-air broadcast signals are not aware that those signals are scheduled to cease by Feb. 17, 2009. These households were also found to be disproportionately loyal to public television.

Although we might have concluded from the "conventional wisdom" that no one is still relying on over-the-air TV broadcasting, there is a total of something over 100 million television households in the United States, so those depending on off-air signals represent around 20 percent of all television households, a number that broadcasters would surely be distressed to lose.

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While 61 percent of those who rely on off-air signals do not yet realize that analog television is going away, an additional 10 percent had a "limited awareness" of the situation, and

TECH, PAGE 84

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another 17 percent were "somewhat aware" of the digital transition. 46 percent of those respondents either said they would "do nothing," or that they did not know how they would receive digital signals after the NTSC shutoff.

Nor are viewers who rely on off-air NTSC signals largely poor or aged. They are reported to have slightly lower incomes and slightly less education, but generally they are very similar to cable and satellite viewers. The survey revealed that about 18 percent of exclusively off-air viewers are members of public television stations, as compared with about 7.5 percent of all TV viewing households who are PTV members.

When we consider that there are an estimated 70 million TV sets in use in the United States that are not connected to cable or satellite signals, including extra sets used by cable and satellite subscribers (amounting to an average of approximately one unconnected set per television household), it is apparent that getting the word out about the NTSC shutoff, and what to do about it, is a high priority for all broadcasters.

Organized efforts are underway by public television broadcasters, the NAB, the Congress, and other broadcasters to spread the word. The law that mandates the 2009 shut off provides funding to pay for two $40 coupons per household to purchase converters, but the converters are expected to cost more than $40 each, so it will still ultimately cost the viewer something to be able to watch television.

We have already seen a number of delays, and we do not know now what will in fact happen on Feb. 17, 2009, but the Congress sounds kind of serious this time. Unless these education efforts are successful, broadcasters stand to lose substantial numbers of viewers if and when the NTSC shut off does happen.

Randy Hoffner is a veteran TV engineer. He can be reached through ***TV Technology.***

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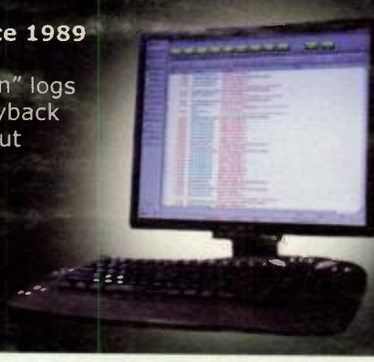

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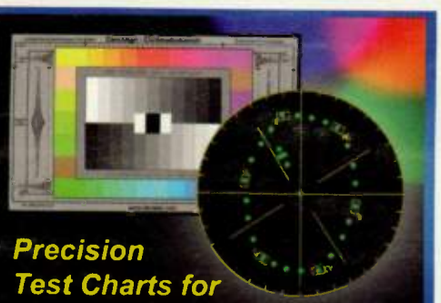

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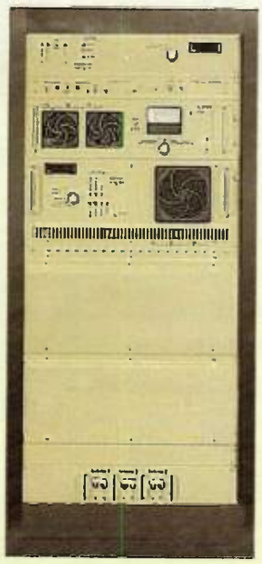

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DIGITAL MICROWAVE

Microwave Radio Communications PTX-PRO

by Joey Gill

It's happening all around the United States—old analog "two-gig" gear is either being replaced with the latest, state-of-the-art COFDM (coded orthogonal frequency division multiplex) transmitters and receivers, or at least the process is being planned out.

My little neck of the woods, Paducah, Ky., is no exception. With the migration from analog BAS (broadcast auxiliary service) to digital beginning in our market, it seemed like the perfect time to get some digital gear in house to see for ourselves how well this new modulation scheme would work for our facility.

Microwave Radio Communications of North Billerica, Mass. was more than happy to send us one of their latest models for us to put through its paces.

FAST FACTS

Application
Portable analog/digital 1.9 to 2.5 GHz BAS relay uses

Key Features
Analog or digital operation, COFDM with QPSK, 16QAM, or 64QAM modulation; FM audio and video in the analog mode

Price
MSRP as tested, $43,000

Contact
Microwave Radio Communications
987-671-5700
www.mrcbroadcast.com

The Microwave Radio Communications PTX-PRO transmitter

FEATURES

The unit shipped was the PTX-PRO portable transmitter. An MRC CodeRunner 4 central receiver and a MRX-4000 integrated demodulator/decoder were also shipped for reception, demodulation and decoding. The package allowed us to set up a complete link.

The PTX-PRO transmitter has a very familiar physical appearance, similar to some portable transmitters with which we are all familiar. It measures 9.25-by-4-by-12 inches and weighs 11 pounds.

The PTX-PRO has a substantial heat sink integrated with chassis. All connectors appear to be mil spec and quite rugged, with the exception of the RS-232 data plug.

The unit can be powered either by a DC source (11 to 36 volts) or from AC mains voltages from 90 to 264 volts at either 50 or 60 Hz. The PTX-PRO typically consumes 52 watts.

The link is rated for a wide variety of environmental conditions, with operation possible at altitudes of up to 15,000 feet, in temperatures ranging from -20 degrees up to 50 degrees Celsius and with humidity up to 95 percent between 10 to 40 degrees Celsius. It accepts SDI or composite video (NTSC or PAL) and either analog or AES audio. Four channels of audio are supported, and the crosstalk spec is 60 dB. Pre-emphasis is selectable between flat response, 50 us, or 75 us.

The PTX-PRO also supports closed captioning on line 21 (EIA 608) and can use BISS-1 and BISS-E encryption. By using the IF input with external encoding, the PTX-PRO can support HD. While trans-

MRC, PAGE 90

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VOICE-ACTIVATED PROMPTER

Autoscript Voice-Plus

by Stephen Murphy

Teleprompting has come a long way since its humble paper scroll beginnings. Much of this development can be credited to the London-based industry leader, Autoscript. The company has, for the last 23 years, virtually dominated television prompting hardware and software systems.

Most of the changes in prompting technology during the last decade have tended to be refinements rather than breakthroughs. However, at last year's NAB and IBC conventions, Autoscript had the distinction of introducing a genuine technological breakthrough to its market: hands-free (and feet-free) voice-activated prompting. Autoscript's Voice-Plus module created quite a buzz at the shows and earned the company numerous awards and accolades.

FEATURES

Voice-Plus is a voice-activated prompting add-on module that integrates into Autoscript's flagship WinPlus software. The core technology behind the Voice-Plus module comes from another television industry software pioneer, SysMedia in Surrey, England. SysMedia is best known for its captioning, subtitling and interactive TV software solutions in both OEM and end user capacities.

SysMedia's Speech Follower software enables real-time synchronization between the spoken word and equivalent text script. While Speech Follower has many potential applications, especially in the subtitling/captioning markets, the first commercial application is in SysMedia's Teleprompt Speech Control software, which forms the basis of Autoscript's Voice-Plus module.

Voice-Plus has a few listed minimum hardware and software requirements: a 2.8 GHz Pentium 4 with 512 MB of RAM and a 32-bit sound card or external audio interface (capable of supporting a 16 kHz sample rate in mono at 16 bits). Voice-Plus also requires that WinPlus version UAC9755 or higher is installed and a WinPlus PCI card or Xbox USB is in use in the system (ISA cards are not supported).

IN USE

I tested the Autoscript Voice-Plus plug-in module both on an existing WinPlus PCI/TFT installation in the broadcast operations center of the National Press Club in Washington, D.C. and on a new installation in my own studio using an Xbox USB/6.8-inch TFT display combo.

Installation of Voice-Plus was simple (assuming a proper WinPlus version is installed) requiring only loading of the USB dongle drivers and inserting the dongle—the Voice-Plus module software already resides in WinPlus. Once in WinPlus, the steps to follow are: update speech registration (under Help); choose the appropriate audio interface and set voice level (under Options—Configurations—Speech tab); and enable speech control (under Options). Basically, that's all it takes to be up and running withVoice-Plus.

As long as the audio level is properly set (it must fall within a generous light-green target area on a rudimentary meter), the default settings worked right off the bat. Within minutes I had loaded a script, pinned on a Sony ECM-77 lav mic, clicked the enable button in the software interface and had the prompter text scrolling along as I read—very cool!

The Autoscript Voice-Plus system in operation

The Voice-Plus software does not require any training with the talent's voice, and, as was my experience, requires no training on operating the system. It simply worked. For the most part, the prompter text scrolled along at a rate appropriate to the spoken text. It tracked exaggerated starts and stops well, though on rare occasions, when I stopped completely, the prompter text would come to rest on the last line of the display and I couldn't see the beginning of my next line.

In fairness to Autoscript, I tried my best to throw curve balls at it, including skipping words and sentences, and jumping back to reread a phrase. Even with this heavy amount of mischief, the system performed impressively well. When I read like (ahem) a normal person who wasn't suffering from severe ADD, Voice-Plus tracked my reading without fail.

I next tried a multi-host test, with three different people reading their respective cues from a script. This worked OK, though much more care must be taken in setting vocal levels across the various hosts. Feeding the Voice-Plus system through a signal post-leveler might be a good idea when faced with speakers with varying delivery levels.

In general, the Voice-Plus system seems best employed in situations where a single talent currently self-scrolls his or her own prompter. In this situation, Voice-Plus sidles right into the existing situation, and frees up the talent's hands and allows better concentration on delivery. Voice-Plus also allows greater mobility across a set (if desired), since the talent is no longer tied to a controller.

