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TV TECHNOLOGY

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

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WHAT'S INSIDE

Versus Covers America's Cup

by Mark R. Smith

VALENCIA, SPAIN

The Versus cable network is fully exercising its flexibility and power in covering the 32nd America's Cup. The network's daily coverage of the event runs May 14 to June 23 and reaches 72 million homes via cable TV, Versus.com and Versus On Demand.

"We're taking a full 360-degree approach," said Marty Ehrlich, vice president of production and original programming for Versus and the executive producer of the race. "Promotion is the lifeblood of any network and you want to cover your bases with every possible media outlet."

Ehrlich noted that those options "have

CUP, PAGE 16

Sunday May 6 on the exhibit floor at NCTA in Las Vegas.

Cable Shifts From TV

Voice, data and ads top agenda at NCTA

by Gary Arlen

Special to TV Technology

LAS VEGAS

Digital television and the looming DTV transition were in the spotlight even before the National Cable and Telecommunications Association officially opened its annual convention last month. But video-on-demand in all versions was even more pervasive, as operators, vendors and programmers confronted the new competition for cable TV.

In the six years since NCTA changed the "T" in its acronym from television to telecommunications, the convention focus has shifted towards non-video services. This year's Cable

CABLE, PAGE 10

Unlimited

sizing and repetition across all displays

Kaleido-X sets a new standard for signal flexibility among multi-room, multi-image processors. Any of its 96 inputs can be displayed, any number of times and at any size, over eight monitors without grouping restrictions. And the picture quality has to be seen to be believed.

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COVER SHOT: America's Cup challengers Luna Rossa Challenge of Italy (L) and BMW Oracle Racing of the U.S. race downwind during their semi-final Race 1 at the Louis Vuitton Cup in Valencia, Spain, May 14, 2007. Photo by Heino Kalis/Reuter

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Jennifer Brown, director at KTVU, cranks out graphics on an Avid Deko.

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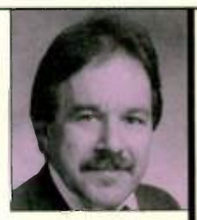
The computer hardware industry is capitalizing on new bus and drive technologies aimed at faster data transfer, improved storage, and increased reliability and efficiency. These advances drive system prices down while simultaneously expanding the reaches... p. 32

Dave Moulton
Inside Audio

For the past six months, I've been carping about problems encountered by the end-user viewers of broadcast television. I'd like to set that curmudgeonly effort aside for a bit and consider some other issues that have been on my mind. One of these has to do with... p. 34

Randy Hoffner
Technology Corner



We continue to see rapid changes in the way television may be delivered to viewers, and some of the research on what interests viewers in this respect is revealing—even surprising. A recent e-mail survey study reports that a large number of respondents... p. 42

FROM THE EDITOR

Who's in Charge?

Several months ago, **TV Technology** ran a series of articles detailing broadcasters' readiness for the Feb. 18, 2009 DTV deadline. We as an industry have a lot of work to do in less than two years, but that's just one part of the equation. As we get closer to the shutoff date, it's becoming more evident that the success of this transition hinges on public education.

Late last month, lawmakers overseeing the DTV transition took the FCC to task on its handling of the issue and hinted to the commissioners that its patience was running out.

In a letter to the commission, Rep. John Dingell (D-Mich.), chairman of the House Committee on Energy and Commerce, and Rep. Ed Markey (D-Mass.), head of the Subcommittee on Telecommunications and the Internet, noted that "the present lack of leadership, direction and focus at the Federal level is jeopardizing the transition." The letter requested that Chairman Kevin Martin provide a detailed report by mid-June on how the commission plans to educate consumers about the transition.

"With less than eight months remaining before the converter box coupons become available and less than two years before the analog cutoff deadline, we are troubled that the vast majority of the public is still unaware that their analog television sets are in jeopardy of going dark, yet the Commission appears to be counting on others to lead consumer education efforts," the letter stated.

While applauding the work of the NAB, CEA and other trade groups on their educational campaigns, the congressmen urged the commission to use its "regulatory authority" to require broadcasters to air public service announcements about the transition, among other things.

Confusion over who should lead consumer education efforts is also a concern. Chairman Martin told Congress recently that he believed the NTIA—which is managing the converter box coupon program—was supposed to take the lead, but committee leaders think the FCC should be in charge. When Congress budgeted $1.5 million to educate consumers about this transition, many agreed that this was clearly inadequate. With the ensuing confusion over who should lead such efforts and the NTIA's delays in providing details of the converter box program, the issues of hammering out such details as well as possibly increasing the education budget are critical.

Has it come to the point where we need a "Transition Czar?" No, according to Congress, we already have one, and his name is Kevin Martin.

Erratum

In the news story "HD News from the Ground Up," in the May 2, 2007 issue of **TV Technology**, KYW was misidentified as an ABC affiliate. The Philadelphia station is a CBS O&O. TV Technology regrets the error.

Tom Butts
Editor
tbutts@imaspub.com

LETTERS

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

Real World Static

Dear Editor:

In response to Guy Serumgard's defense of digital television, ("Another View on HDTV," Letters, March 7), to inject a little real-world static into his solutions:

Professional Installation: It would be wonderful if all that people needed to get HD working correctly was professional installation. But in my experience as well as according to nationwide reports, a great many professional installations are done wrong. Consistently, we see the HD cable box connected to the HDTV with a Channel 3 RF cable, a composite video cable, or S-Video. None of these connections can pass more than a 480i standard-def signal. In other cases, the correct cable is used, but the cable box is set to 480i, again resulting in a high-quality but standard-definition picture on the new TV.

I've seen installations like these by both cable companies and TV dealers, including high-end stores that sell nothing but HDTVs. I imagine that these installers spend all day, every day, installing HDTVs wrong.

Antennas: I've found an amazing resistance among my customers and friends to using an antenna to get HDTV, even with the promise of more HD channels. But let's say at some point in the future, indoor UHF antennas become popular, like pet rocks.

There's a problem for the average person trying to align such an antenna. Before an HDTV tuner (or TV with built-in tuner) can receive digital channels, it does a "channel scan." But, the channel scan won't work if the antenna isn't pointed correctly. But, how are you going to point the antenna, if the TV won't receive any channels? You can't add digital channels "manually" by channel number like you could with analog channels—the tuner *has to* scan them in.

Today, experienced installers know you can go to an analog UHF channel to align the antenna before starting the channel scan.

After February 2009, this won't be an option.

This "chicken and egg" problem is greatly complicated in cities where all the HDTV towers aren't in the same place. Yes, you can use a rotor, but how will you get your TV to scan the channels if it can't see them all at once? Multiple antennas, not a rotor, might work but you're just inviting multipath unless you use switches, not combiners, to a select the right antenna for each channel.

But it doesn't really matter, because despite Serumgard's mention that broadcasters have spent "billions" to give us digital broadcast

TV, virtually no one cares to watch TV that way!

Gary Davis
Culver City, Calif.

TV TECHNOLOGY

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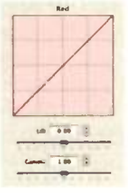

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The Drawn Together image is courtesy of Comedy Partners.
The Aviator image is courtesy of Miramax, Warner Bros. and theBasement.

Learn more today at www.blackmagic-design.com

Stations Flex New-Media Muscle

Ventures expand ad reach and revenues

by John Merli

FALLS CHURCH, VA.

As TV networks strive to be the first to deliver their once-closely held content to as many platforms as possible, local broadcasters are rapidly carving out creative new audience niches for advertisers in their respective markets. The idea is to grow those niches into lucrative, mass-appeal revenue streams.

Suddenly, all types of advertisers are being asked to consider a widening array of electronic media opportunities beyond the traditional 30-second TV spots—including increasingly sophisticated Web sites, broadband video, cell phones and other mobile units, and broadcaster-generated mobile TV. A few well-branded local broadcasters who rolled out ambitious Web sites a few years ago are now beginning to penetrate entirely new audiences, even though most new users aren't the least bit aware of the stations' involvement.

DIG IT

A new Web site geared to young, active, gadget-savvy Philadelphians, "digphilly.com," was designed as a hyperlocal portal that works as a social networking, directory, local search and learning resource. The two partners behind the sleek, very different-looking online site are the Greater Philadelphia Cultural Alliance and a party not mentioned at all—NBC-Universal O&O WCAU-TV.

Drew Salamone, dig.philly's manager of interactive promotions and new media, said the complete absence of cross-branding between WCAU's own extensive Web site (NBC10.com) and the new "dig" is quite intentional.

"Digphilly.com caters to an entirely different audience and it's one that traditionally does not align itself with large corporations or media companies because of the free-form social networking tools that are at the heart of the site," he said.

Salamone said the company is always thinking about different ways to do business in a way that can be monetized. "Digphilly.com allows for advertising 'integration' as opposed to advertising 'presentation.' The verticals available on 'dig' present new opportunities for us to support a wide selection of advertisers. It's something we intend to massage, enhance and promote over the next year to ensure our advertisers can effectively integrate their message into our brand."

Jack Poor, vice president of marketing at the Television Bureau of Advertising, said while simplistic and staid ad placements on fledging Web sites a few years ago usually were nothing more than add-on bonuses given to loyal advertisers of the TV channels, the paucity of that revenue stream is changing.

"Upselling current broadcast advertisers was the easiest thing to do early on," Poor said. "They're now starting to focus on non-broadcast ads. While once they were basically all banner ads, now they're getting into a lot of video with [broadband]."

WRAL's News Over Wireless is available on Sprint, AT&T and Verizon.

Poor said what's also proving attractive to local nonbroadcast advertisers are online mechanisms for directories and local search engines.

"There are [database] providers coming into a market offering search platforms for local stations, driven off things like the Yellow Pages or some other database," he said. "The local station doesn't have to build the database, but it can be billed as the broadcaster's own search product. And some members have made deals with 'out of home' video providers of electronic billboards, GPS signage and other outdoor placements, although that's still a small piece of pie right now."

NEWS OVER WIRELESS

Some new local ventures, it seems, can't help but grow into other markets. WRAL-TV in Raleigh, N.C., which has several digital firsts to its credit (including transmission of the first FCC-sanctioned experimental DTV signal in 1996), was the launch station in a mobile TV experiment that has mushroomed into several dozen markets.

News Over Wireless, a cell phone/PDA service, is the brainchild of the CBC New Media Group, which is owned by Capitol Broadcasting Co., owner of five TV and two radio outlets as well as the North Carolina News Network.

Research analyst In-Stat projected almost a year ago that U.S. mobile TV subscription revenue of all kinds would reach at least $2 billion by 2010. CBC's mobile TV service began modestly in Raleigh in late 2004, primarily using WRAL's content, and grew to three stations in three markets within a year. By late 2006, it boasted 34 markets, and by this spring, the News Over Wireless brand had grown to 42 broadcasters in as many markets, with a dozen more stations in the process of being integrated. In all, 13 station groups are affected.

NBC O&O WCAU partners with the Greater Philadelphia Cultural Alliance for digphilly.com

CBC New Media Group is focused on three priorities—Internet, wireless and DTV, according to Sam Matheny, general manager of News Over Wireless.

"We wrote the first local TV news application for local cell phones when WRAL joined up with its first carrier, Sprint," he said. "We wrote the application in Java as its programming language, which subscribers download to their phones directly from the carrier."

Along with Sprint, the mobile TV service subsequently inked deals with Verizon and AT&T. Its markets represent all sizes from New York City to Green Bay, Wis. Typical carrier-imposed fees for News Over Wireless run about $3 to $5 monthly. Each station in a market chooses which of its content to emphasize—such as school closings and weather in Indianapolis, Broncos football in Denver, and local politics in Chicago.

"We work with stations and carriers to help generate subscribers, and that's where our revenue comes from now," Matheny said. Adding paid ads to the mix will come eventually, he said, "But for us it was important from Day One—and we think this is true for all local broadcasters—to establish the current 'revenue-sharing model' with carriers and stations. First and foremost, it's important to have multiple revenue streams, but towards that end, subscriber-based revenue-sharing comes first, and then we'll layer on some advertising components later."

As for the pending mobile TV standard for broadcasters currently under consideration by the Advanced Television System Committee, Matheny said the CBC New Media Group's venture will be "very complementary."

THE RIGHT TIME

According to Dr. Kenneth Wilbur, marketing professor in the Marshall School of Business at the University of Southern California, local stations should be considering three objectives to stimulate new ad opportunities: 1) Leverage a share of its respective network's advertising revenues from online program delivery; 2) Develop local, cost-effective programming and integrate local sponsors into programs when possible; 3) Partner up to acquire online technology to exploit all available economies of scale.

"I think consumers migrate to good content, and advertisers migrate to wherever consumers are," Wilbur said. "Consumer empowerment has been increasing over several decades with the VCR, remote control, DVR, and now Internet video. Effective advertising delivery in a consumer-controlled world means understanding what commercials are likely to be effective, and then collaborative work between broadcasters and advertisers to deliver the right ad to the right audience at the right time." ■

"Digphilly.com allows for advertising 'integration' as opposed to advertising 'presentation.'"

—Drew Salamone, digphilly.com

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Cable-Tec Focuses on Policy-Tech Mix

Highlights to include CableCards, SDV, best practices

by Gary Arlen

ORLANDO, FLA.

Despite his usual mantra of "all engineering, all the time," John Clark, president of the Society of Cable & Telecommunications Engineers, is ecstatic about the keynote CEO session at the annual SCTE Cable-Tec Expo, June 19-22 here.

The opening hour will feature Cox Communications CEO Pat Esser, Discovery Communications President and CEO David Zaslav and Motorola's Connected Home Solutions President Dan Moloney. Perspectives from the chief executives at a large cable operator, an aggressive programming supplier and a major hardware vendor will bring industrywide insights to the agenda, Clark said.

In addition, National Cable & Telecommunications Association President and CEO Kyle McSlarrow will keynote the program to show that "public policy and engineering are attached at the hip," Clark said. He expects McSlarrow's remarks to focus on the technology of the DTV transition and an update on CableCards. The latter issue is especially timely with the deadline for the ban on set-top box integration coming less than a fortnight after the SCTE conclave.

PRACTICAL LESSONS

Clark and his SCTE team said covering public policy and programming in the opening session was essential given the explosion of new services that cable engineers handle. Clark cited "cutting edge" programming, including mobile video, that Discovery Networks is adding to its line-up.

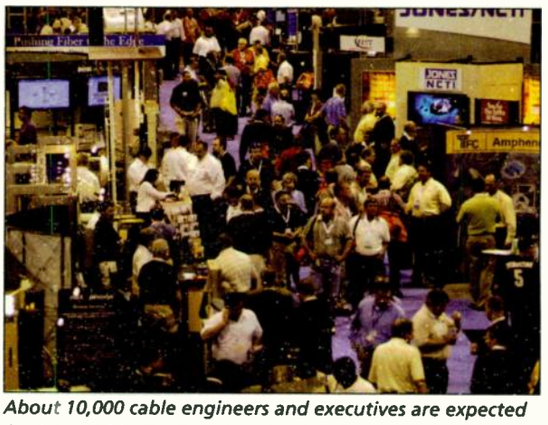
"Content providers are overlooked" by engineers, Clark said.

After the industry overviews, Cable-Tec Expo returns to its primary focus—installing, operating and maintaining cable facilities. Of the 10,000 people expected at Orlando's Orange County Convention Center (about the same number as in recent years), nearly two-thirds attend workshops on specific technology and skills, said Debra Swann, SCTE vice president of marketing and business development. More than 20 workshops are on the agenda, with topics ranging from switched digital broadcasting and triple play to mobility and traffic engineering.

"One of the good things about Expo is its blending of the old and the new," Clark said. "We'll have the best ways to deliver current services, and also a glimpse of the future so that field engineers can see what's around the corner."

Switched digital video is expected to be one of the biggest topics on Expo's agenda.

"We're starting to make the move now," said Marv Nelson, SCTE vice president of professional development, noting the product lifecycle of SDV technology. "By next year, all multiple system operators will have significant switched digital video deployments," he said, pointing to two workshops deal specifically with SDV operations.



About 10,000 cable engineers and executives are expected for SCTE Cable-Tec Expo in Orlando, Fla., June 19-22.

In deference to its Sunshine State venue, SCTE labeled this year's annual conference "Delivering Today's Brightest Engineering Solutions."

Nomi Bergman, who chairs the SCTE Expo program subcommittee, characterized the program as "packed with practical, valuable, educational, and immediately applicable lessons and opportunities."

Bergman, who is executive vice president of strategy and development for Advance/Newhouse Communications, recommended a "don't miss" roster of program sessions. Attendees can "strengthen the foundation of [their] operation by hearing best practices on network monitoring, capacity planning and traffic engineering," Bergman said.