Speaking of controllers, it's still good to have one—such as the RAT, Opto HC/1, Opto Foot or Wireless Foot Control—nearby, because the controller's function switch can be used for enabling and disabling Voice-Plus remotely. Temporarily disabling Voice-Plus via the function button allows the talent to seamlessly roam off script (or manually cue up text when needing to save time) and return at will.

There is a color-customizable "Voice Activation Enabled/Disabled" message that appears at the bottom of the prompter, so there's no doubt which mode is currently active.

There are a couple of things I should mention so first-time Voice-Plus users can avoid a few minor pitfalls and get off to a smooth start. First, be sure your script starts with a slug line—if not, Voice-Plus won't even think about scrolling as you read.

Second, if you experiment with the prompter display font size, be sure to compensate by finding an appropriate offset setting (in the Voice-Plus configuration tab). This takes a bit of back-and-forth experimentation and a lot of navigation (disable voice activation, turn off prompting, open Options—Configuration—Speech Control tab, change offset, say OK, turn back on prompting, enable voice activation, test the new offset...and repeat until satisfied). In a busy shop with different font size requirements for each talent, having easier access to the offset setting, or even better, automatic adjustment of offset, would be most helpful.

FAST FACTS

Application

Script prompting of television talent

Key Features

Voice-activated prompting add-on module; prompter text synchronized to the spoken word; hands/feet-free scrolling; allows mobility on the set as there's no physical controller needed; works with PCI and USB WinPlus systems.

Price

$6,995 (sold as an add-on module to existing Studio and Newsroom software systems)

Contact

Autoscript
203-338-8356
www.autoscript.tv

SUMMARY

In many, if not most, prompting situations there are obvious reasons why an operator with a human brain is required: extreme pressure to perform flawlessly, the ability to think on your feet and adjust quickly to a changing situation, a challenging location or environment, inexperienced speaker or speakers and the like. In all of these cases, I would not make the decision to replace a human with Voice-Plus.

But Autoscript's Voice-Plus is ideal for those who currently self-scroll their prompter text—I know of several local affiliates and syndicated shows produced in my area that would benefit tremendously from this technology.

I was honestly impressed at how little effort the Autoscript Voice-Plus required to get up and running, and doubly impressed at how well the voice tracking worked, even when the system was fed obvious curveballs. I encourage those who fall into the self-scroll category to schedule a demo with Autoscript and give it a shot—I think you'll be impressed by its performance and your increased on-camera freedom.

Stephen Murphy is a technical engineer at the National Press Club's broadcast operation center, and an independent videographer/audio engineer with more than 20 years of broadcast and production experience.

World Radio History

NLE SOFTWARE

Avid Media Composer 2.6 Software

by Geoff Poister

Since 1989, the Avid Media Composer has been one of the company's flagship NLEs. Although it has one of the most complete editing toolsets in the world, it has always been fused with hardware that, while giving it more power and capability, also added to its cost.

Recognizing the massive increase in the processing power of newer PCs and Macs, Avid decided to liberate the Media Composer from its shell and offer it as software that can be placed in any qualifying computer system—even a laptop. As a result, customers can now bring all of the tools of the standard Avid Media Composer into their existing or slightly upgraded computer set-ups.

FEATURES

A significant feature of the Avid Media Composer 2.6 is that it will run on Windows or Mac, desktop or laptop. To operate up to speed, however, the host computer needs to be fairly beefy.

FAST FACTS

Application
Nonlinear video editing

Key Features
Runs on both PCs and Macs, advanced utilities

Price
$4,995; upgrade from Avid XpressPro $3,495

Contact
Avid Technology Inc.
800-949-2843
www.avid.com

Avid "qualifies" PC and Mac workstations in order to assure customers that they will have guaranteed performance—which is essential for anyone on tight deadlines. For Windows XP, they recommend an HP xw8200 or 8000 Workstation with dual 3.0 to 3.6 GHz Intel Xeon processors and at least 2 GB of RAM.

On the Mac, an Apple Power Mac G5 with dual 2 to 2.7 processors, 2 GB of RAM and an adequate graphics card such as Nvidia GeForce 6600 or ATI Radeon 9600 is recommended. Avid will release the upgrade this year that allows Media Composer to run on Apple's newest Intel-based, dual processor systems.

Avid Media Composer 2.6 is a software release of the company's popular NLE system.

For laptops, Avid recommends a number of systems, including the HP nw8440 Mobile Workstation, or the Apple PowerBook G4 1.67 GHz 17- or 15-inch models.

Although Avid Media Composer will run on lesser systems, it needs the heftier configurations to reach full performance and there's no point in scrimping on the specs.

For example, the newer graphics cards with open GL capability dramatically reduce rendering time and increase speed when adding effects. Working with multiple streams of HD material in real time also demands a high-performance system. Remember that the work usually done by the additional hardware must now be done by the host computer when using the software-only version.

For those who still need more power and speed for HD work and compositing, one can add the Adrenaline unit,

AVID, PAGE 94

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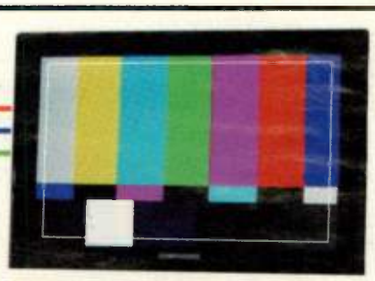

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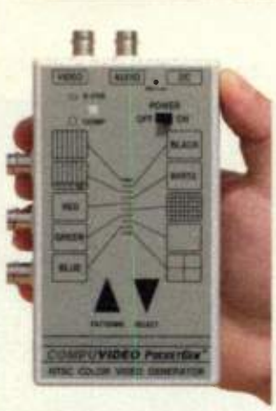

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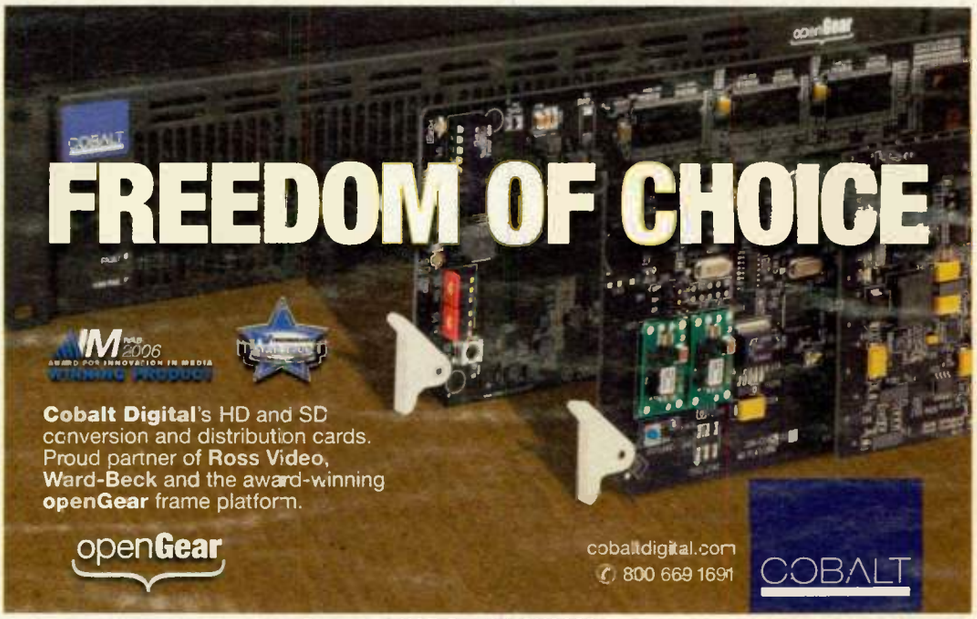

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World Radio History

MRC

CONTINUED FROM PAGE 85

mitting in the COFDM mode, modulation choices are QPSK, 16QAM, or 64QAM. In the analog mode, FM video and audio are the standard.

When operating in the analog mode, standard RF power output is 2 watts, with 12 watts as an option. When operating in the COFDM digital mode, RF power output is either the standard 1 watt, or optionally, 6 watts.

The front panel is divided into three parts. The audio, video and monitor connections are easily accessible on the left side of the unit. In the middle, there's an LED menu display and function knob.

The power connector and basic operation knobs are located on the right side. The rear of the unit has connectors for RF output, RS-232 data, and an additional audio input. Fuses for the AC and DC inputs are located on the back, along with the switch for DC on coax.

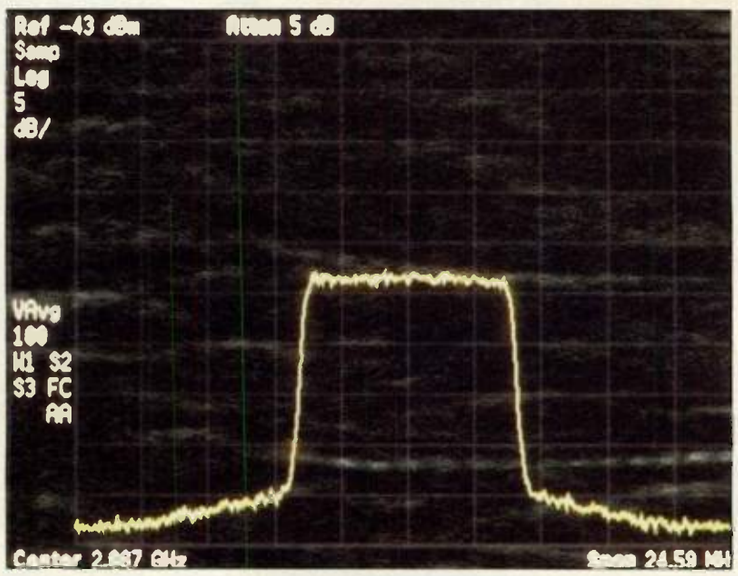
MRC has designed the PTX-PRO to be very flexible in the field when it comes to changing modulation schemes. Using the provided PTX-PRO Configurator software, numerous configurations can be saved and stored into the transmitter itself.

IN USE

The PTX-PRO was shipped in a very heavy-duty plastic container with wheels, while the other units were in normal shipping boxes. Included were all power cords, RG-214/U RF cables, and a couple of path simulator pads (inline RF pads).

The first order of business was to check out the equipment to make sure that it survived shipping.

I connected the RF output of the transmitter to our Agilent E4407B analyzer, using the provided RF attenuator to ensure protection for the analyzer's front end. With all cabling attached, power was applied and I tuned the analyzer so that I was monitoring the BAS spectrum.



The "Bart Simpson" output from the MRC PTX-PRO

The PTX-PRO was shipped preconfigured for our current, traditional BAS format. I confirmed that the PTX-PRO was indeed operating on BAS Channel 5 (2067.50 MHz). The RF envelope from the PTX-PRO was picture perfect. In addition, my math confirmed that the RF output level was just more than 2 watts.

The next step was to test the PTX-PRO's agility in operating between the analog and digital formats. I loaded the Configurator software on my laptop and connected it to the PTX-PRO with the provided data cable. I found that changing parameters on the PTX-PRO via the Configurator software was easy and straightforward.

In addition, changes could be saved as different configurations and easily recalled using only the front panel of the PTX-PRO itself. The unit can be fully configured with only the front panel controls; however, the menus can go quite deep and the GUI type display from the provided software makes programming much easier.

After configuring the unit for COFDM, I once again applied power and observed the spectrum display. The RF envelope created with COFDM modulation looked amazingly like Bart Simpson's head instead of the familiar set of carriers and subcarriers. The display was indeed picture perfect! RF output was calculated to be a little over a watt.

This equipment arrived just in time to be put to use in an annual telethon that we produce and air. The microwave hop required is just over six miles and the program lasts 14 hours.

We established the link 24 hours before showtime. The telethon originates at a convention center and composite analog video, stereo analog audio and AC power were established on the rooftop. The PTX-PRO was mounted on a tripod, and connected to a Nurad 23 HED GoldenRod antenna which has a gain of about 13 dB.

We used as much as possible of our existing equipment on the receive end of the link. This included a Super Quad receive antenna mounted on top of our 135-foot studio tower, with a Heliax feed to a NuComm CR-6 central receiver (more on this later).

The PTX-PRO was set up for analog operation on BAS channel 5 and power was applied. Antennas were aligned and the AGC was about 37 on the CR-6 (the lower the AGC number, the stronger the RF signal). The tripod was then locked down and secured.

With the signal peaked, it was time to try out the PTX-PRO's COFDM function. We changed presets to that mode and once again applied power. It was at this time that we attached a custom-fitted radome (plastic sheeting) over the PTX-PRO to protect it from the November elements.

(It should be noted that although we had selected the COFDM modulation scheme, the center frequencies for this test were still required to follow the old BAS channel allocation.

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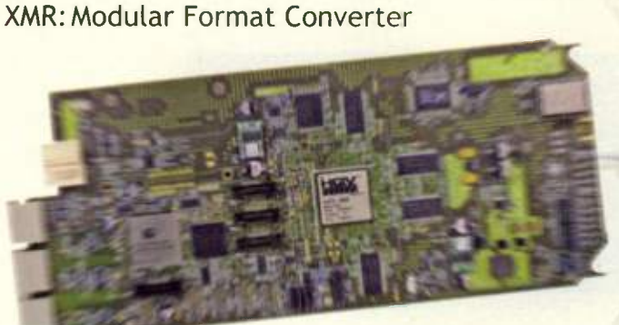

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This is necessary to allow the analog receiver to pick up the RF, as well as to comply with existing BAS rules. After the Sprint Nextel relocation process has been completed for our region, center frequencies for BAS channels will be located closer together.)

Upon returning to the studio, we observed the AGC reading was now up to 46 on the CR-6 receiver, indicating a reduced RF input. However, this lower RF level was to be expected as the power level was cut in half. In addition, the difference between analog modulation and COFDM would result in differing AGC readings even if the peak power levels were the same.

It's really difficult to flag anything that needs improvement in the gear that was sent us for this review.

To provide for COFDM demodulation and decoding, we connected the 70 MHz output of our CR-6 to the input of the MRX-4000 demodulator/decoder. The 4000 instantly demodulated and decoded a very high-quality analog audio and video signal.

We performed the setup between 1:30 and 3 p.m. on a Friday. Configured in the COFDM mode, the link operated from that afternoon until midday Sunday. During that period, no fading, audio popping, RF level dips, or chroma phase shifting were observed. This telethon has been broadcast from the same location using analog BAS microwave gear for the past 22 years and for the last three of those, we've been using new analog BAS equipment. This year was the first time that our microwave linkage didn't have some type of degradation during the production, affecting audio, video or both.

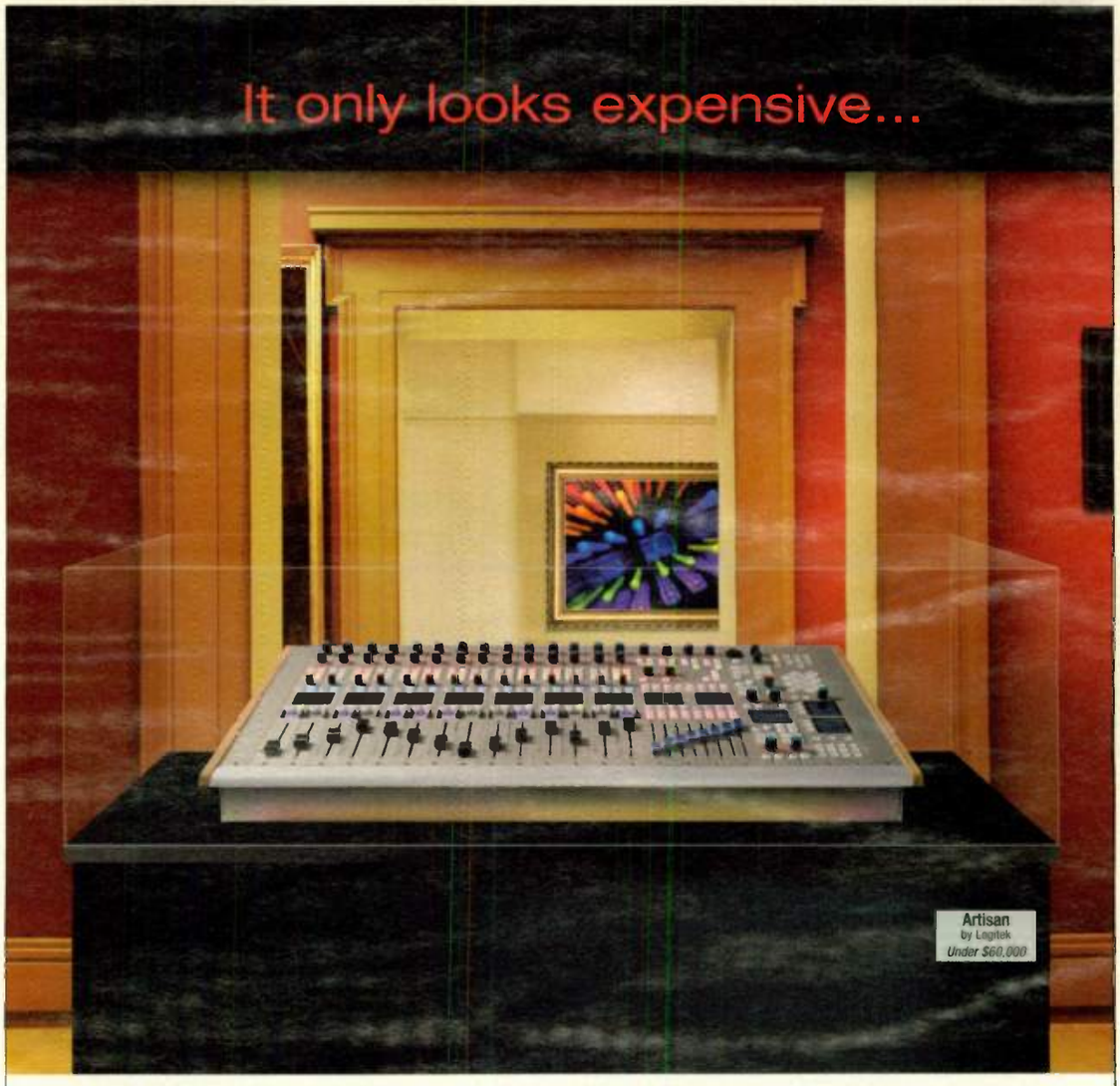
SUMMARY

During this real world test of this latest generation microwave BAS gear, I couldn't help but be impressed. The COFDM modulation scheme proved to be quite robust and the quality of the audio and video was outstanding. In the very near future, I would like to perform tests using COFDM over greater distances and over varied terrain, but these will have to wait, as we had to get the equipment package back to MRC.

It's really difficult to flag anything that needs improvement in the gear that was sent us for this review. If I had to make any recommendations at all, they would focus on the RS-232 data connector located on the rear of the unit. This connector could possibly be damaged with rough handling. Perhaps a set of protective handles could be added, similar to those on the front panel.

Modern microwave radios are certainly much more reliable and stable than those made even just a few years ago. Although modern BAS microwave equipment is far from inexpensive, the flexibility of modulation schemes, power sources and audio options combine to make the PTX-PRO a powerful tool that will hold its value far into the future.

Joey Gill is chief engineer at television station WPSD in Paducah, Ky. He has been with the station for 25 years and has worked in broadcasting since 1977. He may be contacted at respond2jgill@yahoo.com.



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Avid

CONTINUED FROM PAGE 87

which also increases I/O capability to handle a wider range of HD input. The addition of the Avid DNxcel card offers editors the ability to encode HD material in real time to Avid DNxHD, the company's codec. This provides HD image quality at SD data rates. In terms of saving storage space and moving HD material around, Avid DNxHD significantly eases HD post production without sacrificing any quality.