She cited workshops on switched digital video implementations, delivering HD content and the "very strong and timely session on the looming July 2007 integration ban."

NOT IN NCTA'S SHADOW

Although the SCTE Cable-Tec Expo falls about a month after the NCTA convention (see p. 1) again this year, Clark, Bergman and their team are never phased by an overlap. Whereas the NCTA convention's topics cover programming, political and business issues (along with a hefty technology component), the SCTE event focuses almost entirely on field engineering and operations.

Hence, the big technology news of the NCTA convention—wideband delivery via the DOCSIS 3.0 cable modems—will "not get a lot of attention at Cable-Tec Expo," at least not on the workshop and training schedule, Nelson said.

"It's way too early in the cycle," Bergman said, referring to DOCSIS 3.0. "We need to talk about it, but we won't talk about how to do channel bonding."

Nelson explained that the Expo focus is on products and services that cable field engineers have to deal with right now. Moreover, he pointed out, "a lot of the stuff in 3.0 is also in previous versions" of DOCSIS.

Even HDTV is "old hat," Nelson said.

"What's new is bandwidth restraints," he said. "Right now the issues are, 'Can you take it to MPEG-4? Can you do variable bit-rate coding? What's the best solution?'

"There are definitely solutions," Nelson said. "The question is, 'Which ones work?'"

By attending the workshops and seeing the product demonstrations, he said, "you'll have the tools to make the decisions."

Of the 400 exhibitors, about 60 companies are making their first appearance at the SCTE show. Swann clustered the new exhibitors into a half-dozen categories, including software development, engineering design, network analytics/reporting, cable equipment, fiber and voice-over-Internet-Protocol. ■

Exhibits to Showcase IPTV, Insertion Technologies

ORLANDO, FLA.

Among the exhibitors bringing new products to Cable-Tec Expo are a handful of familiar vendors focused on engineering software, devices and tools. Although the Expo workshop agenda is light on DOCSIS 3.0, several vendors are offering advance peeks at the technology.

Arris will show its progress toward full DOCSIS 3.0 functionality, including a demonstration of the 160 Mbps wideband technology.

Incognito Software will unveil its Broadband Command Center provisioning software, which is intended to streamline the rollout of IPTV. Although targeting IPTV, the package can also be used for digital cable systems. It automatically activates set-top boxes based on individual subscriber needs, such as location service, speed or quality, device type, MAC address, or other criteria. It also shares information with operations support and billing systems. Broadband Command Center supports DOCSIS, PacketCable, and session initiation protocol device provisioning, so the cable operator can choose any device that fits its business model.

EGT will introduce new features for its HEMi (Headend Micro) edge video processor products, including an integrated RF Bypass switch, Intelligent QAM Protection and integration with the new Orchestra SPDr element manager. EGT has also upgraded the user interface of the HEMi, which it calls "the industry's first digital local channel insertion device."

HEMi lets cable operators roll out all-digital systems by converting highly localized analog channels required for public, education and government use or in multiple dwelling unit buildings and closed communities.

EGT will also unveil its VIPr-IPx Video Processor, a multichannel, multiformat IP video headend built on a carrier-class programmable and flexible platform. The EGT VIPr architecture uses a DSP-based processing engine and can encode up to 36 channels of MPEG-2 or 18 channels of MPEG-4, or a combination of both formats in the same chassis.

TVN Entertainment will show its VOD Complete solution, first introduced at NCTA last month and aimed at small market cable systems. The VOD package includes a content distribution platform and server plus a bundle of programming from TVN's 8,000-hour library.

Vyyo Inc. will demonstrate its UltraBand 3 GHz Spectrum Overlay platform, which can deliver 100 channels of HD or HD on demand. Vyyo calls it a "comprehensive, long-term architecture" that can handle HD as well as high-bandwidth DOCSIS 3.0 and Ethernet services for residences and businesses.

RGB Networks will demonstrate an overlay solution for the launch of ICTV Active-Video programming and advertising. The joint solution enables programmers to insert graphic elements into linear channels that will prompt viewers to switch directly to an ActiveVideo Channel or advertising showcase, without returning to the channel guide or VOD interface.

Gary Arlen

SONY

"Because the F350 has time lapse, slow shutter and over and undercranking, I got more creative options and my client got higher production value for the budget," Humeau says.

"With XDCAM HD, we shot a big show on a tight budget."

Thierry Humeau, director of photography and president of Télécam Films recently used his PDW-F350 XDCAM HD camcorders to create *Bombs, Bullets & Fraud*, a documentary on the US Postal Service Inspectors for Smithsonian Networks, a new HD TV channel from Smithsonian Institution and Showtime Networks.

"They needed a big movie that had to meet their high standards of quality on a fairly tight budget," Humeau says. "Some scenes we shot movie-style with a big crew, dollies and jibs. Some are ENG-style, following cops at night. Some are highly produced interviews. In every instance, the XDCAM HD camcorder came through."

The show's producer, Tim Baney of Baney Media is also a fan. He says, "The camcorder is very producer-friendly. You can instantly play back a scene on the LCD monitor and say okay, good, let's move on to the next take. It's a huge time saver and safety net that gave me confidence, knowing we got it in the can."

And the Smithsonian Networks' reaction? "They love it," says Baney. "In fact, they're already talking to us about another film."

To see a trailer of *Bombs, Bullets & Fraud* and find out how to receive up to $500 back on the purchase of an XDCAM HD camcorder, visit sony.com/xdcam.

Smithsonian NETWORKS

Cable

CONTINUED FROM PAGE 1

Show agenda and exhibit showed that voice and data represented growing opportunities for cable operators. From the preconvention seminars on the Open Cable Applications Platform through the frequent keynote references to triple-play victories, the 15,000 attendees heard constant reminders that cable is not simply about video anymore.

CABLE AND THE FCC

Citing the convention's theme of competition, NCTA President Kyle McSlarrow said in his welcoming remarks that competition encouraged the industry to expand phone services and "forced telcos to branch out into video service." He said that cable's 10 million voice customers far outpace the telephone companies' video subscribers.

"When the government... regulates with a light touch, consumers win," McSlarrow said.

The NCTA chief also politely responded to earlier comments by FCC Chairman Kevin Martin, who reasserted his support of á là carte programming and multichannel must-carry. Martin said he is "an avid cable customer" and reminded the industry that he has "supported efforts to refrain from regulating your broadband service."

The FCC chief then repeated his strong belief that cable companies should provide the multiple DTV signals of local broadcasters.

"If you advocate subjecting broadcast channels to consumer choice, then why shouldn't cable be similarly subject to free-market choices?" Martin asked.

He also addressed the July 1 deadline for the ban on set-top box security integration, which would push the function exclusively into CableCards. Martin said small, rural, cable systems may need extra time to handle the mandate, but he remained dismayed about the large number of blanket waiver requests to delay implementation.

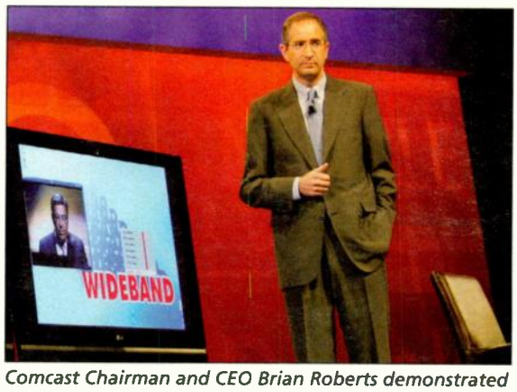
Martin offered to continue industry discussions about all of these issues. McSlarrow said that the industry appreciated the offer, but added, "It is puzzling that Chairman Martin does not take the same approach to [an] open marketplace."

DTV, VOD AND BEYOND

A few hours before the NCTA convention's officially opened, Retirement Living TV, a channel aimed at senior citizens, assembled a panel of experts to explain the "Countdown to Conversion," also the name of a show on the network.

McSlarrow, along with FCC Commissioner Deborah Taylor Tate, National Telecommunications and Information Administrator John Kneuer and Nevada Secretary of State Ross Miller were among the panelists fielding question from arouond 60 local seniors.

Several of them asked scripted questions about the federal coupon subsidy program and the need for set-top converters after analog TV goes dark. The panelists shared their oft-heard explanations about the process for the DTV conversion, assuring viewers that they were not likely to miss TV shows if they follow the transition formalities.



Comcast Chairman and CEO Brian Roberts demonstrated the advances in broadband during the State of the Industry general session.

The DTV transition popped up several other times during the NCTA convention. At a public policy luncheon, FCC Commissioner Robert McDowell said, "We'll rely on the private sector to get the word out... We'll see a crescendo around the timeframe" just before the analog cutoff date.

WIDEBAND ON THE WAY

Another type of technology evolution grabbed the convention spotlight when Comcast Chairman and CEO Brian Roberts unveiled a wideband initiative. The ultra high-speed service–up to 160 Mbps–will be used for movie and video delivery using third-generation Data Over Cable Service Interface Specification (DOCSIS 3.0) technology.

"With wideband, we're going to unleash a whole new era of video," Roberts said, as Arris Chairman and CEO Robert J. Stanzione transmitted hefty visual and multimedia files.

Using the next generation of cable modem technology, wideband could be used for broadband distribution of movies, games and other content using channel-bonding technology. For the 160 Mbps transmission, four conventional 6 MHz channels were combined to transmit about 5 GB of data in less than four minutes.

"The tough part is to find four channels to bind the pieces together," Roberts said.

Cable executives contended that the price of the upgrade to DOCSIS 3.0 will only require a "few billion dollars," compared to the $100 billion spent to upgrade to digital cable during the past decade.

They also intend wideband technology to give them a lead in the telco video assault. The wideband demonstration underscored the emphasis of on-demand services, especially video-on-demand.

As a result, several presentations and many exhibits focused on tools for on-demand delivery and channel capacity management.

For example, the fast development of switched video has a generated new generation of tools to manage its implementation. BigBand Networks Inc. unveiled a Switched Video Analysis technology for monitoring viewership. Initial applications of SVA analyzed BigBand's switched broadcast deployments, and the company said an unidentified "major cable operator" is using SVA to optimize bandwidth dedicated to switched video to increase the number of channels that can be supported simultaneously.

"With wideband, we're going to unleash a whole new era of video."
—Brian Roberts, Comcast Corp.

Home networking, a presence on the convention agenda for several years, found new life this year with an HD application. Pulse-Link Inc., a Carlsbad, Calif., maker of ultrawideband chips, introduced a whole-home HD entertainment networking system. The company's Cwave UWB chipset enables HD content be shared across existing coax backbones with wireless connectivity among all types of multimedia equipment.

At its demonstration, Pulse-Link showed multiroom connectivity of 1080p HDTV content streamed through standard coax, with IPTV functionality and interactive navigation and control options.

Another exhibitor, Digeo of Kirkland, Wash., introduced two new Moxi products designed for cable operators—a high-definition DVR and Moxi for OCAP. The HD DVR includes the Moxi Menu, which includes a graphical program guide that integrates VOD and PPV content in its search results.

MORE CONVERGENCE

Mobile video was omnipresent at the show, just as it was three weeks earlier at the NAB convention, also in Las Vegas.

Sprint, which has quietly spent the past year working with Comcast, Time Warner, Cox Communications and Advance/Newhouse on a cable-mobile alliance, demonstrated the newly christened "Pivot." Pivot allows cable subscribers to access home TV from a handheld phone device.

Motorola demonstrated the newest tools in its Follow Me TV portfolio, which enables viewers to move content around the home and onto portable devices. Motorola, based in Schaumburg, Ill., also unveiled Cable PON, a technology that delivers passive-optical network functions over existing cable infrastructures. The technology combines existing hybrid-fiber coax and PON network architectures. It's being positioned as a migration path toward fiber-to-the-premises.

Systems for dynamic advertising insertion were on display from many vendors, but executive such as Oxygen Networks president and chief operating officer, Lisa Gersh, fretted that development is not moving fast enough. Gersh said that only a handful of advertisers have developed integrated advertising strategies that assure new media and interactive ad campaigns are coordinated with conventional marketing.

The Cabletelevision Advertising Bureau held its annual spring conference in collaboration with the NCTA program for the first time this year, and unveiled results of its second "Which Screen?" study, conducted by Frank Magid Associates. CAB President Sean Cunningham summarized the results as showing most people still watch TV content on a TV.

Only 28 percent of respondents said they expect to see advertising on other devices such as mobile phones or iPods. Cunningham said 81 percent of people surveyed said the iPod was "not appropriate" for advertising, and 87 percent said the same about mobile phones.

"Television is the only medium with a valid 'advertising contract' with viewers," Cunningham said.

Many of the convention's highest-tech demonstrations were in the CableNet pavilion, coordinated by Cable Television Laboratories. For example, Quartics, a Taiwan chipmaker, quietly demonstrated its PC2TV technology, which can send multimedia content wirelessly from a PC to a TV in hi-def without buffering.

The attention to VOD and advanced services at the show offered a preview of future NCTA conventions—with an emphasis on the "T" as in both television and telecommunications. ■

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Sarnoff Library Recovers From Flood

Donations cover restoration of historic documents

by Scott Fybush

PRINCETON, N.J.

Dr. Alex Magoun was already having a pretty bad weekend when heavy rain began falling early on the morning of Sunday, April 15. The director of the David Sarnoff Library here had stopped home between conferences in Hartford and Philadelphia for the night, and he was coming down with a nasty cold.

As the rain kept coming down all day Sunday, Magoun knew some of it would be flooding the basement of the building where many of the library's records were stored. He also knew that he wasn't feeling up to the challenge of moving any of them without another night's rest. In previous floods, only a few inches of water had entered the basement, and all the material stored there was elevated on pallets or filed above the bottom drawers of the filing cabinets.

So on Monday, after a three-mile drive to the library that took an hour and a half because so many roads were closed from the flooding, Magoun wasn't expecting to see the scene that greeted him when he finally arrived at his office.

"I was more than a little stunned to see 20 inches of water in the room," he said.

DAMAGE ASSESSMENT

After getting a pair of hip waders to safely enter the flooded room, Magoun began to assess the damage.

The room that flooded was called the reports room, after the main collection stored there—the complete files of RCA's Princeton Labs from 1942-1960, which were the core of the library's holdings when RCA established the facility in 1967.

"That research covers color TV, the beginnings of transistor research, traveling wave tube development, and working on the beginnings of a consumer fax system," Magoun said.

Additional sets of irreplaceable materials had been added to the collection over the years as RCA began closing down divisions in the 1970s and '80s, including what Magoun described as the "most complete set of manuals" from the RCA Broadcast Division, spanning the history of broadcasting from 1930-1984. The flooded area also contained artifacts and research notebooks from RCA's Lancaster, Pa. color picture tube factory and reports from other RCA lab facilities in Camden, Morristown and Somerville, N.J., Burlington, Mass. and Van Nuys, Calif., including most of RCA's satellite and space research from the company's later years.

As RCA divisions closed, the library salvaged as much as it could as quickly as possible, and so many files hadn't yet been fully cataloged or archivally stored.

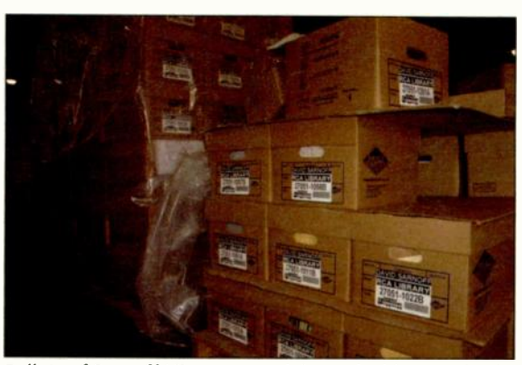
"This material was on wooden pallets, typically stacked two pallets high, with plastic sheeting underneath for the more minor levels of flooding we'd had," Magoun said.

Unfortunately, the pallets and the plastic began floating in the high water levels from the April flood, and eventually they tipped over.

"Just about everything landed in the water," Magoun said.

One of the 40-foot long vacuum chambers at Document Reprocessors Middlesex, N.Y. facility, where the Sarnoff Library materials were salvaged.

Dried and flattened, some of the Sarnoff Library materials sit in the Document Reprocessors warehouse in Rushville, N.Y.



Pallets of Sarnoff Library materials await shipment back to Princeton, N.J.

PAYING THE BILLS

He quickly contacted the New Jersey State Archives and the Special Collections division at the nearby Princeton University library for recommendations on what to do next. They referred him to several document restoration companies, and within a few hours, the library accepted a bid from Document Reprocessors of Middlesex, N.Y.