Now the fun part—this is what Avid Media Composer gives to the creative editor.

To begin with, Avid Media Composer allows you to mix HD, SD, DV and film formats on the same timeline without rendering or transcoding. You can also edit HDV and DVCPRO HD in their native forms. Audio sample rates can be mixed as well. This provides freedom to use material from different sources.

The array of available effects is very wide. Furthermore, most of the effects contain numerous controls with a depth that elevates them to a science. Promoting effects from simpler control to advanced keyframes provides temporal control over many layers of attributes.

The motion control is as flexible as can be. Unlike Avid Xpress Pro, where you choose a fixed motion rate for a clip, Media Composer allows you to create a motion graph. You can make a clip start in normal motion, and then change to fast, slow, freeze or reverse by just pulling keyframes on a line graph.

Slow motion in video has always been disappointing, as duplicating frames creates uneven motion. On Avid Media Composer, there is a very impressive function called "FluidMotion," which performs a minor miracle. It actually creates new frames by calculating pixel trajectories. This does away with repeating frames for slow motion. The result is equivalent to what you would get if you shot slow motion on film by over-cranking the camera.

Avid Media Composer also offers superb motion tracking, utilizing up to eight points to maximize accuracy. And, you can track just about anything. You can blur out faces, or replace pictures or video sources within the frame.

It also retains 3D spatial orientation to stay consistent with movement in any direction. Avid has even added some features normally contained in third-party software such as After Effects. The Paint effect allows you to paint colors or transparent masks, or lighten or darken areas while tracking them to specific objects in the frame. You can immediately see if the effect is working, without the time-consuming steps of transferring between software applications.

Keying is vital to compositing work, and the Media Composer borrows from Avid's top-of-the-line Symphony Nitris to give you its SpectraMatte 16-bit Chroma Keyer. This creates a color map displaying precisely how the foreground image is being keyed over the background. It enables a level of fine-tuning that is impossible to achieve by examining the video alone.

Avid Media Composer also offers basic and advanced image stabilization. The basic effect quickly compensates for camera movement, making a handheld interview look as if it were shot on a tripod. But when the camera pans or travels through space, the advanced effect enables you to separate intentional from unwanted camera movement by using multiple tracking points.

The pan-and-scan feature allows you to easily create a 4:3 version of a 16:9 project.

Archiving material is becoming more of a challenge with the advent of disk and memory card recording. Media Composer allows you to archive the clips used on your timeline to tape with a single command. In the event of a disaster, you can reconstruct your full project by reversing the command and restoring the project from tape.

Color correction on the Media Composer is outstanding, offering the most complete set of tools in its class. Features such as color cast removal and "NaturalMatch" allow quick color balancing between clips.

When examining any NLE, one mustn't overlook audio. The Audio toolset in Media Composer includes advanced and easy-to-use EQ devices, pre-sets and global commands, as well as four-track audio punch-in for advanced dialogue replacement and narration.

A final edge Avid Media Composer offers over the competition is its sophisticated media management and networking capabilities. It has clear advantages in environments where multiple workstations need to access the same source material on a server.

By the time of this printing, Avid will likely have released Media Composer Version 2.7, featuring support for Intel-based Mac notebooks and desktops. Two other notable additions to the release will be ScriptSync and Avid DNxHD 36.

ScriptSync takes Avid's existing script-based editing to the next level by using phonetic speech recognition technology from Nexidia to automate the

AVID, PAGE 95

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process of synchronizing scripts or transcripts with their respective media files. This capability enables editors, directors and producers to save significant time when reviewing and selecting line readings. Avid will also introduce a new DNxHD resolution, Avid DNxHD 36, which provides HD image quality for offline editing and faster re-linking with online media.

IN USE

I tested Avid Media Composer 2.6 on a variety of systems. After all, the primary advantage of putting the system on software is its portability. And one of Avid's advantages is the ability to work on either Mac or Windows—both installers come in the box.

Avid Media Composer ran perfectly when installed on an Apple G5 with dual 2 GHz processors, 2 GB RAM and an NVIDIA GeForce FX 5200 graphics card, OSX Version 10.4.8. I also tested it on an HP xw8200 Workstation with dual 3.0 GHz Intel Xeon processors and 2GB of RAM running Windows XP SP2. The performance was identical.

Then I tested it on a laptop that was below the Avid specifications to see how it would perform. I used a Toshiba Satellite with a 3 GHz Pentium 4 processor and 1 GB of RAM. I found that the Avid Media Composer functioned well on the underpowered laptop, provided I did not tax it too heavily with HD material or multiple effects and layers of video.

Although Avid does not recommend such a system, I can say that a modest laptop should be sufficient for relatively simple projects or offline editing. It is perfectly fine for DV projects. Keep in mind that if you use systems not qualified by Avid, technical support may be unable to solve your problems if they arise.

The best news was that I found I could transport full Avid projects between the qualified Mac and PC systems. I know this is how it is advertised, but I wanted to make sure there were no hidden glitches. In my tests there were none. The only precaution is that you need to format your portable drive in the FAT 32 mode or the Mac won't read it.

I started a project on the PC, saved it on my Maxtor FireWire drive, opened it up on the Mac and found all the effects on the timeline were perfectly in place. Changes made on either system did not result in any corruption of the project when going back and forth between systems. Satisfied with that test, I could go on to exploring the features.

Among my favorite features is the motion control with FluidMotion rendering, and it's one of many reasons why one might want to upgrade from Avid Xpress Pro. First of all, altering motion has never been easier. You simply use keyframes to bend a line into a curve to sculpt the desired motion of your clip on the timeline.

You can go from fast to slow to stop and reverse. The changes immediately affect the clip on the timeline, so you can see how the effect works in the project. And the FluidMotion is astounding. It truly makes the slow motion look as if it was shot on a variable speed camera. There are no duplicate frames.

Media Composer also has some hidden treasures among its numerous effects palette. I happened upon one while testing the "paint" effect. I found that I could actually do what photographers call "dodge or burn." This means you can selectively lighten or darken regions of the frame. In video, this is a challenge because the camera and objects move. But the effect also includes full and precise tracking capability.

For example, I had a clip with two people: one was properly lit and the other was too dark. Using the paint tool, I lightened the person's face slightly and applied tracking to it. Now as the camera panned, the lightened area stayed exactly in place on the person's face, effectively fixing my uneven lighting problem. The ability to lighten or darken specific areas of a shot offers great possibilities for rescuing poorly lit shots, or adding drama

AVID, PAGE 100

World Radio History

SCORING PROGRAM

Sony Cinescore 1.0 Software Package

by Stephen Murphy

For its new soundtrack creation solution, Sony Media Software took a few of the best bits from its established audio and video programs and wrapped them in its familiar low-learning-curve user interface. Sony added to this mix a unique music arranging/generating tool set and a starter kit of musical themes, variations and moods. The result is Sony's inexpensive music-creation application, Cinescore.

Cinescore is designed to "automatically generate an unlimited number of fully orchestrated compositions that custom fit to your video," to quote Sony literature—a pretty tall order for software at any price, let alone an application that sells for around $200.

FEATURES

Cinescore is intended as a means for nonmusicians/arrangers to produce custom music beds with a minimum investment in time or money. The program generates custom music cues through the choice of an overall theme and its associated variations.

The program comes with 20 themes, and each theme has around 20 variations. Cues can be further customized via a series of options that affect tempo and the development of dynamics, structure and arrangement over time.

The stated system requirements for this PC-only application are relatively modest—Windows 2000 or XP, a 1.5 GHz processor and 512 MB of RAM (see Sony's Web site for complete listing)—but I imagine anyone who is working with video professionally and is interested in this software already has a system that runs rings around these requirements.

The main window of Cinescore most closely resembles Sony's Vegas video/audio editing software: a horizontal timeline-style area for the display of the video and audio tracks across the top half of the window, and a multi-purpose window-docking area across the bottom half that can be used to display various windows, including a file explorer, project media explorer, audio meters and video preview. As with other Sony Media applications, section divisions can be resized, and windows can be shuffled, layered in tabs, or undocked and placed elsewhere on the desktop.

The program limits the number of tracks to one video track and an associated audio track for extracted synchronous audio, a dedicated audio track for the Cinescore-generated music, and an Audio Transitions track that can be used for hits, sweeps, swells, sound effects or anything else that strikes your fancy.

Cinescore can import a fairly wide variety of media formats including AVI, AIF, BMP, JPG, MP3, MPEG-1 and MPEG-2 video, PCA, PSD, QT, SWF, WAV, WMA and WMV, as well as still image sequences. Finished projects can be rendered out as AVI, AIF, AVC, AAC, MP3, MPEG-1 and MPEG-2 video, Real Audio and Video, WAV and Windows Media audio and video.

IN USE

Installing Cinescore on my audio workstation was a simple matter—the only thing to note is that you probably want to change the install path of the included Theme audio files from the default directory on the system drive to a dedicated directory on a media drive.

A Sony Vegas user can be up and generating music in a matter of minutes. Even without that familiarity, the interface is so straightforward that I can't imagine anyone with half a head for pro-

SONY, PAGE 97

FAST FACTS

Application
Soundtrack creation

Key Features
Custom music generation; 20 Themes provided, each with more than 20 Variations; external monitor preview; Cinescore plug-in for use within Sony Vegas; 16-bit, 44.1 or 48-kHz audio space, and up to 24-bit/192 kHz when used in Vegas; optional Theme Packs available.

Price
$200

Contact
Sony Media Software
800-577-6642
www.sonymediasoftware.com

CAMERA BAG

Petrol Bag PCPB-2 'Papoose'

by Carl Mrozek

What makes a great camera bag? Is it roominess, styling, durability and good padding, plenty of compartments and pouches, water resistance?