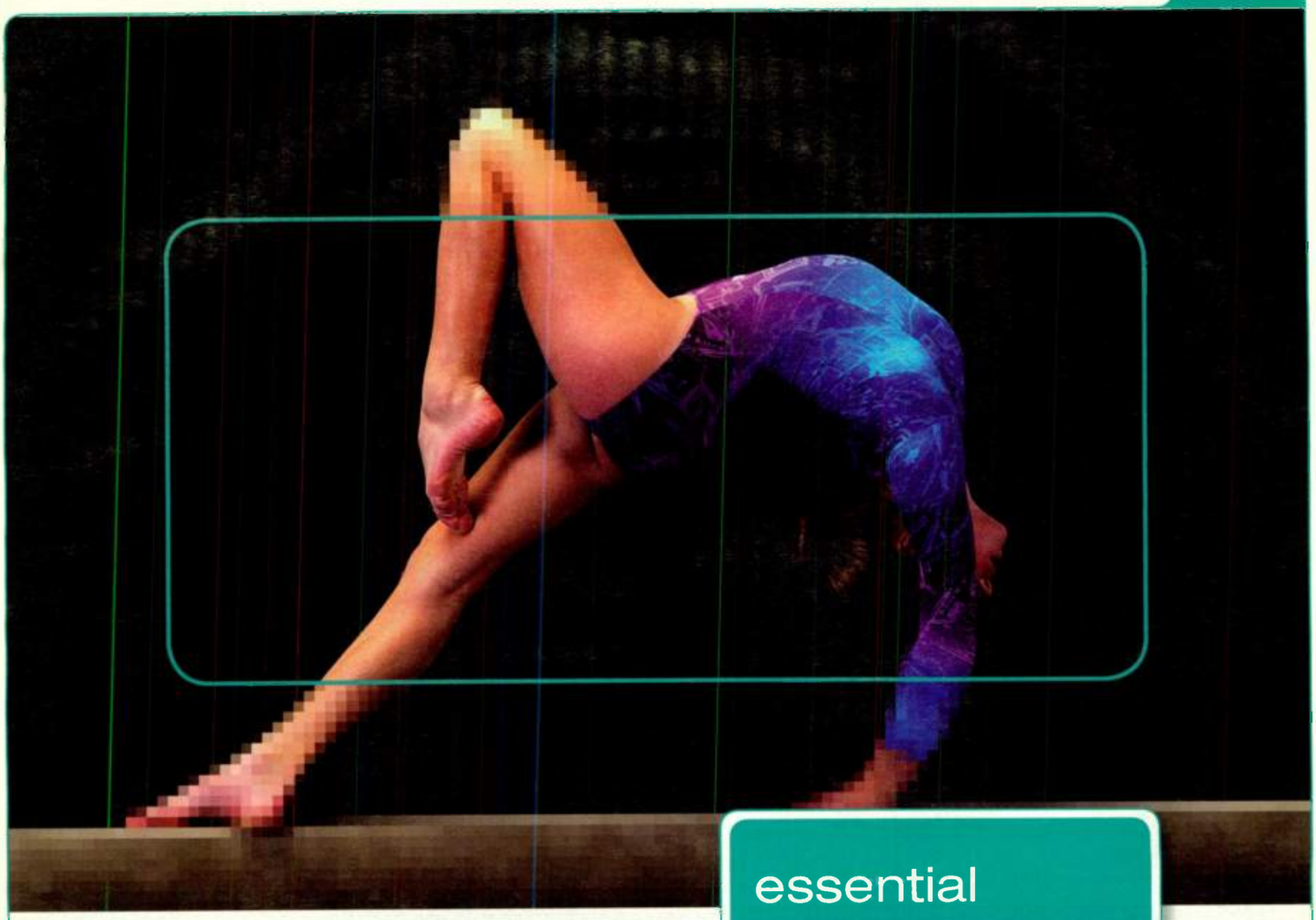
"They were much more aggressive and forthright [than other bidders] about wanting to help us," Magoun said.

But as he measured the flooded material and confirmed that the library's insurance didn't cover flooding, the initial panic over the wet material gave way to a new worry—how to pay a restoration bill that was quickly rising past the initial $25,000 estimate.

"When it became a $60,000 bill," Magoun said, "it was a little frightening for our board, because we didn't have that kind of money."

So Magoun turned to the broadcasting community, putting out an urgent e-mail appeal for funds to help save the

SARNOFF, PAGE 18



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It Really Isn't Easy Being Green

Legislatures and commissions rework the rules to power electronics

by Robin Berger

WASHINGTON

Manufacturers are scrambling to keep on top of new standards to limit the power consumption and greenhouse gas emissions of TV sets, set-top and converter boxes and other television peripherals.

Action in Washington, D.C. was codified by an April 3 Supreme Court ruling that the Environmental Protection Agency was duty-bound to regulate greenhouse gas emissions. Dovetailing the Supreme Court decision, the EPA announced it would revise its Energy Star specs for TVs, VCRs, and combination units to include an active mode test procedure to measure power consumption.

Later that same month, Sen. Jeff Bingaman (D-N.M.) introduced the Energy Efficiency Promotion Act (S.1115).

The National Telecommunications and Information Administration had already announced that converter boxes should use no more than 2 watts of electricity in sleep mode, measured according to industry standard CEA-2013-A. There was also talk of legislation for end-of-life recycling and disposal.

State governments, unconvinced that the federal regulation was green enough, took up their own causes. California has been foremost. (See "California's Green Initiatives.")

Meanwhile, manufacturers commemorated Earth Day on April 22 by eagerly displaying their own green initiatives. Sony announced it would sell an 11-inch television with an "organic electroluminescent screen" by year's end. Sharp began its "Hello Sunshine" campaign advocating the cost benefits of solar power to run a TV set and other appliances.

The Consumer Electronics Association is less than happy about S.1115—at least the version of the legislation that passed the May 2 mark-up session held by the Senate Committee on Energy & Natural Resources.

MANUFACTURERS' VIEW

"It's not something that we supported—as it's written now, it would allow for design mandates to be put on products," said Douglas Johnson, senior director of technology policy and international affairs for the CEA.

"We're going out there with our members' assistance and measuring the energy use of digital televisions that are on the market."

— Douglas Johnson, CEA

Two sections of the bill's Subtitle B—Expediting New Energy Efficiency Standards—caused particular concern. Sec. 221 called for standards that prescribe minimum efficiency or maximum energy use and include "one or more design requirements." Sec. 226 mandated specific requirements for TVs, cable or satellite set-top boxes and standalone digital video recorders regarding placement of Energy Guide labels.

"The Department of Energy several years ago decided that it didn't make sense to set energy use limits on televisions," Johnson said. As for the labeling, he said the industry "is best-positioned to develop a labeling program—unlike water heaters and refrigerators, high-tech products have multiple usage modes."

Johnson believes the best approach for addressing energy efficiency is through the EPA's Energy Star program.

"It's a much better and more comprehensive way of addressing energy as opposed to government standards and limits, which tend to constrain innovation," Johnson said. "It's flexible, market-oriented and consumer friendly."

Although the recent Supreme Court decision did not specifically order the EPA to set mandatory limits, it said the agency had not shown adequate reasons for declining to do so. The EPA had argued that this type of regulation would conflict with its more industry-friendly approach, which favors technology investment

GREEN, PAGE 22

California's Green Initiatives

SACRAMENTO, CALIF.

Last September, the California legislature approved regulations for the standby power consumption of products that included televisions, compact audio products, DVD players and recorders, digital power adapters and external power supplies.

EU STANDARDS

According to BreAnda Northcutt, deputy secretary for communications for the California Environmental Protection Agency, implementation of the bill is in the early stages, so details on television receivers and peripherals were unavailable.

The state began its green campaign for TVs with the Electronic Waste Recycling Act of 2003, the first in the nation to meet the Restriction of Hazardous Substances conditions set by the European Union.

The legislation sets standards and collection fees for all video display devices larger than four inches.

Douglas Johnson, senior director of technology policy and international affairs for the Consumer Electronics Association, was critical of California's approach to going green.

A DIFFERENT APPROACH

"They were imposed on these products based on old data from the 1990s," he said. "They argued that they could save a lot of energy if they used these standards, which was not true."

Johnson said that California's benchmark for external power supplies was "significantly amended" and that restrictions on digital to analog converters are expected to be withdrawn.

He concluded that California's proponents are "really not ahead of the pack because nobody's following them."

Robin Berger

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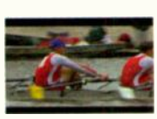

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Cup

CONTINUED FROM PAGE 1

all become more sophisticated in the last few years in terms of distribution and new opportunities that become available, from Webcasting to video-on-demand to more recent technologies, like the Slingbox."

Keith Catchpole, a veteran of four America's Cup events, agreed.

"Technology advances constantly, so there is a much broader spectrum in what we offer at the event each year," said Catchpole, head of technical operations with America's Cup TV or ACTV, the host of 11 broadcasters on site and about 25 more worldwide that receive race content via satellite. He also worked on previous races, once from San Diego and twice from Auckland, New Zealand.

RF ISSUES

Given his background, organizers thought Catchpole would be able to help correct a number of major technical issues that came up during the event last year. A particular concern involved RF interference between the broadcasters and boats/syndicates, as well as microwave transmission problems. To make corrections, a series of tests were arranged last September to squelch the problem.

"We set up a series of RF tests to check the transmission of microwave signals from the yachts to the International Broadcast Center and with the syndicates to make sure that there was no problem with their navigational equipment," Catchpole said.

Animation Research Labs, which provides Virtual Eye Gliding Software 3D graphics for the broadcast, was brought into the mix because it employs technology that receives GPS signals used to locate the yachts for the technicians at the IBC.

All of those technologies work in close proximity "and if we don't get everything working together, it creates problems," Catchpole said. "But solving the problems from 2006 got us in good position to present this year's broadcast."

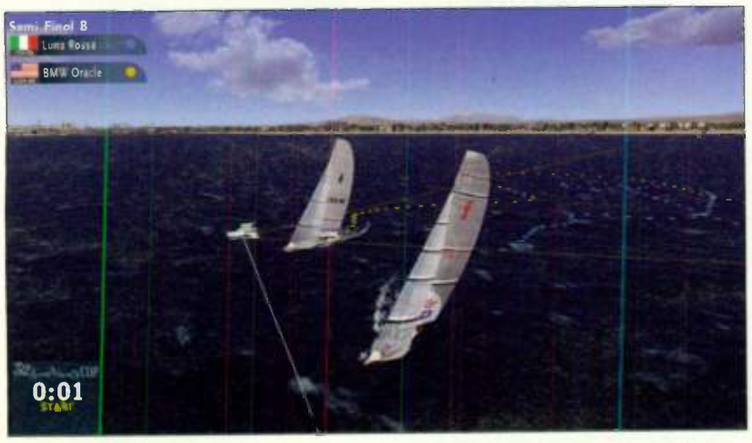
Ehrlich said other issues come up when large boats block the RF frequencies. There's also a constant battle to get the crew to wear their mics.

Clockwise from right: The catamaran 2 Royale with a Gyron stabilized-lens camera; Camera operator Hans LaCour on the ACTV vessel, Rib 2; Rib 2 with the spotter, the driver and camera operator Hans LaCour using a Sony ENG camera and a Schwem stabilized lens.

Catchpole said that even with properly functioning RF technology, things can be a bit tricky in the IBC.

"We have up to 24 microwave signals coming in to the IBC daily and keeping everything tracked has been tough at times, and we've needed our highly-skilled engineers to handle the transmissions at the central receiving site," he said, even though they might be needed elsewhere.

"The biggest challenge [RF technology] is presenting now concerns the two beauty cameras we are using to show off the lovely harbor and the Romeo race course," he said, referring to one of the two courses, the other being Juliet. "They are mounted on two buildings by the Valencia waterfront and they're cabled."



Animation Research Labs (ARL) provided GPS-enabled Virtual Eye 3D graphics, which were used to locate the yachts by the technicians at the IBC.

VARIOUS EYE VIEWS

Once those RF issues were addressed, it was time to prepare the proper camera positions, which can be challenging on a sailing event. Ehrlich said the job was a combined effort on the parts of Versus and ACTV.

"We take many feeds from cameras in helicopters equipped with Wescams across the board, and chase boats over the water," he said.

Wescam is a specialty gyro-stabilized camera developed by L-3 Communications. Ehrlich added that the boats are also equipped with telemetry-oriented cameras from Gyron that are operated via remote control from the IBC.

The boat cameras include self-wiping lenses that pan, tilt and zoom.

"We use from four to six cameras per boat," Ehrlich said, referring to the four chase vessels in each race during the semifinal rounds. Smaller boats carry two Sony cameras, one handheld and stabilized.

There are five mini-cameras—Panasonic aWEs or Sony XCs—on each of the four yachts in the race at a given time, and two microwave links on each as well.

"That's how we remotely pan, tilt and calibrate the cameras," from the IBC, Catchpole said, adding that ACTV planned to have six cameras on each boat during the finals.

The acquired images are uplinked to the IBC via microwave, then sent back to the Versus studios in Stamford, Conn., via satellite before they are compressed and sent to the cable net's various distribution avenues.

Back at the IBC at the America's Cup port, there is "a full-blown studio with three Sony DVX cameras," he said, calling them "the camera of choice" for Versus during the race.

It was Catchpole's responsibility to design the IBC and stock its three control rooms, which, in addition to the world-feed gallery, are set up for the Romeo and Juliet race areas. It include two Sony 7350 switchers; one Sony 7200 switcher; three Yamaha M7CLs and 36 JVC monitors.

The IBC also houses five Avid Adrenaline editing suites and four EVS decks. In addition, there are two, 100,000 W synchronized KVA generators.

GETTING GRAPHICS

While much of the equipment employed for the America's Cup broadcast is fairly typical, Ehrlich called ARL's Virtual Eye, "first and foremost, the most innovative equipment that was used during the broadcast.

"I've worked with many kinds of 3D graphics," he said, "but this package is really coming to the fore."

Developed by ARL in Dunedin, New Zealand, the technology allows Versus to illustrate wave height, current direction, wind direction and boat speeds, for instance.

Paul Sharp, director and senior developer for ARL, said, "Our graphics are helping to tell the part of the story that the cameras can't tell. We do that by getting the GPS telemetry back from the boats via our radio network and cellular telephone technology, which is used as backup.

"The quality provided via our Virtual Eye software means we are getting reliable data back to the IBC that is used to create graphics for the broadcast." ■

Cool Graphics Are the Hot Trend

Stations want HD graphics to make newscasts more competitive

by Claudia Kienzle

HAMILTON, N.J.

It used to be commonplace to create on-air graphics in 4:3 SD and then upconvert them to HD. Now, however, many stations are going the extra mile to ensure that their graphics have the same clarity, color and resolution as the rest of a show shot in hi-def.

"HD graphics are part of the HDTV experience, so if you're competing with other stations in the market, having native 16:9 HD graphics can make the news program much more competitive," said Jim Haman, director of broadcast operations for KTVU-2, the Fox affiliate in San Francisco, Calif.

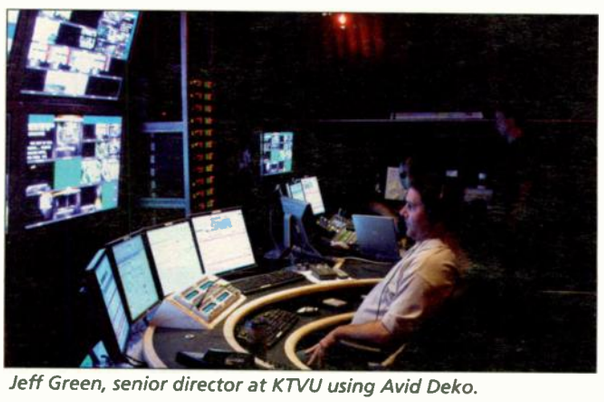
"Our 10 p.m. newscast, which has always been the hallmark for our station, follows Fox primetime shows like '24,' 'American Idol' and 'House.' So seamlessly following those shows with a newscast of comparable HD image quality and production standards is vital to keeping those viewers watching our channel," Haman said.

KTVU produces seven hours of live news each weekday, with two newscasts on weekend days.

EASY ON THE EYES

KTVU-2's news went hi-def last October, and with that move, the station replaced legacy graphics gear—two channels of Chyron Infinit, still- and clipstores—with six channels of Avid Deko 1000 HD plus a Media Object Server plug-in that ties the Deko to Avid's iNews system so when story line-ups change, the related graphics move with them automatically.