In my book it is a bit of all those things, plus comfortability—especially if you have to lug a lot of gear around for an extended period without helpers. In that case a backpack-style camera bag is a tool to have.

Nevertheless, for years I have resisted a backpack-style camera bag, despite their obvious strengths, in part because I viewed them as great for special applications, but not nearly as good for everyday use—for quick draw situations and being hauled in and out of vehicles, briefing rooms and elsewhere. However, too many painful, shoulder-wrenching treks through mile-long airport terminals while toting heavy cameras in large shoulder bags have convinced me to revisit the backpack, as did a chance to test a relatively new backpack/camera bag, the Papoose 2 by Petrol.

FEATURES

There are a handful of backpacks designed especially to accommodate professional video cameras. Petrol, of Israel, has two, PCBP- 1 & 2 both nicknamed "Papoose" bags. PCBP-2, or Papoose 2, is the larger of the two and is designed to carry full-sized professional cameras like Sony's HDW-F900 and Panasonic's Varicam. The smaller Papoose 1, (PCBP-1), is designed to transport smaller camcorders such as Sony's HVR-Z1 or Panasonic's HVX 200.

The Papoose 2 is roughly 36-by-6-by-12 inches. It has three separate zippered compartments for carrying gear. The largest of these is just big enough to accommodate a full-sized camera, broadcast lens, plus a mini-brick style battery. There is also a bit more room around the camera and lens for a few small accessories including a few movable hook and loop pouches, ideal for filters and minicassettes.

A tough reinforced panel protects the viewfinder while movable dividers permit customizing the main compartment to hold a few accessories for a full-sized camera, or even more accessories for a smaller camera.

Below the main compartment is another unpadded, zippered nylon compartment, large enough to accommodate several HDCAM cassettes and an extra battery. There's also a side pouch, large enough for an extra mini-brick battery, or for the legs of a tripod strapped to one side of the backpack.

The third compartment is a completely detachable medium-sized backpack, with a padded main compartment and flanking side pouches. The main compartment is large enough to hold a laptop, accessories and sundries, while the side pouches could hold small water bottles or

PETROL, PAGE 98

FAST FACTS

Application
A full range of ENG and EFP equipment transportation jobs, particularly those off-road and aerial

Special tripod carrier, plenty of storage, water-resistant construction

Price
$389

Contact
The Vitec Group
845-268-0100
www.petrolbags.com

Petrol Papoose PCPB-2 camera bag

World Radio History

Sony

CONTINUED FROM PAGE 96

duction getting bogged down for long.

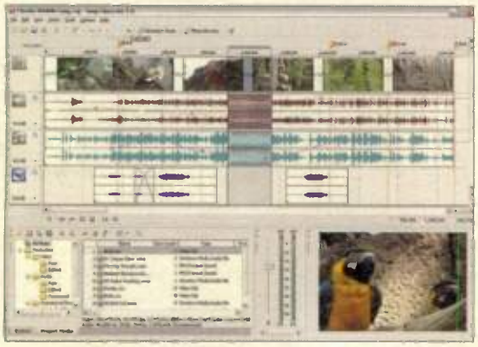
Of course, the usual trade-off in order to create a near-zero learning curve is a reduction in features, options and control, and Cinescore is no exception.

Despite certain limitations (more later), Sony struck a smart balance between entry-level friendliness and creative control of generated music. In essence, Sony achieved what it set out to do—produce a tool for nonmusicians to intuitively, quickly and inexpensively create music cues with some of the hallmarks and flexibility of a composed score. The program generates music via a dedicated dialog window that, unfortunately, takes the user away from the timeline (and sync video playback). The generator dialog presents hierarchal levels of choices that ultimately cause a specified length (based on the current timeline selection) of generated music to be rendered and placed on the Cinescore timeline.

To start, the user chooses an overall theme. The 20 included Themes encompass a decent range, from classical to techno; specialty Theme Packs (such as the expansive and versatile "Incredible Vistas") are available through Sony.

The themes and variations that came with the program provide some very good musical material with which to work. Despite the fact that the program works by putting together audio samples and loops, most of the arrangements are made up of MIDI instruments, some of which sound quite flat and artificial. I was hoping that Sony (and its contracted composers) would have made better use of its amazing and vast collection of actual instrument sample loops.

A Theme typically contains around



Sony Cinescore user interface

20 Variations, though some have far more. A decent analogy for the Cinescore hierarchal order is to consider a Theme as a double-disc concept album by a specific artist. In this analogy, Variations are the equivalent to the 20 or so related songs spanning the album.

Each of these songs (Variations) has numerous parts (choruses, bridges, verses) and arrangement changes (breakdowns, dynamics, restatements). Cinescore asks the user to choose a Theme and Variation and then provides a number of choices to tailor the part order, volume and dynamics, and instrumental arrangement. To what degree one wants to dig into the fine tuning of these elements is left up to the user—all choices can be made automatically, or the user can exploit the various tools provided to further customize.

Cinescore makes use of timeline Hints, the most powerful tool provided for affecting the development of the generated music. Hints can be added anywhere along the mini-timeline in the generator dialog, and can affect change in mood, stylistic deviation, song structure randomness, adjacent section variance, tempo, dynamics and more.

An area in which Cinescore has drawn criticism is that changes caused by Hints don't take place immediately, but instead happen at the next musically appropriate opportunity. I find this criticism to be off base—if the program changed to a different section irrespective of meter and other musical factors, users would end up with jarring and unusable cues. Tools such as tempo changes, transitions, dynamic changes, sound effects and good old two-track editing can easily create proper changes.

The best way to achieve changes at precise spots is to generate music in smaller sections that start and end at important hits, and not try to ride herd on an overly long section.

The biggest workflow issue in the software is, as mentioned earlier, all the generation of music takes place in a dialog box apart from the timeline and without the benefit of viewing the video.

Each time you want to tweak or switch elements in the music—after listening to the music against the picture on the timeline—requires entering the dialog window, making changes in the wild and re-rendering the music to the timeline to see if it did what you wanted.

Ultimately I found a better way (for me) to work: once I'd settled on a Variation and tempo for a section, I rendered out many different versions (created using the various arrangement and dynamic options provided) and cut, pasted and crossfaded the various elements I needed. If you have audio and music editing skills, this is quite an effective and creative way to work.

Cinescore includes most of the excellent editing functions found in Sony's Vegas, Sound Forge and Acid. Additionally, any audio event on the timeline can be instantly opened in your favorite editing software, edited and/or processed and saved automatically to the timeline. This is a useful workaround for the fact that plug-ins are not supported in Cinescore. Also conspicuously missing for pro use is time-stamped broadcast WAV file (or any timecode sync for that matter), and ReWire support.

Coming to the rescue of most of the program's shortcomings is the included Cinescore plug-in for Vegas. As a plug-in, Cinescore's generator interface can be opened by right-clicking on a Vegas audio track and generated music inserted directly to the Vegas timeline.

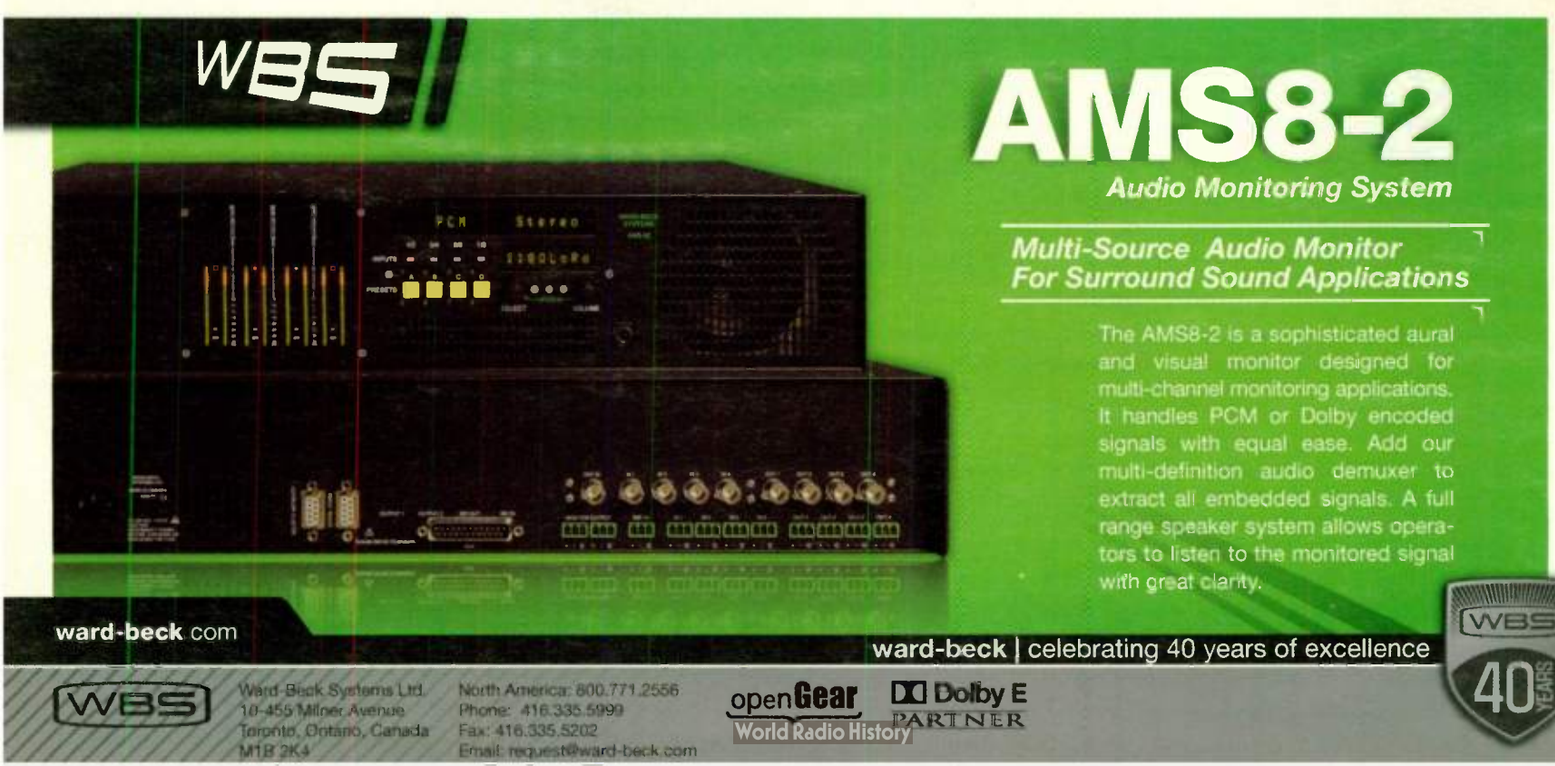
This allows Cinescore's music-generating capabilities to be used in conjunction with all the audio and video capabilities of Vegas, erasing most of the aforementioned limitations and providing access to audio plug-ins, unlimited tracks, surround mixing, ReWire support, timecode support, HD support and everything else that is available in Vegas!