"With HD graphics systems, especially for newsrooms, we need a streamlined workflow that cuts down on repetitive tasks. Years ago, we used to create a custom graphic for each need, but now with Deko HD, our graphics artists create a library of aesthetically pleasing templates that our news producers can use to fill with text, icons or pictures, while maintaining the station's signature look," Haman said. "Also, we benefit from data-driven templates that take a data feed and automatically fill in HD graphics templates—like we did to display voter results during last November's elections coverage."



Jeff Green, senior director at KTVU using Avid Deko.

According to Teicia Joffe, product marketing manager for Avid Technology, newsrooms are looking to HD graphics to reinforce the station's signature branding.

"They also want to use 3D animation to spice up over-the-shoulder HD graphics, news tickers, templates, lower-third supers, and other visual elements," Joffe said.

The need to integrate HD graphics into an automated workflow is equally important, Joffe said.

"Workflow tools such as HD graphics templates, enable [users] to turn out more HD graphics for news stories, and repurpose them for SD video without additional effort," she said.

3D BUZZWORD

One of the biggest trends in live graphics is real-time, 3D animated

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Sarnoff

CONTINUED FROM PAGE 12

library's archives, offering the opportunity to sponsor the restoration of a single report for $25, a carton of documents for $100, or a cabinet full of documents for $1,000.

While Document Reprocessors was loading the soggy reports into a freezer truck for the trip to its upstate New York facility, where a patented vacuum process sublimates the frozen moisture directly to gas, producing dried, flattened papers, donations began pouring in from industry associations, fellow historians, former RCA employees and even from members of the Sarnoff family.

Magoun credits Tom Peterson of the Antique Wireless Association with getting the ball rolling with an early $5,000 donation, followed by an IEEE contribution of over $11,000 and more than a dozen $1,000 donations, including contributions from NBC and from the Antique Radio Club of Illinois.

He also credits Document Reprocessors for significantly cutting its usual rates to help the library. Because the library is a nonprofit institution, the company gave it a 50 percent discount from a bill that eventually approached $120,000, plus a further discount to $50,000 if the library was able to pay immediately upon delivery of the restored material.

With a $5,000 gift from the Olsen Foundation, Magoun was able to meet the goal, and the material was returned to Princeton on May 16.

"This is the patrimony of RCA to the 20th century," Magoun said of the collection, nearly all of which was salvaged and remains usable to researchers.

Now that it's back home and dry, he's determined to make sure it's never again threatened by rising waters.

"You don't want the stuff back on pallets, and you don't want it in filing cabinets," he said.

Sarnoff Corp., which owns the former RCA complex where the library is located, agreed to provide a new storage area above ground for the material, which the library hopes to house in archival boxes properly filed on compact shelving.

That means more fund-raising, and the library's board has agreed to keep its campaign going to make sure enough money is available to do the job right.

The result, Magoun hopes, will be an archive that's much more accessible to researchers.

"Who knew," he said, "that such a historic disaster could point to such a promising future?"

Donations to the David Sarnoff Library can be made at its Web site, www.davidsarnoff.org, or to the David Sarnoff Library, 201 Washington Rd., CN 5300, Princeton, NJ 08543-5300. ■

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Graphics

CONTINUED FROM PAGE 18

effects. Many top graphics systems have this capability. But Pete Challinger, CEO of Pixel Power in Burbank, Calif., said there are key things to consider before buying this technology.

"When stations see demos of high-end graphics systems that offer real-time, whiz-bang 3D effects, naturally, they want to recreate those looks and effects for their on-air product," he said. "But they may not realize that achieving those looks could involve a considerable investment of capital. If that high-end system is not stable or reliable enough for live broadcast, stations will need to buy another expensive unit for backup. They may also need to hire a 3D CG artist or IT specialist, at additional cost."

Harris Inscriber G3

Pixel Power addressed these issues with its new CG-3D, a field-upgradeable option to the Clarity SD/HD switchable graphics generator that requires no 3D experience to operate. While 3D models can be imported from third-party 3D animation systems, CG-3D integrates 3D elements, layering, animation, text, and lighting into a single system capable of creating realtime graphics in time-sensitive, demanding broadcast environments.

"Stations should not forget that they still need to have a range of 2D 'bread-and-butter' tools, such as traditional text generation, DVEs and clips, within the 3D graphics system in order to get the job done. The graphics need to be visually appealing, but they still need to convey important information to viewers," Challinger said.

As stations begin promoting HD newscasts, Challinger expects increased sales of native HD graphics systems.

WLS-DT, the ABC affiliate in Chicago and KYW-DT, the CBS affiliate in Philadelphia are Clarity 5000 customers promoting local HD news.

Orad of Jersey City, N.J., also offers 3D graphics capabilities in its Maestro HD/SD switchable graphics solution, as well as its 3Designer authoring software for real-time 2D/3D text, graphics, and animation.

"What we've found relative to the conversion to HD is that true 3D applications are critical. 2D or 2-1/2 D can be easily exposed. This is why we offer true 3D solutions," said Shaun Dail, Orad vice president of sales and marketing.

"Another key issue is that with live broadcast, a complex workflow limits flexibility and makes on-air changes risky. This limits the amount of creativity that can be employed and slows reaction times to breaking events," Dail said. "In the fiercely competitive world of broadcast news, creativity and quick reaction times are often the differentiators that allow a broadcaster the critical edge."

AUTOMATED WORKFLOW

Melville, N.Y.-based Chyron leverages the Adobe Extensible Metadata Platform in its interFuse product to manage media data more efficiently.

Chyron HD/SD graphics systems include Hyper X2 and LEX2, as well as Lyric Pro 7. Chyron interFuse integrates them into a flexible, scalable system controlled by a single GUI. Chyron products also support MOS to tie graphics systems to newsroom and production systems.

"While we're providing high-end graphics capability, we believe it's equally important to provide an overall workflow that facilitates the flow of graphics from many sources, including cell phone cameras, digital media archives, database-driven graphics templates, and the graphics-creation tools we offer," said Aldo Campisi, Chyron Lyric product manager. "The automated features and protocol support we've built into our product line enable fewer people to produce more graphics with higher production standards and accuracy."

Jim Martinolich, Chyron vice president of mobile products said the company's workflow model "encompasses generating multiple channels of graphics for lower-third supers, over-the-shoulder graphics, and even graphics feeding plasma monitors on set for HDTV and on DTV newscasts. It also encompasses automating the repurposing of those graphics to meet the requirements of new media outlets, such as the Internet and mobile phones."

JOURNALISTS AS ARTISTS

Bergen, Norway-based Vizrt offers real-time HD/SD graphics products, including Viz|Artist 3.0 design software; Viz|Trio CG; and Viz|Content Pilot content-management software. Also, with Viz|World, journalists can incorporate custom, 3D world maps into live graphics instantly.

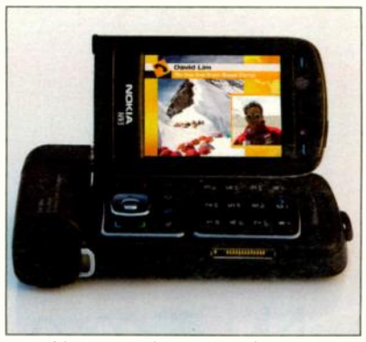
"Vizrt has a lightweight plug-in that works with any newsroom computer system that allows any journalist to build and preview HD graphics—from lower thirds, full screens, 3D animations, maps, over-the-shoulders, weather, tickers, and interstitial elements—quickly from their PCs," said Tom Shelburne, director of special projects for Vizrt. "It's also possible to build very complex HD graphics that include animations with multiple cameras, lighting, and true 3D objects, with absolutely no rendering."

Shelburne said HD graphics created with Vizrt tools can be dropped directly into timelines on nonlinear editing systems.

"Newsrooms really see efficiencies as a result of our MOS workflow. We have streamlined the graphics creation process to make it easy to navigate and save graphics," he said. "For example, if the morning producer wants to use a graphic that was used on a previous show, that content can be quickly and automatically repurposed with a new graphical look for the morning show."

The Inscriber G-Series HD/SD switchable graphics product line from the Harris Broadcast Communications Division in Waterloo, Ontario, Canada, also lets journalists create graphics in a MOS-supported workflow.

"The station generates a set of generic templates for each program, including lower thirds, live locators and other elements," said Curtis Mutter, Harris G-Series technical product consultant. "These templates are then available to journalists and producers who may fill in the fields specified by the template designers, and modify that content without ever affecting the template's overall design.



A Nokia N93 with graphics from Vizrt

"Once finished, the graphics can be added to the related story, and a list of the graphics in the rundown is then sent to the Inscriber rundown manager, which allows them to be sent to air."

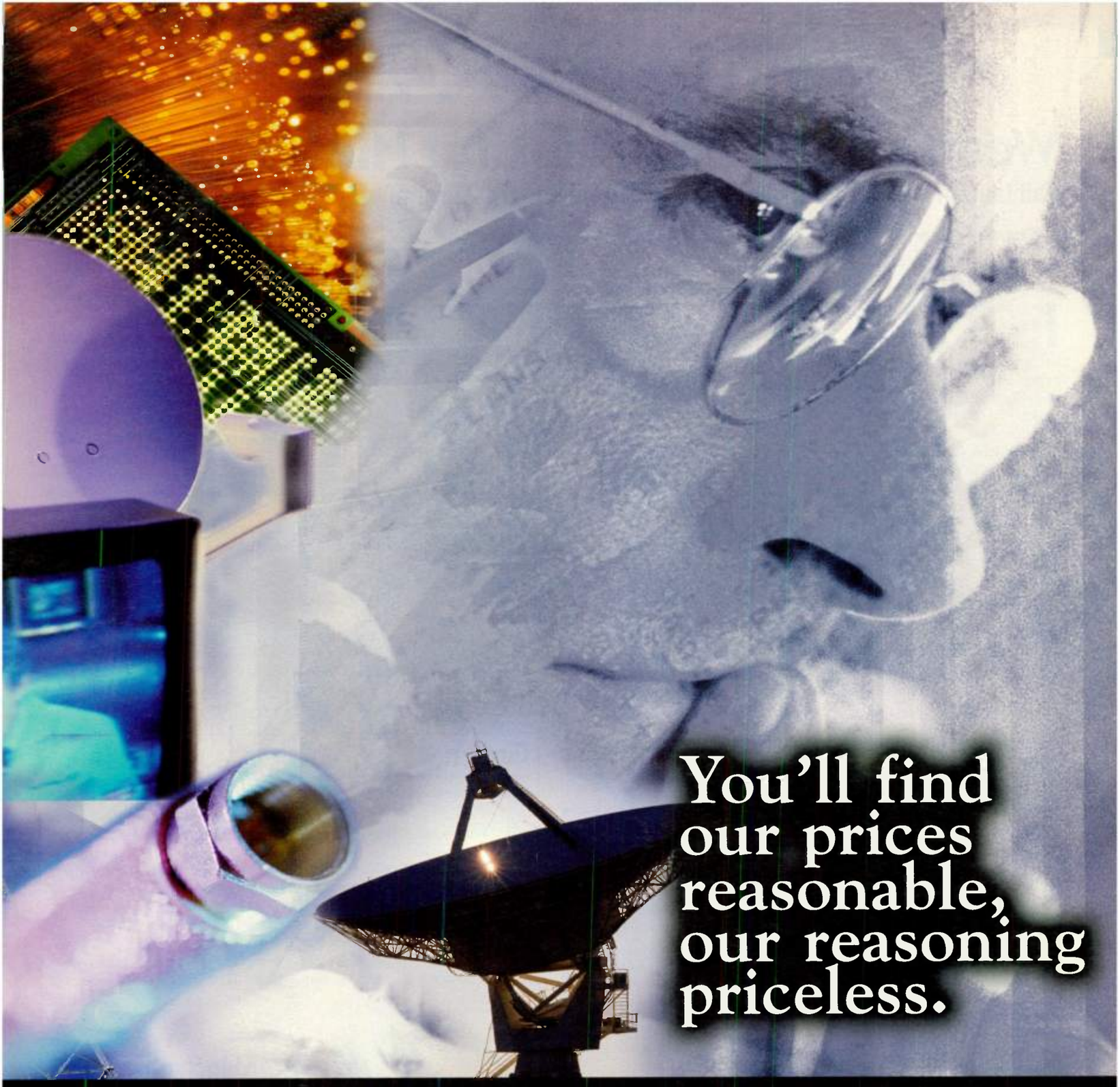
The Inscriber G-Series performs real-time data output from sources such as open database connectivity files, RSS feeds, and some third-party applications—to update live graphics dynamically and automatically.

AUTOMATING LIVE DATA

The Xmedia Suite from Miranda also offers tools for automating the acquisition of live data. Standard news feeds and other real-time information sources can be automatically linked to graphics templates. Live information is accessed once, then mapped to appropriate templates and sent to multiple delivery channels.

The Xmedia Suite integrates with the Miranda Vertigo XG HD/SD graphics engine and third-party graphics devices. Xmedia Suite can also be embedded in newsroom computer systems, such as Avid iNews and AP ENPS. An advanced MOS interface provides dynamic updates without operator intervention.

"With the Xmedia Suite, you can use these workflow tools to create rich, dynamic graphics for both live production and channel branding. Television-ready graphics can be created directly from a user's desktop, dropped into user-defined templates, linked to data sources, and quickly inserted into playlists," said Eugene Plawutsky, product manager for Miranda in Montreal. "The result is improved consistency, less duplication of effort, and faster time to air without compromising creativity." ■



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Weather Channel Plans for HD Rollout

Fall launch will commence with hi-def, long-form programming

by Claudia Kienzle

ATLANTA

In September, The Weather Channel will officially launch its new HDTV channel beginning with three original series shot and presented in native 1080i HD: "Weather Ventures," (working title), "When Weather Makes History," and "Epic Conditions."

"With HD's superior image quality, these programs are able to vividly capture the awesome power of nature's forces and breathtaking scenery from around the world," said Kaye Zusmann, vice president of program strategy and development, and executive producer of the three series.

Rather than going full throttle and taking the channel fully HDTV on a 24/7 basis, The Weather Channel is going to phase in HD over the nine months following its September launch—program by program and daypart by daypart.

In preparation for the transition, The Weather Channel recently broke ground on the construction of a new 12,500-square-foot facility, which will house its new 5,000-square-foot live HD studio. This new building, which adjoins the current facility, will include a new set from which the channel's anchors will report weather news.

At the 25th anniversary festivities for The Weather Channel May 2, a model of the planned HD studio was unveiled by (L to R) John O. "Dubby" Wynne, board member of TWC parent company Landmark Communication; Landmark President and Chief Operating Officer Decker Anstrom; TWC President Debora Wilson; Bill Bresnan, chairman and CEO of Bresnan Communications; and Robert Miron, chairman and CEO of Advance/Newhouse Communications, who first carried TWC 25 years ago.

In designing the new facility, The Weather Channel will follow guidelines created by the Leadership in Energy and Environmental Design Green Building Rating System so it qualifies as a LEED-certified building.

According to a TWC spokesperson, "This measure is consistent with the position taken by The Weather Channel in the last few years to focus attention on climate and ecological matters of relevance in today's world. Constructing the new facility so that it is environmental-friendly and energy-efficient is in keeping with the network's commitment to raise awareness of the science-based consideration of factors affecting the planet."

MOTIVATED TO GO HI-DEF

The channel was in the process of evaluating HD equipment purchases at press time, according to Debora Wilson, president of The Weather Channel.

"It's too premature to make any announcements regarding our specific technical plans," she said.

Owned by Landmark Communications, the 24-hour weather cable channel celebrated its 25th anniversary at the NCTA show in early May.

Upgrading the on-air product moti-

WEATHER, PAGE 28

Green

CONTINUED FROM PAGE 14

and voluntary emissions reductions.

Johnson said flexibility was important to keep up with the rapid pace of technological development. He said the EPA's market-oriented approach focuses on "creating an incentive for the whole industry sector to move toward lower standby power levels." As for consumer-friendliness, Johnson pointed out that the Energy Star program provides a logo. He said the program yields results.

"Their latest annual report shows that the Energy Star program for our products has saved 18.8 billion kW hours of electricity and avoided emissions totaling 3.8 million metric tons of carbon," Johnson said.

MEASURING SUCCESS

In early April, the EPA announced that the industry had finalized a draft standard to measure power consumption, based on findings by the International Electrotechnical Commission located in Geneva. The EPA and consumer manufacturers are now developing a new test procedure to measure the active mode energy used by various TV sets.

"The standard that's out there right now is 30 years old and is not relevant to today's digital television," Johnson said. "We're going out there with our members' assistance and measuring the energy use of digital televisions that are on the market."

CE's data will be used to update its energy-use studies as well as Energy Star's databank. The association also intends to compile a secondary impact study.

"In addition to measuring how much energy our products use, we're doing another study now to understand how much energy our products are saving," said Johnson. "The use of television and personal computers for remote access to information and entertainment is actually saving a lot of energy in the form of fuel—reducing greenhouse emissions." ■

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'Crossing the Line' With the Big Red One

Anticipated 4K camera scheduled to ship this summer

by Carl Mrozek

LAS VEGAS

When the Red Team pronounced during NAB2006 plans to deliver an operational 4 K/2K/HD camera within a year, they were cheered by some and lambasted by others.

Skeptics insisted that the Red camera would likely cost 10 times their projected price point of less than $20,000, which was lower than any 2/3-inch CCD HD camera, and much less than any 4K or 2K camera.

Also, they didn't have the benefit of a manufacturing facility or an existing product line to build on. Moreover, their team was not stacked with top engineers and designers from leading manufacturers of high-end cameras, recorders, lenses etc.

To some their project seemed more like wishful thinking than a credible effort to revolutionize electronic cinematography. But not to Ted Schilowitz, whose title is Leader of the Rebellion at Red Digital Cinema. "Red is a project of passion, starting with the vision of Jim Jannard to create an affordable 4K digital movie camera capable of the same quality as a high-end digital SLR. Maybe we were too naïve to believe that it couldn't be done, so we just went ahead and did it," he said.

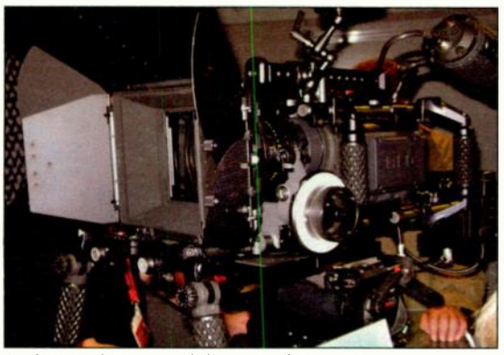
NOT JUST VAPOR

A year later, at NAB2007, the skepticism largely evaporated with the debut of "Crossing the Line," a 12-minute film shot with Red One prototypes. This short feature, the first shot with a Red Camera, was the brainchild of Director Peter Jackson, renowned for "King Kong" and the "Lord of Rings" trilogy.

"Crossing the Line" was shot in 4K using two alpha versions of Red One nicknamed "Boris" and "Natasha." The finished film was projected in 4K in the Red Theater at NAB with Sony's 4K projector and made Red Digital Cinema's exhibit one of the hottest booths at the show.

Waiting lines often encircled the 40-by-60-foot exhibit in Las Vegas Convention Center's South Hall, and only grew longer as NAB progressed and the buzz percolated.

The plot line of the film was fairly simple—a soldier's seemingly desperate but ultimately successful effort to retrieve a wallet photo of his beloved blowing across a World War I battlefield, always just out of reach, until the end. However, the cinematography is as complex, intense and impressive as in any multimillion dollar action film with plenty of aerials, crane, boom, vehicle-mounted, tripod and steadicam shots.



Red Digital Cinema delivers Red One 4K camera, on display at NAB2007.

At the NAB show, viewer reactions ranged from mild to wildly enthused and impressed. At minimum, "Crossing the Line" shifted the discussion from whether the Red Camera was technologically feasible in the near term, to how soon it would be shipping with what feature set.

For the more than 1,500 early adopters who pre-ordered a Red One camera before NAB2007, when it would be shipping, was the critical question.

Richard Bluck, director of photography on "Crossing the Line" answered key performance questions during an ad hoc Q & A session after a screening.

Bluck said both prototype cameras were kept busy 12 hours a day on two consecutive days. The cameras were mounted on everything from tanks to old biplanes and helicopters.

"The vibration aboard the chopper was so intense that it jeopardized recording to the Red Drive, so we detached it from the camera and kept it inside the chopper where vibration was less intense. We umbilicaled it to the camera and lens mounted outside. Both camera and drive worked fine that way and neither one failed us during the shoot," he said.

The Red Drives are actually very compact external SATA raids. Each 320 GB raid records two-plus hours of 4K footage. All footage was captured at 4K native using the RedCode raw codec, at 27 MBps, with 12-bit processing.

According to Bluck, the efficiency of Red Code versus 35mm film was impressive. "We utilized over 500 GB of drive capacity but still had free space left after two days of shooting, even though I often kept rolling on the action much more than with film," he said.

Operating was also fairly straightforward. "Recording raw, we didn't have to do much tweaking after setting base parameters like shutter speed. We mostly shot at 24 fps in 12-bit mode. Occasionally, I had to change lenses and set exposure, but otherwise it was point and shoot," Bluck said.

Bluck and Jackson used only film lenses.

"We used several Cooke primes and a short zoom, plus Angenieux's long Optimo zoom depending on the application. The most time-consuming thing was mounting the cameras on tripods, trucks, cranes, booms, steadicams, helicopters, etc. The biggest challenge came from vibration in the air, and at the upper telephoto range of the Optimo, which is a large lens," Bluck said. "Field monitoring was done mainly with a Marshall HD LCD monitor and with HDTV monitors via HD-SDI."

Posting was surprisingly straightforward, he said. "We treated the raw 4K Red like film negative and edited in Final Cut Pro using the native 4K RedCode raw files, while looking at a lower resolution on the editing monitors. After making all our edit decisions, we reloaded it to a Pablo and reassembled it in 4K using our EDL," he said. "We also color-corrected it in 4K on the Pablo," a Quantel product.

They could have done the entire project in Final Cut Pro in Pro Res had itbeen destined for HDTV, he said.

COMING SOON

Schilowitz said the whole project materialized at the last minute. A few weeks before NAB, Peter Jackson told him he was interested in shooting "some test footage" with the Red camera.

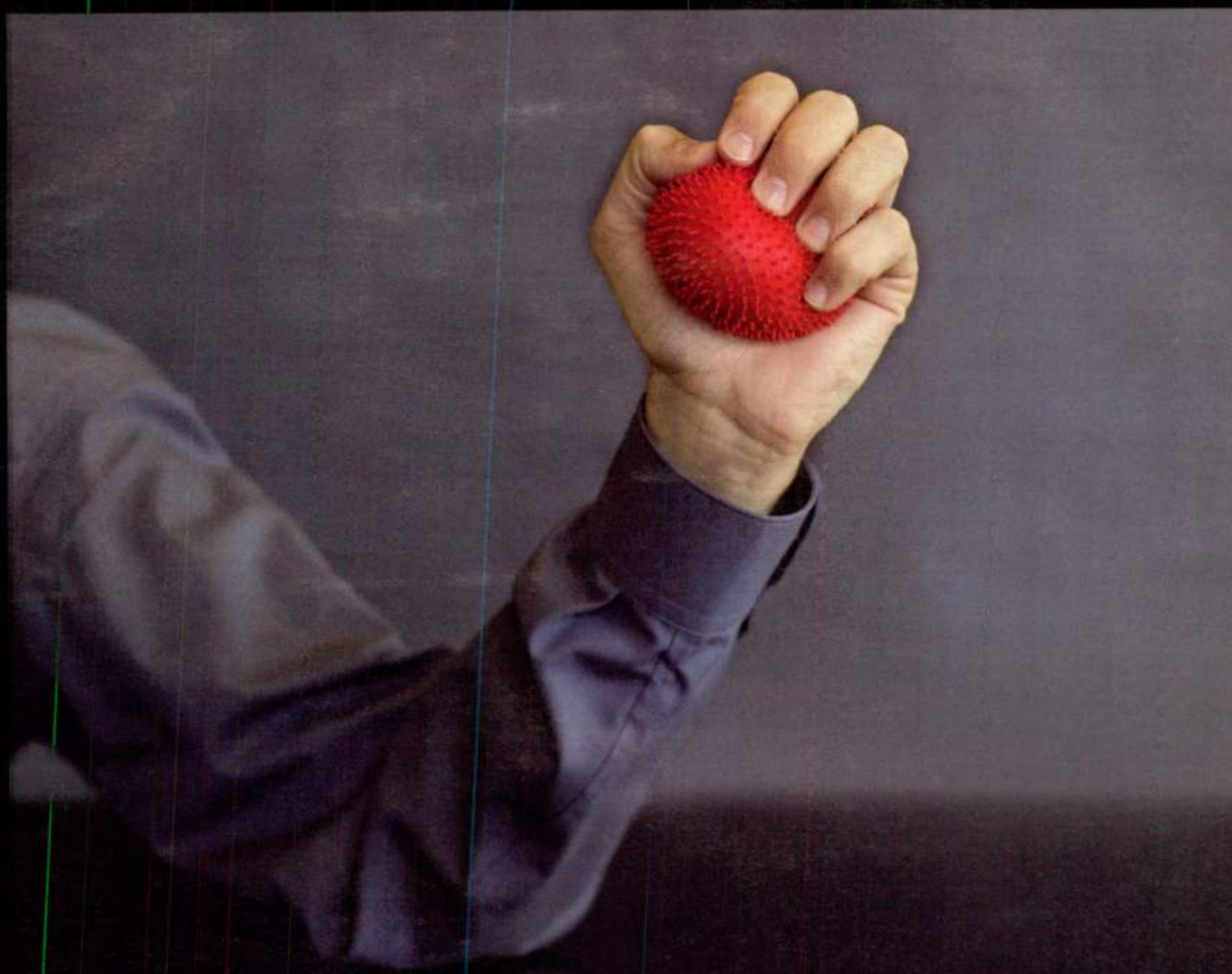
"We organized quickly and flew out to New Zealand a few days later... We had no idea that the 'test footage' would be two intense days on a large action movie set. Peter's crew was amazing, rigging everything up to shoot 4K, and we had some key Red team members there to work with them," Schilowitz said. "When they arrived, Jackson and his crew were ready to roll, with a script, actors, period costumes, makeup, a set, and an arsenal of props including old army tanks and jeeps, antique fighter planes... plus all the big support gear for a big feature film. It was quite impressive," he said.

"Both cameras performed well under pressure and captured the action as raw data. The editing also came right down to the wire. We got the final 4K cut just before NAB started, but it all worked out," Schilowitz said.

Partly due to the lessons learned in making "Crossing the Line," the target delivery date for the first batch of Red cameras has been shifted from May to mid-summer.

"We decided to make some final modifications before shipping the first batch of cameras. We are using a different development model with Red than most camera manufacturers. We work to real engineering targets rather than arbitrary shipping dates. When we reach those benchmarks, we'll start shipping," Schilowitz said. "Developing this 4K camera, and its workflow, has been an amazing rollercoaster ride. We're just getting started and it's going to be fun to see what develops when a lot of folks start shooting 4K with their Red One cameras." ■

SONY



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DIGITAL JOURNAL

Bill Hayes

BXF Revealed as Missing Link

Interface standard could marry traffic and master control

JOHNSTON, IOWA

I have been involved in automation projects since I first began working in broadcasting. My first real chief engineer position was at a beautiful music station in Santa Barbara, Calif. We ran a Shaeffer 800 automation system that used subaudible cue tones on reel-to-reel music tapes. It had a couple of carousel audio cart players and a spotter reel with a photo sensor to count the number of windows that passed on the reel to find commercials.

The logic was based on open-frame automatic electric relays and mechanical switches. The purpose of the system was to eliminate the button-pushing errors that DJs often made, and to cut down on personnel. My second real chief position was at an AM/FM combo in Palm Springs, Calif. There, we used a Shaeffer 900 (diode-transistor-logic solid state) with a similar complement of tape sources, but no spotter machine.

WITNESS THE MARVEL

The automation was on a raised platform in the main lobby where visitors could watch this marvel of technology. The receptionist was responsible for feeding the automation system during normal business hours, while the AM jock did transmitter readings for both stations.

The AM jock was responsible for both jobs at night, and it wasn't unusual to hear the piercing silence sense alarm in the background while the AM jock was on mic, or to hear a Top 40 single play to the label because the jock was out in the lobby loading tapes on the automation.

I realized that based on those implementations, you could run a station with fewer people, but I wasn't sure we were really reducing errors.

Moving forward to the 1980s. I had left radio and become the director of engineering for an NBC affiliate in Honolulu. NBC had just completed their conversion to the new Ku-band (SkyPath) satellite delivery system. Unfortunately, the Ku-band coverage is continental United States only, but because NBC had some paying customers in the Caribbean (if memory serves) they had an East Coast feed up on a C-band satellite that we could see. However, we were recording NBC programming and delaying it locally for five or six hours, depending on whether or not the mainland was on daylight savings time.

NBC also had commissioned a half-hour, time-delay system for some Mountain Time zone stations; I went to see at 30 Rock. It was a fully redundant tape-based system (MII, of course) that delayed a feed with managed recording and switching. I met with the system designer and put together a propos l for doing a five- or six-hour delay system using Beta SP.

Unfortunately, the station was sold and the new owner was not interested in investing, so the idea didn't go any further. However, in an effort to at least *appear* interested, the owner ask for alternative ideas. I put together a plan for a six-hour delay using Belden 8281 and a frame synchronizer… he didn't see the humor in it. Again, the idea here was to reduce the manpower and eliminate some errors.

BXF offers an interface standard that allows the traffic and master control folks to pick the system that meets their respective needs. As long as both systems speak BXF, they can communicate.

ONE MORE TIME

When I was working another NBC affiliate in Huntington, W.V., in the '90s, conditions came together to provide another opportunity to automate. I had proposed automation again, but this time it was computer based.

A small independent company had developed a product for The New York Times stations called MCAS. I went to see a demonstration in Memphis and was impressed not only by the automation, but by the fact that it could interface to all of our existing hardware, which made it relatively inexpensive.

In addition, we had two master control operator positions being vacated, one by an internal promotion and another by voluntary resignation. I made the case that we could do automation, get all of the benefits, no one would lose their job and payback was less than three years. It happened at last. In our environment, MCAS turned out to be a really good investment, but I had always felt that there was a missed opportunity.

PUSHING BUTTONS

In all of the previous examples, the master control automation represents a sequencer taking the place of a human, essentially pushing the buttons the human would push.

Master control automation has full knowledge of the operation, oversees the content output and logs it. In the other end of the building, a traffic department has full knowledge of all of the content, oversees when it plays and creates the output schedule.

The interface between these two systems is typically a log print file created by the traffic system and delivered to automation. The automation

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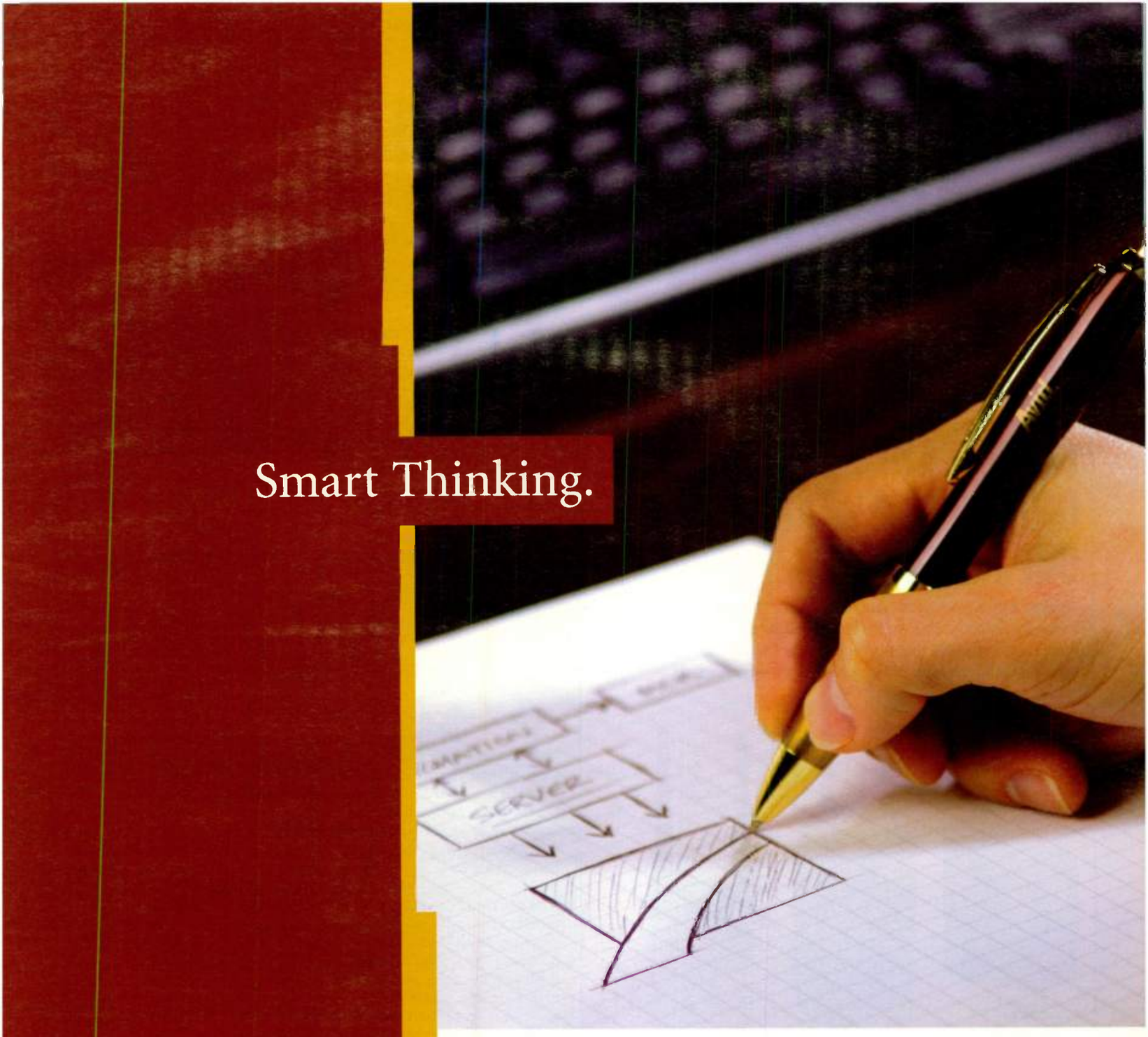

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Weather

CONTINUED FROM PAGE 22

vated the migration to HD, Wilson said. "But we also considered the growing demand for HDTV as evidenced by the sale of HDTV sets. This past Christmas, over 50 percent of all TV sets sold in the U.S. were HD-enabled, and that represented a tipping point that HDTV has now become a mass market."