SUMMARY

Sony's Cinescore is primarily geared toward giving nonmusician editors and producers the ability to quickly and easily create custom music beds. On this level, it succeeds admirably. Musicians and experienced users will hit the program's limits fairly quickly, but incorporating Cinescore as a plug-in for Vegas expands its professional-level usefulness immensely.

Ultimately, Cinescore is an easy-to-use scoring tool capable of producing music beds and cues that fall somewhere beyond canned library music, but well short of the craft (and cost) of original scoring.

Stephen Murphy is a technical engineer at the National Press Club's broadcast operation center, and an independent video editor/audio engineer.



World Radio History

Petrol

CONTINUED FROM PAGE 96

video accessories.

The Papoose 2 also features padded straps for comfortably carrying loads upwards of 50 pounds. It also features a thick, padded belt for securing the fully loaded pack at the waist. There are some adjustable straps on the sides and elsewhere for securing yet more accessories, and a thick nylon handle above the straps for moving the pack around by hand.

Both Papooses are designed to be highly functional, user friendly and rugged. They are fabricated from two principal materials—a durable, water-resistant cordura skin, and industrial nylon, which is used for the straps, handles and webbing.

This rugged backpack is described as ideal for travel or hiking into hard-to-access locations, or for toting a full day's shooter's kit, around airline terminals, or from the vehicle to various locations for use in urban or rural settings. The combination of padded straps and waistbelt, plus the ergonomic design is designed to help distribute the weight and ease the strain of transporting a full-sized camera kit, even if it's over rugged terrain.

IN USE

I tested the Papoose 2 while using a Sony DSR 570W camcorder, equipped with a Fujinon HA18x7.6 HD lens and 100 W Frezzi Li battery. As it turned out, the camera, lens and battery fit snugly into the padded main compartment with just a bit of wiggle room, with space above or below the camera for extra cassettes, a wireless kit, portable light, portable hard drive, or other items that you might need on a shoot.

The bag's reinforced bulge for the viewfinder fit the DSR 570W perfectly, while the moveable padded pouches were just large enough to hold a MiniDV cleaning cassette, a few small tools, a Lectrosonics wireless receiver and transmitter, along with a headset.

In the nylon compartment below, I stowed an extra 100 W battery, compact Canon binoculars, several DVCAM tapes, gloves, a cap and a thick white cloth. The cloth served as additional protection, as there is none in the lower compartment, although the tough nylon material does provide adequate protection for cassettes in cases and the like.

I unzipped and removed the third compartment—the standalone, standard-sized daypack—as a precaution, and used it for transporting noncamera items such as water bottles, a thermos, sandwiches, fruit, snacks, maps and a field guide. This also made it easier to balance the fully loaded backpack on its side, on the floor and also on the seat of my vehicle while traveling.

Once packed, I had a choice of several different ways to carry the Papoose 2 for short hauls. I could put it over the shoulder by using one of the padded straps, or carry it on the back by using both straps. I could carry it like a standard carrying case by using a nylon handle on one side, or I could grab the other nylon handle at the top of the bag (when it's standing upright), to make loading it into a vehicle easier.

There's also an unpadded, adjustable accessory strap on the side for hanging it on one's shoulder for short hauls. The Papoose's many handles make it easier and safer to load into the back seat of an SUV, as it allows for a better distribution of weight. The same applies when unloading.

When I used the Papoose 2 as a quick draw camera bag, getting the camera ready for use was simply a matter of unzipping the bag about two-thirds of the way and plucking the camera out by its handle. Due to the snug fit inside the main compartment, no straps were needed to further secure it inside the compartment, even when hiking.

However, I soon learned to load the bag handle-side down, so that the camera would be in an upright position when I was ready for it. Due to the position of the viewfinder bulge, there is only one correct way to load the camera inside Papoose 2. Unfortunately, when carrying it by the side handle, this leaves the camera upside down when the bag is lowered.

I also tested the Papoose 2 with a tripod attached. This was Sachtler's DV 8 Speedbalance model. The DV 8SB weighs roughly 15 pounds, and is around the same height as the Papoose 2 when fully collapsed. There's a small pouch appended to the Papoose's bottom compartment for securing a tripod's feet. Two adjustable straps, one at the top, and another halfway down the side, enable the tripod to be strapped securely to one side of the Papoose.

With both the camera and Sachtler tripod aboard, the Papoose 2 became a bit hefty. To strap it on without misaligning my spine, I placed it on the bumper of my SUV, which made the job easier. Once it was on my back, I was able to snug down the shoulder and waist straps with a few tugs. Loaded up and adjusted, I set off on a dirt road in pursuit of my subjects for the day—coyotes and deer.

It didn't take long before the imbalance caused by the tripod became uncomfortable. To counter this, I tightened adjuster straps attached to the backstraps to shift the weight around. Adjusting the tension on the shoulder straps themselves, and also on the waist belt, helped with the weight-balancing act too. In the end, I found that by grabbing the extended fluid head handle with my left hand across my chest was the most useful trick for shifting weight to the center.

While it wasn't perfect, this was sufficient for me to keep hiking along the lumpy trail, and even to keep the pack on whenever pausing to check tracks in the snow.

With Papoose 2 on my back, the only compartment that I could access is the bottom one just below the main compartment. With some effort, I was able to partly unzip it at the corner and gain access to about half the compartment while in this position.

Practically speaking, this has limited value unless you're carrying a second camera that requires batteries, tapes or whatever else you might have in that compartment. Accessing the tripod or camera or anything else in the main compartment requires unshouldering the Papoose and unzipping it. However, this can be done with surprisingly speed— less than a minute—then it amounts to just getting the camera mounted and ready to shoot. Once off my back, the Papoose 2 hugged the ground and was not likely to be flipped over by the wind or other disturbances, especially with a camera battery or two, and other gear still in the bag!

This made it easier for me to concentrate on shooting, without fear that the Papoose would be disturbed by the elements. Even the wet ground did not dampen the water-resistant cordura enough to warrant concern.

Repacking the camera and tripod in the Papoose in the field was a breeze. When collapsed, and with its feet in the special pouch, the tripod was quickly snugged up against the side of the Papoose by adjustable twin snap locks.

The only real challenge was getting it back on my back without the benefit of a car bumper. This was partly due to the slight imbalance caused by the tripod. Once I got the Papoose back on my back, the rest was figuratively all downhill, as I had to hike up a slight hill to get back to my vehicle. The mile or so hike was uneventful, as was removing the pack and putting it back into the SUV.

In my view, that confirmed that the Papoose was a good performer in the field, once I got the hang of counterbalancing the tripod attached.

The Papoose 2 is a well-designed and well-constructed backpack, up to the job of transporting full-sized professional cameras and support gear safely and comfortably.

SUMMARY

The Papoose 2 is a well-designed and well-constructed backpack, up to the job of transporting full-sized professional cameras and support gear safely and comfortably.

It is also fairly straightforward to use and can readily be used to perform all basic functions without having to resort to printed instructions, something that is rare in this high-tech age.

Papoose 2 is designed to comfortably transport a complete field shooting kit, including a tripod, extra media, batteries, wireless kits, sunguns and other sundries, including water. Moreover, it is designed to provide user comfort even with a full load, and is also durable and water resistant.

In my opinion, there are a few minor flaws, including the positioning of the side handle and of the tripod fasteners, and perhaps not enough external pouches. However, the bag is user friendly and ergonomically designed and in general, I was able to find workaround solutions to these minor negatives. The advantages of Papoose 2 over standard camera carrying bags far outweigh the disadvantages, especially for lone camerapersons, and especially for those working in hostile environments.

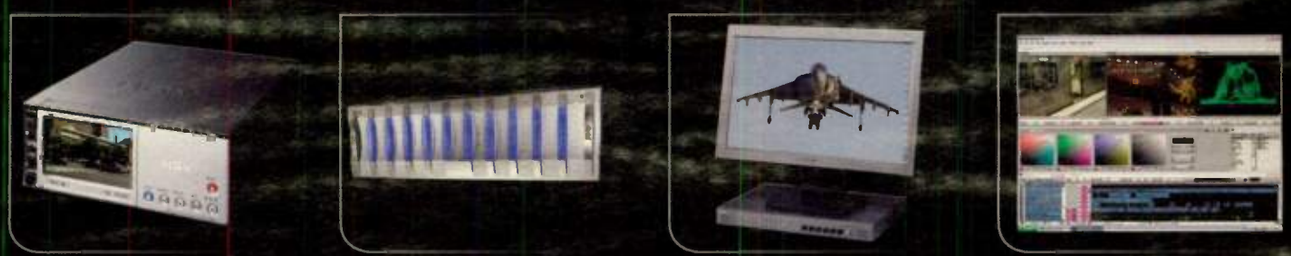
Extrapolating from my brief experience, the Papoose 2 will lighten the load of any pro who needs to take a camera and associated support gear aboard commercial airlines as a piece of carry-on luggage. This is particularly true for multi-stop itineraries involving plenty of airport hiking. Although designed to accommodate full-sized cameras, it can just as easily be used to transport 1/2-inch and 1/3-inch CCD cameras on or off the pavement.