Wilson noted that once viewers got HDTV, market research showed they were reluctant to do without it.

WEATHER WONDERLAND

Zusmann said TWC placed its initial orders for fall episodes for its three new HD series now in the works. They've ordered 15 episodes of "Epic Conditions" from Warren Miller Productions; 10 episodes of "Weather Ventures" from Horizon Entertainment; and 10 episodes of "When Weather Makes History" from Towers Productions.

"For my producers, [HD is] a dream from the visual sense because the detail we're able to capture is so rich, and the spectacular images of nature are so true and pure in HD that it immediately draws you into the storytelling," Zusmann said.

"Our first effort was 'Epic Conditions,' a new series shot entirely in HD but aired as a limited series in SDTV this past winter," Zusmann said. "But, from the time we shot the first pilot, we said, 'This is what HD was made for.' Also, the testing [by focus groups] was so positive that we knew we had to do more and more of this. The footage was so fantastic and a great experience for viewers."

"For all of the shows, video crews are taking HD cameras into difficult terrain and harsh weather."

—Kaye Zusmann, The Weather Channel

"Epic Conditions," will feature extreme sports adventures such as skiing in the Sierra Mountains; helisnowboarding in Alaska, kiteboarding, skydiving, kayaking, windsurfing and rock climbing. Zusmann said that while Warren Miller Productions is well known for its extreme sports shows, these shows take Warren Miller's video crews to places they haven't shot in before.

"Weather Ventures" will show viewers the power of nature as it's manifested in diverse and remote locations, such as the Catalina Islands, the Everglades, and the Dakota prairie Badlands.

"Because we are The Weather Channel," Zusmann said, "We add the dimension of exploring weather factors that shape the environment and affect the experience of people at these locations."

For example, viewers learn that colder water is more transparent for scuba divers as the HD camera scans a kelp forest where 200-foot canopies of seaweed suggest a magnificent underwater cathedral.

"When Weather Makes History" will look at how the weather has been a significant factor to many pivotal moments in history, including The Battle of the Bulge, where winter storms and freezing rain gave the Nazis an advantage over the Allied troops who suffered frostbite and casualties and were cut off from supplies until a fortuitous break in the weather enabled them to defeat the enemy.

"For all of the shows, video crews are taking HD cameras into difficult terrain and harsh weather," Zusmann said. "Conditions range from shooting in the midst of snowstorms in Colorado to shooting in the incredibly humid marshes of the Everglades, as well as shooting near glaciers in Alaska and on the edge of a volcano on the Big Island of Hawaii."

The production companies primarily are using Panasonic AJ-HPX2000 P2 solid-state HD cameras. TWC's field crews also have been using five Panasonic AJ-HPX2000 P2 cameras for HD newsgathering since the network announced they purchased them in April.

According to a TWC spokesperson, camera crews have since been using them to shoot in HD as well as SD. They wanted to have experience shooting in the field in HD; but the pictures were only aired in SD. They are also using the cameras to tape footage in native HD for future use.

"We have conducted research about viewers' reaction to programming in high definition," said James Alexander, vice president of consumer and strategic research for The Weather Channel. "Response has been very positive."

For example, Alexander said, "A focus group was held last November to gauge reaction to 'Epic Conditions' in HD. Among the viewers' comments to the footage were: 'It's like looking out a window;' 'It's dynamic and pulls you into the action;' and 'It gave me chills. Pictures tell the story.'" ■

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CONTINUED FROM PAGE 26

system creates a playlist from the log file, does a little conflict resolution, relays that to the master control operator for action and then implements the playlist.

The automation creates an as-run log, which is then sent back to traffic for reconciliation. Traffic then uses that information to invoice for billing and make to a list for things that didn't go right.

The most noticeable change in the automation-traffic interface is that the playlist is delivered via Ethernet to a shared folder rather than on a diskette. There had to a way to take these two separate entities and make them a real system.

Welcome to 2007, and a very important piece of work that is making its way through the SMPTE standardization process. It is the SMPTE Draft Standard 2021 Broadcast eXchange Format, or BXF for short.

BXF is a protocol for data exchange among otherwise incompatible broadcast systems. Often, incompatible systems are purchased within a single organization because only the needs of a particular division are considered. BXF offers an interface standard that allows the traffic and master control folks to pick the system that meets their respective needs. As long as both systems speak BXF, they can communicate.

JUST THE BEGINNING

This is just the beginning in my view. My idea for true automation involves dynamic communication, problem solving and taking advantage of opportunities in real time. Traffic and automation still require the log to be etched in stone before it can run. The only difference is that the tools can more quickly etch the stone.

This fails to utilize some of the capabilities of the technologies involved. I see the next iteration as traffic driving master control automation, with dynamic logging and conflict resolution. Why just create the as-run and then reconcile offline? Why not reconcile in real time?

The traffic system would know when a make-good could run. Traffic would tell automation to play it in the next break instead of the promo or PSA or bonus spot. Automation would do the make-good and tell traffic. I can see this level of dynamic interaction working when live events run long.

How many of us have worked with a live sports feed and the various alternative schedules for what happens in overtime. Does the network fill? Do we join-in-progress the syndicated show? All of these scenarios can be automated, and what happened, dynamically communicated.

Why not look at the process from the standpoint of how to change the way we do business so we can focus on developing our audiences rather than making the log and playlist agree.

Obviously the manufacturers are starting to take BXF seriously. I asked Chris Lennon, the BXF committee chair, for his take on where they are.

"The development of SMPTE-2021, the BXF specification, is progressing nicely," he said. "We are presently in the process of resolving comments arising from our first Final Committee Draft ballot, and are meeting in person in early June to progress this further. I was pleased to see several companies demonstrating support of BXF at NAB2007. It shows that this is a standard that is relevant, and will be implemented by vendors quite rapidly."

I have had the opportunity to sit in on a number of the BXF conference calls, and I can tell you that some very brilliant engineers are working on this. The one area I feel might be under represented is the end user; the stations. I encourage you to spend some time and effort looking at BXF and getting involved. In all likelihood it will change the way we do business.

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

Photo: Steve Jordan

NET SOUP

Frank Beacham

Flip Camera Represents A Cultural Achievement

Since childhood I've had an odd fascination with television cameras. In theory, at least, I have a good idea of how they work—yet it's still surreal to me that the red tally light means pictures made by this magic box can be seen by millions of people around the world.

As a kid, I built a "play" TV camera from cardboard boxes, using the center tubes from toilet paper rolls as lenses. In my college years, I operated the real thing—a venerable RCA TK-11, the workhorse black and white camera with turret lenses. Later, as a young adult, I'd get into my first major debt buying an RCA TK-76, one of the first portable broadcast cameras.

This spring, 40 years down the road, I have a new fascination with a TV camcorder that would have been considered science fiction when I began this journey. It's called Flip Video. And get this—it costs about $100! (The TK-76, by comparison, cost about $55,000 minus lens and batteries!)

Though its 640x480 pixel MPEG-4 video will play over your conventional television set, the Flip Video was developed with Internet video sharing in mind. Think of it as a pocket camcorder for the YouTube generation.

The first thing that drew me to this remarkable device is its daring simplicity. The design might be about the future, but—operationally—this is your grandmother's camcorder.

Meaning it's so easy to use that it requires no instructions, and it's so inexpensive that the Flip is sold in plastic blister packs at the corner drug store.

Engineers, check your prejudices at the door. In the world of Flip Video, complex features are not welcome. This is a device that geeks will rip apart with searing criticism. Yet, among real people, it's a *wow* product in the same way those throwaway 35mm film cameras were so popular a decade ago.

The Flip Video camera

Think spontaneous, impromptu, party time, the beach, or those occasions where you wish you had a video camera. With a Flip camcorder, just rip open the package and begin shooting for up to an hour, depending on the recording capacity of the model you purchase.

INSTA CAM

About the size of a standard iPod and weighing five ounces, the Flip has a 1.5-inch color display, a 2x digital zoom, and a 1/4-inch CMOS imager with VGA resolution at 30 frames per second. It runs on two AA batteries. With a decent amount of light, the image quality is surprisingly good.

The version with 30-minute record time has 512 MB of built-in flash memory ($119 list), while the one hour version has 1 GB ($149 list). There's a fold-out USB plug for quick connection to a PC or Mac and a video output that allows play back of the video on a TV set. A built-in microphone records mono sound.

Beyond its ease-of-use as a camcorder, Pure Digital Technologies, the San Francisco-based developer of Flip Video, has created a flexible, intuitive software application for both Mac and Windows that makes the "post" process equally simple.

We tried the Flip Video for Mac application. It easily downloads the video from the Flip camcorder via USB and quickly sets up a clip bin. There's a simple editing function that allows the assembly of shots. Then, the video can be distributed via e-mail, uploaded to YouTube or Grouper, incorporated into video greeting cards, or sent to an online vendor for conversion to a DVD.

For those with a bit more knowledge, Flip's generic MPEG-4 video clips can also be edited on Apple's iMovie or Final Cut Pro, where—as with more sophisticated camcorders—the possibilities are endless.

But Flip Video is not about technical sophistication. I see it as another milestone in a period of extraordinary change in media. When we look back, this is history-making stuff.

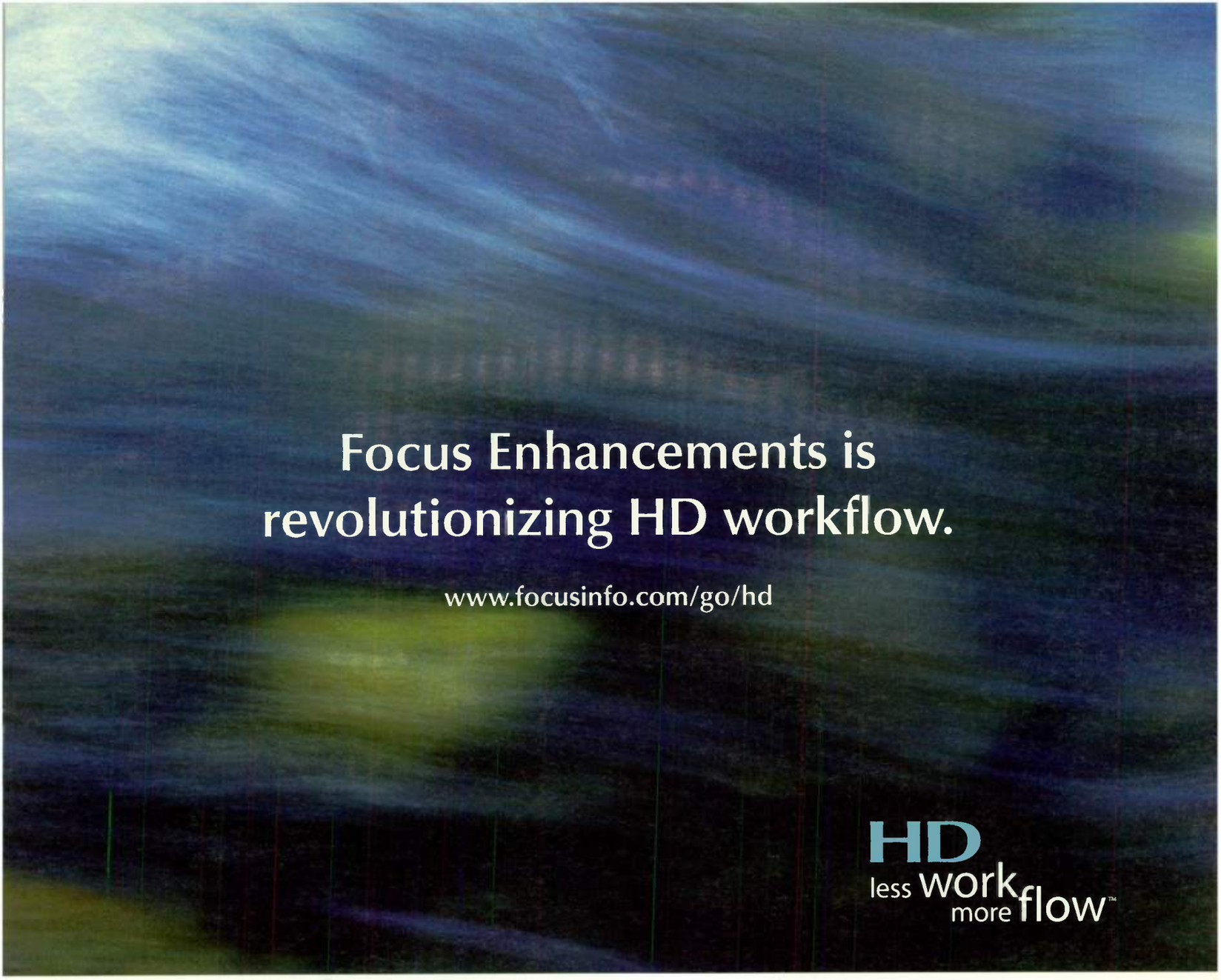
In a pinch, yes, it's good enough for broadcast TV. But that's not what the Flip is about. The real breakthrough is the democratization of media. This is video technology for the masses. A $100 ticket to YouTube, the people's TV station.

Since many of our readers are engineers, let's make one thing clear. I don't mean to imply that Flip Video is a technical breakthrough. Yes, there are the usual artifacts in the highly compressed picture, especially with quick movement. Digital zooms still degrade the image. There's no tripod mount, and it's hard to hold steady in your hands.

But that's all trivial when you stand back and look at this device as a cultural achievement. The $100 (or so) camcorder connects with a global audience via the Internet. Wow! That's an awesome leap that even David Sarnoff could have appreciated.

With Flip camcorders (*www.theflip.com*) now on the shelves at CVS, RiteAid and Duane Reade drug stores, watch what the creators do. It's time for the artists, inventors, thinkers, and experimenters to engage and, pardon the expression, "flip out."

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



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MEDIA SERVER TECHNOLOGY **Karl Paulsen**

Deciphering the Latest Storage Buzzwords

The computer hardware industry is capitalizing on new bus and drive technologies aimed at faster data transfer, improved storage, and increased reliability and efficiency. These advances drive system prices down while simultaneously expanding the reaches of media storage and utilization across industry.

The latest buzz words in bus, protocol and disk storage include: SAS (serial attached small computer systems interface, or SCSI), SATA (serial advanced technology attachment, or ATA), PATA (parallel ATA), eSATA (extended SATA) and iSCSI (Internet SCSI). This installment aims to summarize these buzz words, helping to provide a framework for understanding where these technologies fit into your application or domain.

We'll start with SAS, a computer bus technology designed for the transfer of data between storage devices, including hard drives and CD-ROMS. The thrust of SAS is to replace parallel SCSI—the mainstay legacy format for wired communications between storage device and computer buses—while maintaining the SCSI command set.

Older storage systems or those with multiple mediums that might include SCSI, SAS and even Fibre Channel, can be attached to an IP-network via iSCSI.

Besides reducing wires, serial communications dramatically improves data transfer speeds. SAS consists of four basic components: an initiator, the device that originates service and task requests; a target, the device that receives the requests; a service delivery subsystem, which carries the information between the initiator and the target; and expanders, which connect SAS end devices with the initiator port.

During the development of SAS, the deficiencies of parallel SCSI were recognized and a goal to improve performance was established. SAS uses its serial transfer protocol for interfacing between multiple devices. This improves signaling, lowers overhead and results in higher speed connectivity.

Each device is connected by a dedicated bus to the initiator in a point-to-point mode, thus bus contention is mitigated compared to SCSI, which uses a multidrop principle that shares bandwidth across all devices. SAS supports at least 16,384 devices compared to the legacy parallel-SCSI limitations of 32 (note that early SCSI only supported eight or 16 devices).

SAS transfer speeds for each initiator-target connection can be 1.5 Gbps, 3 Gbps or 6 Gbps and SAS also supports serial-ATA devices.

MORE ON ATA

The successor to ATA is serial-ATA, again a bus technology designed to facilitate the transfer of data between storage devices. The parallel legacy format was recently tagged with a "p" to indicate parallel-ATA, or PATA, so as to differentiate the two.

Communications between devices in the serial domain rely upon two pairs of unidirectional signal wires that comprise a high-speed data link. Low-voltage differential signaling (LVDS) enables much greater speeds per wire, beginning at 1.5 Gbps.

Data encoding has reduced link data communications rate to 1.2 Gbps, or

BUZZWORDS, PAGE 36

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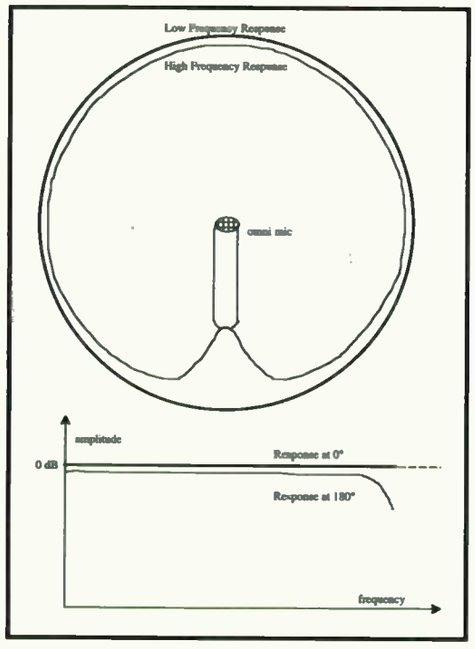
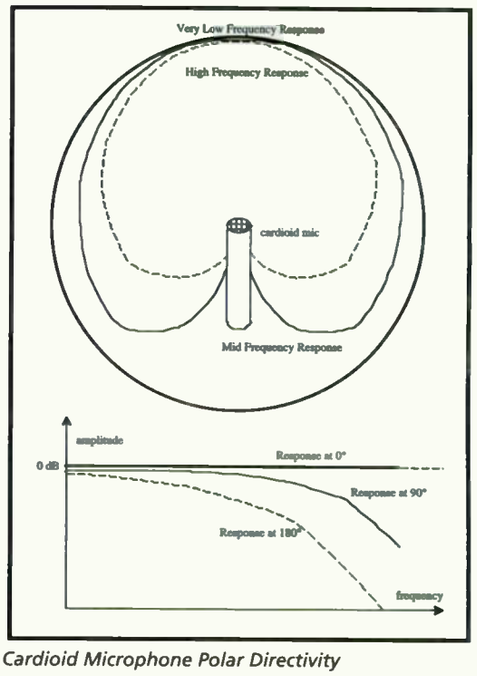
Directional Mic Behavior And Usage Examined

For the past six months, I've been carping about problems encountered by the end-user viewers of broadcast television. I'd like to set that curmudgeonly effort aside for a bit and consider some other issues that have been on my mind.

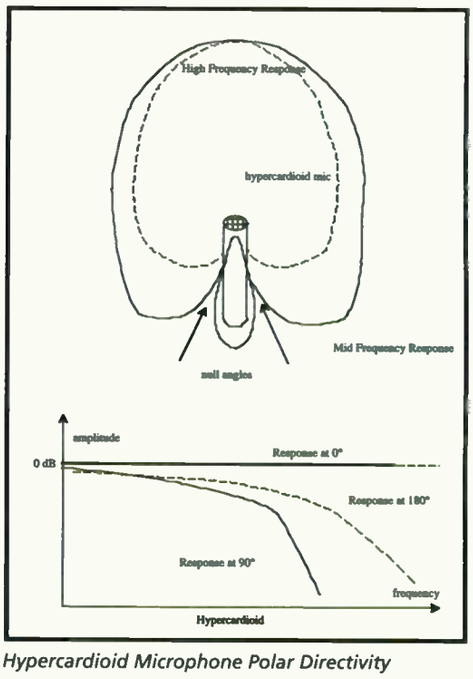
One of these has to do with the relationship between directionality and frequency response when we are considering microphones and loudspeakers. Most of my work has been with loudspeakers, but there are similar issues with microphones and it is worth considering them.



Omnidirectional Microphone Polar Directivity



Cardioid Microphone Polar Directivity



Hypercardioid Microphone Polar Directivity

I bring this up because we don't tend to think through very clearly how these devices work and consider the implications of their behavior, which often leads to confusion in our work. I see this a lot with loudspeakers, and a moderate amount with microphones.

The soundfield in which microphones work is three-dimensional. Sound artifacts (which include the array of early reflections from the sound source) arrive at the microphone from all directions. A few of the artifacts come directly from the sound source, but most of them come as that complex array of reflections from all directions and with varying amounts of delay compared to the direct sound.

Unlike our quite remarkable ears, microphones have no reasonable way to integrate all of those reflections with their direct cousins.

In a perfect world, we would usually like (a) to have our microphones detect only the direct sounds and/or (b) to have the rooms in which our microphones are used to be so large that the reflections would be comparatively soft in level and delayed enough to sound like our beloved concert hall reverb.

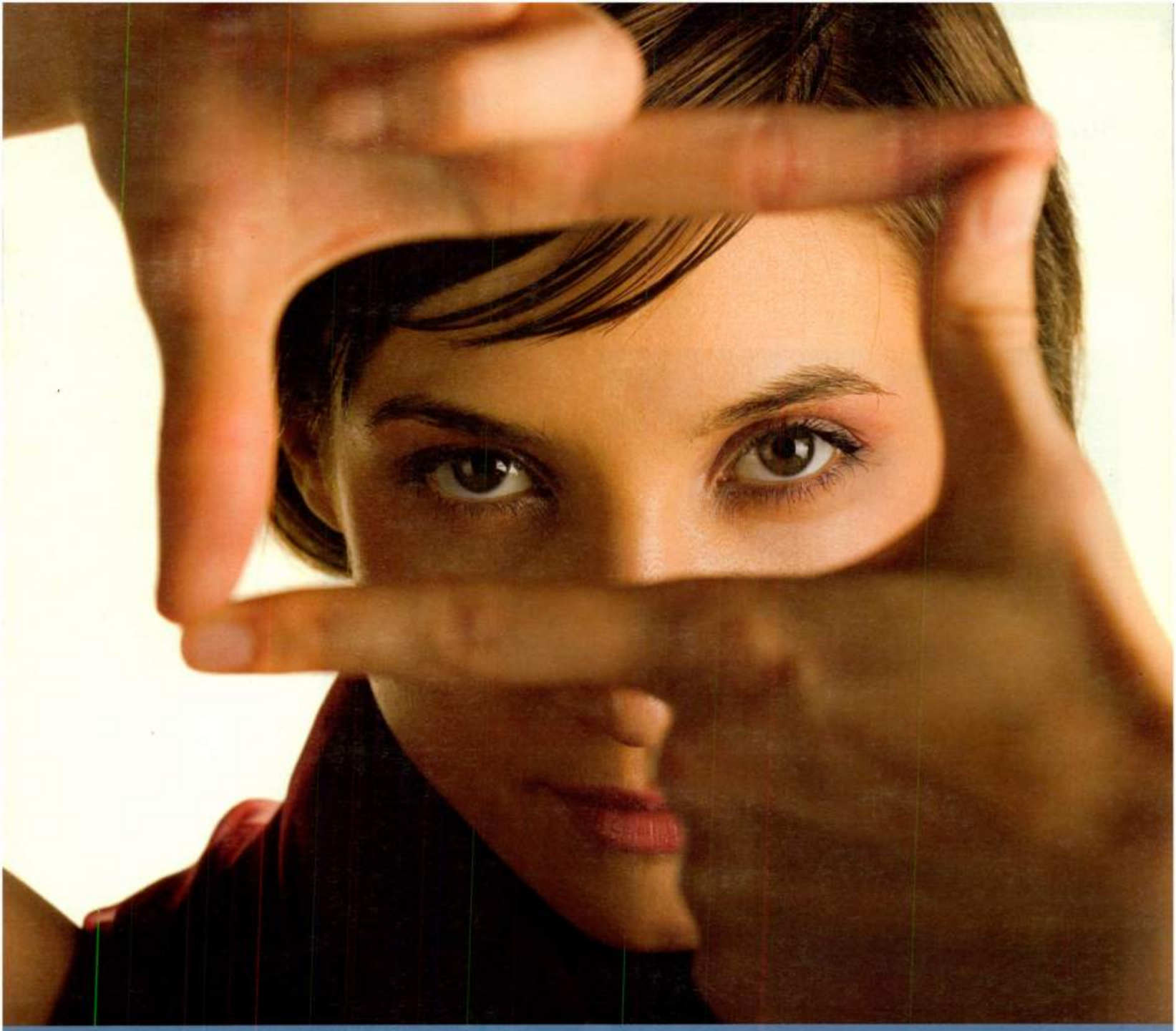
However, our world is not perfect. Most rooms are not that large, nor do they sound like concert halls. No microphone can pick up all frequencies from only the direct sound artifact of a source. We've got to settle for less. In microphone design, this means making so-called directional microphones that are more sensitive to sound coming from some directions than others. And therein lies the rub.

Sound artifacts generally contain a broad spectrum of frequencies. Each frequency has its own wavelength, with lower frequencies having longer wavelengths and higher frequencies shorter ones. A 100 Hz frequency has a wavelength of about 11 feet, while 10 kHz as a wavelength of about an inch. What's important about this is that the ability of a given wavelength to diffract (bend) around an object is dependent on the size of the object. The object has to be smaller than the wavelength in order for the wavelength to bend around it.

Therefore, low frequencies can be easily picked up by a microphone diaphragm that is facing away from the angle of arrival of a sound artifact—it can bend around the body of the microphone to reach and excite the diaphragm. High frequencies cannot. This characteristic is at the heart of the design of many types of microphones.

So, high-frequency sound artifacts

MIC, PAGE 41



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FLORICAL SYSTEMS

Buzzwords

CONTINUED FROM PAGE 32

around 150 MBps. First-generation interfaces were known as SATA 1 and SATA/150. Early SATA implementation offered a bridge chip that converts PATA/133 to SATA/150, essentially making performance similar.

SATA specifies forward and backward compatibility. However, the second-generation SATA/300 (3 Gbps), aka SATA II, was plagued by the incomplete documentation of early SATA/150 interfaces, forcing the addition of a user-configurable selector jumper. Six Gbps implementations for SATA are on the roadmap and will be applicable to port multipliers enabling higher shared bandwidth across many drives.

SATA drives may be used with SAS controllers, and can communicate on the same physical cable as native SAS drives; however, SAS drives are not compatible with a SATA controller. Connectors physically differentiate the drive interfaces, with the larger triplet sets of pins supplying a mixture of 3.3, 5 and 12 volt power. Adaptor cables are available, but limit the power supply interface voltages to 5 and 12 volts.

The standardization process for eSATA began in mid-2004 and focused on coexisting with FireWire 400 (IEEE 1394a) and USB 2.0. eSATA takes direct aim at USB from a performance perspective, targeting the excessive overhead for USB attached drives. While the effective transfer rate is faster, eSATA may still be a bottleneck for RAID sets or faster disk drives.

Internet SCSI, or iSCSI, is a transport layer network protocol (as opposed to a bus technology) that implements the SCSI-3 framework over TCP/IP networks per the February 2003 IETF ratification. From a cost perspective, iSCSI is useful in building storage area networks (SAN) when compared with Fibre Channel SANs. The protocol uses a simple Ethernet interface, but in turn adds a level of overhead due to the requirements of TCP/IP. Certain implementations have mitigated the overhead issue through the use of TCP offload engines and host bus adaptors. iSCSI can also operate with standard Gigabit Ethernet network interface cards.

NOT TO BE CONFUSED

As with serial communications technologies, such as SAS, iSCSI allows a machine to use an initiator to connect to targets (i.e., disk drives) over an IP network. The initiator is like a client device that makes its connection to a service offered by a server. The target is the equivalent of the server, providing block-level access to the storage media. Do not confuse iSCSI devices with network attached storage (NAS) devices—which utilize a NAS-head and server software to arbitrate access requests between host and storage devices.

In concert with other SCSI-protocols, iSCSI does not mandate how devices are simultaneously shared between computers—that is the job of the operating system. In other words, the OS determines how iSCSI devices appear on the system.

Older storage systems or those with multiple mediums that might include SCSI, SAS and even Fibre Channel, can be attached to an IP-network via iSCSI. This provides extensibility and performance balancing across existing and future implementations.

It should be noted that high-end video server platforms—those targeting mission critical operations—generally employ protocols and bus technologies specifically designed for their applications. With that, dedicated graphics systems and simpler desktop editing platforms requiring extended storage can make use of these technologies to improve storage capacity and throughput without the cost of high-end RAID or Fibre Channel storage subsystems.

Karl Paulsen is chief technology officer for AZCAR Technologies, a provider of digital media solutions and systems integration for the moving media industry. Karl is a SMPTE Fellow and an SBE Life Certified Professional Broadcast Engineer. Contact him at karl.paulsen@azcar.com.

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RF TECHNOLOGY

Doug Lung

Reviewing RF Technology At NAB2007: Part I

This month, I'll look at RF technology at NAB2007. Some of the technology is available now; some promised for later this year or next. I'll also look at the competing mobile TV technologies demonstrated at NAB, starting with transmitters.

While many manufacturers improved their high-power transmitter lines, I didn't see any revolutionary changes. CPI said it plans to have a new MSDC IOT design optimized for DTV operation available later this year. Perhaps we'll see it in a high-power UHF transmitter at NAB2008.

Many LPTV stations have filed for digital companion channels or for authority to flash-cut to DTV on their existing channel. Several transmitter manufacturers showed LPTV DTV transmitters and analog-to-digital conversion kits. Larcan showed a complete LPTV DTV transmitter solution in a rack. Their Larcan Plus includes the Octane encoder/multiplexer package. Octane supports multiple baseband inputs, dynamic PSIP data and ATSC (EIA-708) closed captioning. In partnership with Burst, Larcan can offer a complete turnkey DTV system.

Single frequency networks are already being used in Europe, and interest in SFNs is growing in the United States.

In many areas, multiple transmitters will be needed for reliable ATSC DTV reception on mobile and portable devices. Until recently, ATSC standard A/110 was the only technology available for ATSC SFN systems. As far as I know, Axcera is the only company that has A/110 equipment in the field.

Were the mobile demos an apples-to-apples comparison? Experts I talked to urged me to "do the math."

Rohde & Schwarz and LG demonstrated another SFN option using their A-VSB technology. The demo used three transmitters—one on Black Mountain, one on top the Paris Hotel and a very low-power transmitter at the ATSC Hot Spot in the South Hall.

I used my laptop and Pinnacle HD Stick Pro to check DTV reception of the SFN on Channel 38. From where I checked in at the convention center and the Venetian Hotel, SFN reception required less fiddling with the antenna than other Las Vegas DTV stations needed.

This illustrates the advantage of a SFN—you can place transmitters closer to the viewer and provide multiple signal paths in the event one path is blocked. One problem, however, is that it can get expensive to feed the DTV signal to many transmitters by fiber or microwave, especially in remote locations. Last year Hiwave showed an ATSC low-power booster (or transposer) using echo-cancellation technology developed in Korea at ETRI.

The cancellation system allows less isolation between the booster's transmit and receive antennas. Tests showed it was possible to mount both antennas on the same structure.

Unfortunately, I didn't find Hiwave at NAB this year, but was pleased to see Rohde & Schwarz working on modifying echo-cancellation technology developed for DVB-T to work with ATSC signals. We may see a Rohde & Schwarz ATSC transposer with echo cancellation before next year's NAB.