Carl Mrozek operates Eagle Eye Media, based in Buffalo, N.Y., which specializes in wildlife and outdoor subjects. His work regularly appears on the Discovery Channel, The Weather Channel, CBS, PBS and other networks. Contact him at eagleye@localnet.net.

World Radio History

POST PRODUCTION

THE PROFESSIONAL'S SOURCE



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SIGNAL CONVERSION

Cobalt Digital HD 8024 Converter

by Michael Hanish

Cobalt Digital's HD 8024 is a standalone converter meant to bridge the gap between HD and SD formats in a production environment.

FEATURES

The box itself is 1 RU unit high, so if you intend to mount it in your equipment rack, you will need a shelf or adaptor. It's about 13 inches deep and takes 5-18 VDC, consuming 15 watts. (External power is supplied by a wall wart, with connections for a main and a redundant power supply). It's set up for inputting dual-rate HD- and SD-SDI (including embedded audio) and can output the same, plus HD and SD analog video.

Internally, all processing is 10-bit with advanced de-interlacing and motion compensation. The HD 8024 up-converts SD (with multidirection adaptive filtering for edges and vertical and interfield motion filters), downconverts HD (with reduced chroma phase jitter) and cross converts between HD formats (1920x1080, 1280x720, 1024x768) and frame rates. Analog output is encoded at 12-bit resolution.

All controls are on the front panel, which features a large, backlit LCD display of parameters. When no menu items are being accessed, the display reads out input and output formats or alarm conditions—for example, no valid input or power supply voltage too high.

Navigation through the nested menus is very fast and easy using the four arrow keys. Front-panel controls can be locked to prevent unwanted or accidental access.

The HD 8024 has a full complement of the features you would need and expect, and a few that might surprise you. First, there are the controls necessary to perform the chosen conversion tasks. These include input format (either SD or HD SDI) and aspect conversion; combined or separate horizontal and vertical zoom; pan controls (in other words, a two-axis DVE); interlace/de-interlace/pulldown; and SD analog output format (three composite; composite and Y/CV; or component as Betacam, MII, SMPTE or RBG). Digital outputs also include two HD or SD SDI reclocked copies of the input signal.

You would expect image controls, and you get them—Y-gain, saturation and hue. You also get a motion detection filter, dejitter filter and an audio delay offset control. This last item compensates for the delay introduced by the video processing.

Rather than having to guess, measure externally, or do trial and error, the 8024 provides a menu item that shows the audio and video delay introduced by the processor. You can then use this convenient bit of information to set the audio offset from –100 to 1,000 ms.

A useful and unexpected feature set of the 8024 is user-configurable reticules. These customizable overlays can be applied collectively or individually to the digital (SDI), SD analog or HD analog outputs.

Each of the four reticule types (center cross, 4:3 safe area, 4:3 full aperture, 16:9 safe area) can be turned off or on for each output, and customized with specific size, line thickness, color and tracking (when enabled, this allows the user to get a zoomed-in view of the image with the reticule correctly positioned and to scale).

All operating parameters of the unit, which include I/O configurations, image processing, audio delay and reticule configuration, can be saved to any of 100 preset memory slots for instant recall. Remote control and operation from a Windows PC is also possible by using the rear panel RS-232 port, a standard RS-232 serial cable, and the remote software. Remote operation can control up to 255 units, and can command all aspects of operation.

Finally, there are utilities, alarms and self-test features to ensure the smooth operation of the 8024. Various utilities can monitor power supply levels (main and redundant), as well as temperature levels at both the front panel and on the scaling processor. The unit can be set to display readouts of those levels and trigger alarms if certain preset operating thresholds are exceeded. The self-tests check and report on the validity of front panel, LCD and EEPROM operations.

The Cobalt HD 8024 up/down/cross conversion unit

FAST FACTS

Application
Video signal-format conversion

Key Features
Full range of image processing functions and controls, audio delay function, built-in safe area generator

Price
$4,995 MSRP

Contact
Cobalt Digital Inc.
800-669-1691
www.cobaltdigital.com

IN USE

I wired the HD 8024 into my Media 100 HD-based editing setup, for use in a documentary project being edited at SD 16:9 aspect ratio from a variety of SD and HD sources, and of varying quality. I tried the unit both at the ingest and output ends of the signal chain and fed it SD and HD signals.

Up- and down-scaling were both clean, simple to set up and artifact free. The built-in image controls were fine for quickly fixing some simple image problems on ingest. The ability to set and recall presets made it easy to move between different input formats and origins, compensating for, and correcting problems with each source.

I also very much appreciated the inclusion and implementation of the audio delay feature. It kept my embedded SDI audio in sync with the video after processing.

At the output end of my editing signal path, the HD 8024 also played nicely. Again, no additional processing artifacts were introduced and the output was clean and stable. The unit just plain worked and worked well.

It was handy in several situations to have simultaneous SD and HD outputs, and to have an additional analog output available for confidence monitoring. I could easily imagine situations of having to output SD and HD simultaneously, and the 8024 thus being a terrific time saver.

SUMMARY

Cobalt Digital has designed and positioned the HD 8024 to be a vital tool in high-end production environments, mobile trucks, cable head-ends and satellite uplink facilities, and to be an asset in the conversion to digital formats. Its menu structure and convenient front panel and remote controls make it easy and fast to set up and operate and maintain.

In any kind of production or post-production configuration, the HD 8024 would be a very functional and rock solid addition to the system's capabilities.

Michael Hanish runs Free Lunch, a video/audio/multimedia production house near Guilford, Vt. He may be contacted at mhanish@sover.net.

Avid

CONTINUED FROM PAGE 95

to ordinary ones.

One of the benefits of Avid Media Composer is its ability to handle the full range of SD and HD formats, and mix most of them on the timeline. This also provides great flexibility for outputting to any desired format. But users of the software-only version need to be aware that it has significant limitations for input and output of HD material.

If you need to transfer material from HD tape, you can't do it over FireWire (unless it is HDV). True HD material needs to go through the Adrenaline DNA with DNxcel hardware. SD material can be transferred through the Avid Mojo SDI. However, if you can get your HD material on a hard drive in some other way, the software version of Media Composer will edit it. Media Composer does offer cost-effective HD viewing through the DV out. Rather than requiring an HD monitor, you can now view full HD sequences from Media Composer with an off-the-shelf LCD monitor.

SUMMARY

If you're an editor, it's hard to not love the Avid Media Composer. It can do just about everything imaginable. The package has tremendous color correction and effects tools, and the ability to handle multiple video formats with real-time efficiency.

It's a smart move to offer the Media Composer on software, given that computer systems are getting more powerful every year (as is the competition). I would like to see it offer more I/O capability, but it is important to keep it affordable. For now, being able to run Avid Media Composer on a laptop or modestly priced desktop is revolutionary and greatly improves the workflow possibilities for anyone using Avid systems.

Geoff Poister, Ph.D,. is a member of the Film and Television faculty at Boston University and a regular contributor to ***TV Technology****.*

World Radio History

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Wohler AMP 1A, $375; Sony PCM 7040, $3995; Sony PCM 7030, 2995; Sony PCM 7010, $750. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Graham Patten D/ESAM 820 digital audio mixer, BO; ADC DAL3-14MKIINS digital audio patchbay, $350; GVG 8550 tray w/8-8551 audio DAs, $800; Sony MXP-744, 36-input, BO; NVision NV1000 tray w/11-NV1035 20-bit AES3 A to D, BO; SSL Aysis Air Digital Mixer w/hub router, 40 faders, call for price. 908-879-9590 or www.mccominc.com.

CAMERAS

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(3) Hitachi Z One C studio config cameras, $15000; Ikegami HL-57 w/Sony BVV-5, Canon 14x8.5 IF lens, $4500; Sony DSR-300A w/Canon 14X, $3400; Panasonic SDX-900 PAL, BO. 908-879-9590 or www.mccominc.com.

JVC BR-D40 D-9 ENG rcdr for KY-29 camera, almost new, xlnt cond, incl Aspen batt chrgr & 4 NIMH batts, $2900; JVC KY-29 camera & Fujinon 16x lens, 4:3 w/VF, tripod plate & travel case, almost new, xlnt cond, $2900. P Ellingson, 952-837-1852.

Sony HDC-F950 CCD digital 3 camera, BO; Sony BVW-300A Betacam camcorders, $5900; Sony BVW-400A w/lens, $4995; Sony DSR-130 DVCAM camcorders, $7995; Sony HDWF900PAC1B HDCAM camcorders, $82900; JVC GY-HD100AU HDV camcorder, $5495. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

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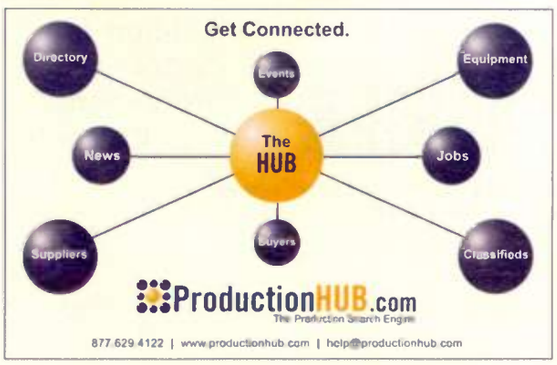

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EQUIPMENT SERVICE INTEGRATION

TV Pro Gear opens new factory to produce $80,000 multi-camera high definition flypaks

TV Pro Gear's multi-camera HD-SDI flypak™ * is ideal for shooting concerts, sports, church services and corporate events. Other applications include training programs, surveillance and legal evidence. The system is capable of supporting up to eight cameras.

Works with any cameras that output HD-SDI and are genlockable. The cameras are attached to TV Pro Gear's Cambox™ (patent applied). A signal cable goes from the Cambox™ to the Flypak™ access panel.

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Panasonic DVCPro1400HD VCR

The Miranda screen splitter feeds ten images into a 42" Panasonic screen display while simultaneously displaying tally, time-code, time of day and up and down timers. A Leader 7700HD rasterizer sends video levels and test signals to the monitor.

Signal distribution and patching. The inputs and outputs of every device in the flypak™ are looped through patch panels. Under normal conditions no patching is necessary. However, the patch panels enable additional devices to be attached without having to change any internal wiring.

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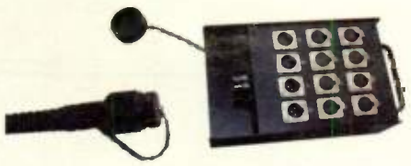

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The flypak access panel has outputs for program audio and intercom. The access panel also has connectors for HD and SD component video to feed a floor monitor or projection system.

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*Listings close every other Friday for the following month's issue. All listings are run for one issue only.

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EMPLOYMENT

HELP WANTED

Chief Engineer: WFIE-TV, Raycom Media's NBC affiliate located in Evansville, IN is interested in reviewing resumes for the position of Chief Engineer. The Chief Engineer is a departmental management position and has the responsibility and authority over all studio operations, technical maintenance, building facilities and security and information systems. The position entails scheduling, hiring, training, and evaluating department personnel. Also responsible for departmental operating and station capital budget preparation and management. Applicant's background should include minimum 3 to 5 years experience, knowledge of and compliance with FCC rules and regulations and use of CAD to draw diagrams of system interconnections for installation of new equipment. Microwave, UHF transmitter, building and information systems planning and management knowledge is essential. You should have a minimum of two years technical schooling with a preference for an ASEE or BSEE. Please mail a resume and salary requirements to: Engineer, 14 WFIE-TV, PO Box 1414, Evansville, IN 47701. EOE/MFHV.

SOLUTIONS ARCHITECT; BROADCAST SYSTEMS: Quantel, Inc., a North American subsidiary of the UK based Company Quantel, Limited is a global, leading edge provider of television news and sports, post production, and film technology solutions. Quantel, Inc. is currently recruiting a Broadcast Solutions Architect (BSA) to join our Sales team in the USA. Reporting to the Chief Executive Officer this person will be required to work as part of a team to effectively evaluate, propose, negotiate and close major broadcast systems business within North America. The qualified candidate will analyze the prospect's application, requirements and workflows. The Solutions Architect, working in tandem with the Regional Sales Managers will provide a strategy to approach all levels of the account. The Solutions Architect must understand, influence and respond to the prospect's needs, counter objections, negotiate and assist the Sales Managers in the completion of the sale. The Solutions Architect will be the technical expert on the Quantel team. He or she will add value to the prospect by consulting on the full end-to-end requirement, inclusive of interacting with legacy systems already on-site where applicable. As the technical authority related to all aspects of the Quantel solution the BSA will define the scope of work, which will determine the overall cost and bill of materials required to satisfy the application. The Solutions Architect will ensure that the design, commercial, and technical assessments are documented and that any risks to the Company in pursuing systems business are identified, managed and mitigated. Apart from having excellent core skills the ideal candidate will require solid organizational, communication and interpersonal skills, and deliver within timescales. Extensive travel is an essential part of this role. All interested parties please contact Ms. Aga McDonie, Office Manager at 703.448.6780 or aga.mcdonie@quantel.com.

MAINTENANCE ENGINEER: WKRN-TV an ABC affiliate in Nashville, TN is seeking a broadcast television Maintenance Engineer. The successful candidate should have 3-5 years experience as a broadcast Maintenance Engineer and must possess a working knowledge of SD and HD equipment. The duties include equipment installation, support of ENPS news room system, server based news editing systems, VCI broadcast automation, Grass Valley master control and production switchers, audio mixers, microwave transmitters and receivers, satellite receivers, master routing systems, SX/SP tape machines, news production equipment, SNG and ENG trucks, Final Cut and Avid nonlinear editing, and all other associated broadcast equipment. SBE, MCSE, or other certifications desirable but not required. This position requires the individual to be able to lift and move up to 50 pounds and mobility is required If you are a highly motivated individual, enjoy working with new technology, and possess a high attention to detail, then this position is for you. Please submit resume to: gparker@wkrn.com or mail to WKRN-TV, 441 Murfreesboro Rd., Nashville, TN 37210 Attn: Chief Engineer. No phone calls please!! EOE.

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FCC Approves Sale Of Univision

WASHINGTON

The FCC has approved the sale of Univision Communications Inc. to an investor group for $36.25 per share, or about $12.3 billion. In addition, the Los Angeles-based media company also agreed to pay a $24 million fine for failing to meet core-programming criteria.

The penalty stems from charges that certain Univision stations violated a 1996 law that requires broadcasters to air at least three hours per week of educational and informational programming for children. The stations—including WQHS-TV in Cleveland and KDTV in San Francisco—instead aired Spanish-language "telenovelas" more appropriate for adult audiences. Univision owns and controls 24 broadcast television stations.

FCC Chairman Kevin Martin termed the fine "significant and appropriate," adding, "It reflects the seriousness with which the Commission takes its public interest obligations. These requirements are not optional and we expect broadcasters to comply with them. With these commitments by Univision, I believe this transaction is in the public interest."

In addition to the terms of a consent decree that ends an FCC inquiry into the children's programming issues raised by pending licensing renewals, Univision has also agreed to a plan that complies with the Children's Television Act and the commission's rules.

The deal between Univision and Broadcasting Media Partners Inc., which includes Madison Dearborn Partners, Providence Equity Partners, TPG, Thomas H. Lee Partners, and Saban Capital Group, was agreed to in September.

Weingarten Buys IMG

WASHINGTON

Tom Angell, founder and president of Interface Media Group, has sold his sports and entertainment production and post-production company, to Jeff Wiengarten, vice president of IMG, for an undisclosed amount.

Angell said the transition has been in the works for the past two years. The deal between Angell and Weingarten was finalized March 1. Weingarten, who has been with the group for 18 years, has assumed the role of president and Angell will be a part of the transition.

Thirty years have elapsed since Angell opened the doors at IMG. When asked "why now?" Angell said, "I wish to hand over a company that's in good shape while I'm still in good enough shape myself to help in an orderly transition. I have taken my measure of the man and am convinced that Jeff is our best choice to lead us in the continuing adventure."

Weingarten started at IMG in 1989, and most recently served as the company's vice president. Prior to IMG, Weingarten's experience included editor/videographer at Nagy Films/Fax productions in Bethesda, Md., and as an editor/director at Producers Video Corp. in Baltimore. Weingarten began his career at NBC-TV affiliate WVIR in Charlottesville, Va., where he produced, directed, shot and edited spots and newscasts.

Under Weingarten's direction, IMG will continue to implement new technologies and processes throughout the facility. Weingarten said, "It will be business as usual at Interface. The company will retain the same talent, production management and clientele."

Long time clients include PBS, HBO, Discovery Channel, National Geographic and The Smithsonian.

Quincy Newspapers Upgrades With Harris

CINCINNATI

Quincy Newspapers Inc. is installing Harris Corp. equipment to upgrade two of its television outlets to digital operations.

Harris is equipping stations WXOW-TV in La Crosse, Wis., and WQOW-TV in Eau Claire, Wis., with server-based master control and production room operations. Harris NX4000TXS transmission servers are being used in the upgrade program, along with Integrator Gold and Panacea routing systems, as well as 6800+ series and NEO signal processing equipment. Harris CCS Pilot software was used for control.

"Rebuilding the complete technical core of this facility was a tremendous challenge," said Brady Dreasler, director of engineering for Quincy Newspapers. "For the studio upgrade component, we chose to install an all-Harris digital solution because of the company's ability to deliver reliable products backed by superior support. Quincy has been a long-time Harris customer, having purchased Harris TV transmitters exclusively for our stations, including WXOW and WQOW, for many years."

The facility upgrades are scheduled for completion this month.

Redbyte Now openGear Partner

IROQUOIS, ONTARIO

Redbyte Design is now officially an openGear technology partner. Redbyte and Ross Video have announced that they will partner to further expand converter product availabilities within the openGear line.

The company joins Cobalt Digital Inc., Ward-Beck Systems Ltd. and others that have adopted common card frame architecture.

"Redbyte Design is thrilled to be joining the openGear platform," said Greg Wright, Redbyte Design's general manager. "Our focus is designing high-quality broadcast equipment, and we look forward to offering customers the power to choose the best terminal equipment solution for their requirements."

Based in Australia, Redbyte produces converters for digital television applications.

The openGear platform is based in a 2 RU modular card frame, which can accommodate up to 10 cards. The concept of a standardized card frame allows users to select the best technologies from several sources without having to purchase and install separate card trays for each.

LSI Names New CTO

MILPITAS, CALIF.

LSI Logic Corp. has named Dr. Claudine Simson executive vice president and chief technology officer.

Simson is responsible for charting the future technology and architectural advancements of the company, as well as leading strategic technology collaborations with key customers, business partners and leading universities. She reports to Abhi Talwalkar, LSI president and CEO.

"I am delighted to have Claudine join the new LSI as we develop a rich pipeline of technologies to power products that will seamlessly bring people, information and digital content together," Talwalkar said. Simson previously served as chief technology officer at Motorola's Semiconductor Products Sector and its spinoff, Freescale Semiconductor. Prior to joining Motorola, Simson held senior executive positions at Nortel Networks over a 23-year career, including general manager of Nortel's semiconductor business and vice president in charge of technology research.

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