ABOUT ANTENNAS

Experienced broadcasters will remember when most FM stations only transmitted horizontally polarized signals. FM broadcasters switched to circularly polarized, or CP, antennas to provide a more reliable signal after FM radio grew in popularity and car radios started including FM tuners. If mobile and portable reception becomes an important part of TV broadcasters' business plans, they will want CP and EP (elliptically polarized) TV transmit

antennas. Antenna manufacturers now offer narrow-band (one or two channels) CP and EP antennas, but broadband antennas with true CP or EP performance are rare.

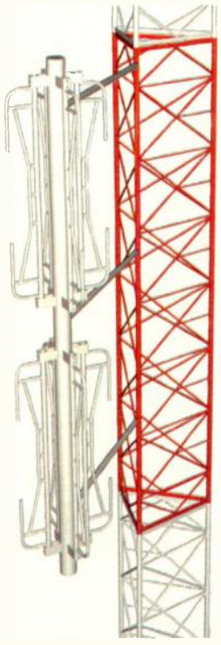
RFS said it would have a broadband (more than 200 MHz bandwidth) CP/EP antenna by the end of this year. It will be based on RFS's existing PHP broadband UHF antenna. The horizontally and vertically polarized elements will be fed separately, making it possible to vary the percentage of H and V power. In a multichannel system, it would allow each station to choose how much of its transmitter power it wants to use for vertical polarization.

For stations moving to a VHF channel after the transition, ERI introduced the SlimWing radiator element for low- and high-band VHF. SlimWing has a low-profile mechanical configuration, which weighs less and has less wind load.

The SlimWing radiator is used in ERI's top and sidemounted XWing antennas and in a high-band VHF sidemount antenna for standby or LPTV applications.

Dielectric introduced a low-RFR antenna for rooftop applications possibly useful for SFN. The antenna is designed to limit RF exposure to a person standing on a roof to 50 percent of the FCC limits for public exposure, even when the antenna is mounted 15 feet above the roof and operating at 50 kW ERP. This performance is acheived anywhere in the UHF band (300 to 1,500 MHz) at all azimuth and elevation angles.

Dielectric also showed a system for recording and logging reflected power from an antenna and transmission line system. The RF Scout will sell for around $5,000.



ERI SlimWing sidemount antenna

MOBILE TV

There are now two groups competing to become broadcasters' choice for mobile TV. Just before NAB, Harris and consumer electronics manufacturer LG announced their MPH (Mobile-Portable-Handheld) technology. It competes with the A-VSB format demonstrated by Rohde & Schwarz and Samsung at NAB last year and at the Consumer Electronics Show in January.

I had an opportunity to witness the A-VSB and MPH mobile demonstrations. Both technologies performed well on the trips. My impression was that the MPH route was a bit more difficult than the A-VSB, going along the Strip and under the connector between convention center buildings. The robust MPH signal worked well in this environment. The A-VSB route focused on reception at higher speeds in less congested areas but also worked well. Unlike the MPH demo, riders on the A-VSB bus were handed prototype receivers so they could check reception and play around with the antennas. As at the CES demo, the handheld receivers provided reliable A-VSB reception inside the bus.

Both systems touted reception at signal-to-noise ratios around 4 dB. Both systems promise mobile performance at speeds faster than anyone is likely to drive on the highway. Both systems allow reception of nonrobust streams on existing ATSC receivers. Neither system will work with existing DTV exciters and both require a special adapter or multiplexer to insert the robust streams.

Were the mobile demos an apples-to-apples comparison? Experts I talked to urged me to "do the math."

My notes indicate the MPH demo used 2.2 Mbps for the 229 kbps robust stream and the same data rate for the 557 kbps mixed-rate coding. For the A-VSB demo, 2.2 Mbps was used for a 1,000 kbps half-rate coded stream and 2.2 Mbps for the robust quarter-rate 500 kbps stream.

Supplemental reference signal adds an additional overhead of 1.24 to 2.89 Mbps. If the MPH robust data bandwidth requirements are proportional to what was shown in the demo, it would require 4.8 Mbps to transmit a 500 kbps stream.

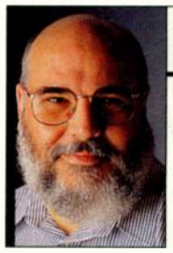
Using the minimum amount of SRS, A-VSB would need 2.2 Mbps plus 1.24 Mbps for SRS, or only 3.44 Mbps. Using the maximum amount of SRS, the total would increase to 5.09 Mbps. For the robust MPH stream, the required data rate appears to be 9.6 times the program data rate, including all overhead, indicating eighth-rate rather than quarter-rate coding.

For a robust A-VSB stream also providing signal-to-noise performance of about 4 dB, the required data rate is 4.4 times the program data rate plus a fixed 1.24 to 2.89 Mbps overhead for SRS.

You can do the math to see where A-VSB becomes more bandwidth efficient than MPH.

Next month, my RF at NAB2007 coverage will continue with a closer look at mobile TV and—sending video in the other direction—advances in microwave technology for ENG operations.

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



LET THERE BE LIGHTING — Andy Ciddor

Peeling an Orange With a Hairbrush

Lighting has come by accident to include responsibility for most of the visual material that now adorns production sets. To some extent, it's our own fault for leaving a relatively simple digital control protocol like DMX lying about where others were bound to trip over it, but it really wasn't something we lighting folk deliberately set out to make a grab for.

Certainly it gives the LD control over more of the visual design elements of a production, but if we were working with even half-competent production designers in the past, the visuals of a production were already part of a collaborative process that was greater than the sum of its parts.

THE LAST TO KNOW

Whilst giving the LD even more creative input into the production, designing the video content injects an entirely new and expanded range of disciplines and design decisions into a process already fraught with pressure. Other than actually framing the shots and shooting the production, lighting has always been the last design component to be put in place.

While sets, costumes and props generally have lead times measured in weeks and months, lighting is considered the one visual element that can be changed to deal with production contingencies or whims, even during shooting or live-to-air broadcasting.

©Jyrki Veikama/YLE Finland

Lighting was one of the primary stage elements for the Eurovision Song Contest 2007.

The addition of video elements into the lighting process has certainly increased the demand for on-the-fly adaptation and redesign.

LED EFFECTS

Despite the confused public optimism that any day now, the LED will be replacing our high-brightness (if incredibly energy inefficient) incandescent lamps, the major application for the LED in production remains as a point source of light, facing towards the audience and/or the camera. Since the blue LED came on the scene to join its red and green brethren, it was inevitable that clusters of R, G & B LEDs would be brought together to create color changing effects. With a simple 8-bit control protocol like DMX512 available, it was to be expected that it would be used to give 24-bit (16,777,216) color-mixing capabilities to the LED clusters.

Less predictable was the use of dozens, then hundreds, and now thousands of these color-changing effects devices to display low-resolution, real-time video. Initially, the LED effects devices were used for standalone lighting effects. Then, as the DMX control systems developed more sophisticated matrix functions, the LED devices were used to extend the visuals from the full-resolution video elements in the set. Now, the LED devices have become video display elements (pixels and groups of pixels) in their own right.

Although DMX512 has been used to control scenery motion, atmospheric effects, lasers, pyrotechnics, projectors and even the occasional coffee pot, bending it to carry full-motion video is quite an ask. With a capacity to update as often as 44 times per second, DMX can certainly handle refreshing progressive 24, 25 or 30 frame images, but any image of even moderate resolution is going to cause huge data headaches.

Although DMX512 has been used to control scenery motion, atmospheric effects, lasers, pyrotechnics, projectors and even the occasional coffee pot, bending it to carry full-motion video is quite an ask.

We are seeing on our screens right now, such visual extravaganzas as the NBC game show, "1 vs. 100," where each of the 100 contestants sits in front of a matrix of LED devices that change color and display patterns as the game progresses. The system is very responsive and very complex, employing 10s of thousands of channels of DMX to control a matrix of approximately 160x80 devices. It's visually very impressive, even though this matrix has a picture resolution similar to that of your five-year-old cell phone.

TOO MUCH DATA

If we consider something as moderate as a Windows 95-style VGA screen at only 480x640 pixels, the numbers are quite daunting. A screen at that resolution has 307,200 pixels, each of which requires three slots of 8-bit DMX data (for R, G and B). Driving this would require a controller producing 921,600 DMX channels, or some 1,800 DMX data universes.

Even using a DMX-over-Ethernet protocol such as ArtNet (which can theoretically encapsulate 256 DMX data streams), would require eight ArtNets to transport the data. The lighting console to drive such a matrix would require the processing capability of 29 of today's fully tricked-out, top-of-the-range grandMAs or more than

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Mic

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that arrive off-axis from the diaphragm will not have as great an amplitude as will high-frequency artifacts arriving from on-axis. In other words, the frequency response of a mic will be rolled off if the higher frequency wavefronts arrive off-axis.

OMNI CONS

With omnidirectional microphones, we simply try to make the housing small enough so that all frequencies we can hear (up to 20 kHz) have wavelengths longer than the size of the capsule housing. This means all frequencies from all angles can diffract onto the diaphragm and be detected.

Such an omnidirectional microphone is, technically speaking, the easiest mic to design and cheapest to build, with the best frequency response, on- and off-axis. Oughtta be a no-brainer.

However, in our way less than perfect world, the omni microphone captures information that we wish fervently not to capture. So we retreat to the directional microphone, which is usually a cardioid or hypercardioid design.

Unlike our quite remarkable ears, microphones have no reasonable way to integrate all of those reflections with their direct cousins.

These microphones are designed to capture sound primarily from one direction, and to attenuate the sound coming from other directions. Without taking the time to explain how they do this, note that the attenuated pickup in off-axis directions is not flat.

The accompanying figures represent some fairly rude 'n crude graphics from my book, "Total Recording," that should help to illuminate the problem.

All of these mics have flat-frequency response on-axis. The omni has minor problems at 180 degrees. The cardioid has response problems by perhaps 30 degrees off-axis, while the hypercardioid has severe response problems from 20 degrees off-axis.

Any off-axis information captured by directional microphone will probably sound bad, and with a hypercardioid there is very little room for placement error, or it will sound very bad indeed.

If you want to capture room tone or ambience, you should use omnis, because they will most accurately capture the average spectrum of that ambience.

If you want to capture only the direct source, use a cardioid and get it as close to the source is possible. Further, make sure that there are no off-axis sources to be captured.

If you can't get close to your source, you need a hypercardioid. Now you really need to make sure there are no off-axis sounds being captured, because they will sound, comparatively, really, really bad.

What does it all mean?

For many of you, this is all pretty basic. For others, it may not be. What you need to know is that it isn't just that there is leakage from other sources or the room that degrades the signal quality, but that the leakage itself has been badly degraded simply by the act of trying to make it softer.

Whew! There's nothing easy in this business.

Thanks for listening.

Dave Moulton is knows these things because he is off-axis to just about everything. You can complain to him about anything at his Web site, www.moultonlabs.com.

TECHNOLOGY CORNER — Randy Hoffner

Free, Wireless Television Makes a Resurgence

We continue to see rapid changes in the way television may be delivered to viewers, and some of the research on what interests viewers in this respect is revealing—even surprising.

A recent e-mail survey study reports that a large number of respondents are interested in viewing television on a mobile phone. Currently, more than 60 percent of mobile TV subscribers are men, about half of whom are under the age of 35. Interest in mobile TV among those surveyed, though, was about equally divided between male and female respondents. Moreover, more than half the respondents who were interested in mobile TV expressed a willingness to watch commercials in order to see free programming.

About half of potential subscribers expressed interest in local news, dramas, movies, and sitcoms. Does all this sound a little familiar? The cost of mobile TV service was a primary factor cited by respondents. Those interested in this new television service want to receive it the way their forebears received the older types of television service—free, sponsored by commercial advertisements.

Speaking of older types of television delivery, there appears to be some bad news and some good news on the broadcast television front.

©iStock/Kevin Penhallow

The viewer can take advantage of the best HDTV pictures available, and the delivery medium is free, digital, and wireless. How 21st century is that?

First, the bad news. After stability over the past two television seasons, broadcast television ratings have shown some erosion this season; sufficient erosion to cause concern. Only a few broadcast network primetime shows have actually shown ratings improvements this season.

GONE FISHING

There is some perplexity about where these missing viewers are going. They do not appear to be going to cable programming. One place they might be going is to a digital video recorder. One report says that of the 14 percent of U.S. television households that have DVRs, about 40 percent use them for time-

shifting, and this phenomenon by itself is said to be capable of causing a drop in ratings of 5 percent or greater.

On the other hand, a recent report by the Consumer Electronics Association revealed something quite interesting. At the end of April, The Associated Press ran a story describing how viewers might use simple off-air antennas to avail themselves of HDTV pictures that are superior to those offered by cable and satellite services.

We know that this is entirely possible, because the cable and satellite telecasters frequently transmit digital pictures with rather low bit-rates in order to conserve bandwidth on their systems. This, of course, has the unfortunate effect of reducing the quality of the pictures the viewer sees on the new, expensive, big-screen HDTV set.

The regular reader of this column might remember a report from a year or two ago stating that there was a strong perception, among professionals in the advanced display industry no less, that cable and DBS delivered better HDTV pictures than those delivered by terrestrial broadcasters. This perception was 180 degrees out of phase with reality, but it appears that the public is wising up.

ANTENNA MANIA

The AP article generated a flurry of traffic on the CEA's Web page that provides information on antennas for off-the-air reception. The day the article ran, the URL reported 86,000 inquiries compared with its normal Sunday traffic of 6,000, and its average of 100,000 inquiries a month.

Neither are these merely hits, in which the page is simply viewed, because an inquiry requires that one fill out a form in order to get specific information based on the inquirer's geographical location.

This certainly is a good sign for the future of terrestrial television broadcasting. We have mentioned the recent appearance in U.S. neighborhoods of new UHF antennas on the rooftops.

This only makes sense, to a broadcaster at least, as the viewer can take advantage of the best HDTV pictures available, and the delivery medium is free, digital, and wireless. How 21st century is that?

SHOUT IT OUT

The above account is indicative of what broadcasters need to do in order to make their future as bright as possible: get the information about free over-the-air HDTV out to the public. There has long been considerable confusion in the public's mind about all this, which is not so surprising in light of all the misinformation and missing information that circulates. Educational efforts obviously pay off.

The broadcast networks are doing their part in the respect that they continue to offer increasing amounts of HDTV programming in all dayparts, and the local broadcast television stations are also airing an increasing amount of local programming in HD, as we notice daily in the trade journals.

The more the public knows about all this programming, including the fact that it is available to most of them free of charge if they but put an antenna on the roof, or possibly, on top of the TV set, the brighter the future for terrestrial broadcast TV.

One of the big drivers of HDTV among the viewing public is big-screen displays. It will be pretty difficult, to say the least, for a program distributor to send anything comparable to broadcast HDTV pictures to a cell phone, and we are well aware what the effect will be when such signals are output from the cell phone to a big screen. But that's a topic for another column.

Randy Hoffner is a veteran TV engineer. He can be reached through TV Technology.

NEWSROOM TECHNOLOGY **Harlan Neugeboren**

NAB2007 Revealed the Changing World of TV

Besides being one of the larger NAB tradeshows with 108,232 people registered, there were a number of new forums and conferences—MobiTV, Telecom@NAB, IPTV, Podcasting Summit, Broadband Video and Rich Media Website Development. I stopped in at some of these sessions and attendance was larger than I expected.

Another change at this year's show was where the traffic was and who was in what hall. Traditionally, the Central Hall has been for the "broadcast equipment manufacturers."

This year, however, Central Hall exhibitors included Internet content delivery networkers (Akamai, Grid Networks and TVU) and application service providers (ThePlatform, Whiteblox, Dayport,). Not your typical exhibitors for the Central Hall.

It finally seemed like NAB was helping broadcasters prepare for the next generation of television—Internet TV.

Why should you care? Content distribution has moved beyond cable and satellite to IP delivery over a number of platforms. Just when you thought you had it all figured out, it changes again.

©iStock/Zsolt Nyulaszi

This change to IP-delivered content is here to stay and those that get out in front early will benefit greatly.

But this change to IP-delivered content is here to stay and those that get out in front early will benefit greatly.

The first surprise came from Sony with the introduction of the XDCAM EX. The planned camcorder will be based on MPEG-2 compression technology and come with three, 1/2-inch imagers.

CARD CAM

It will be switchable between 1080/60i and 720/60p, and be capable of recording 1080/50i/30p/25p/24p and 720/50p. It is the perfect news camcorder, and Sony is working with all the major NLE makers to support plug-and-play editing, including

Peeling

CONTINUED FROM PAGE 40

100 ETC Congos.

A resolution comparable to the widescreen (1,680x1,050) desktop monitor that this article is being typed on, translates to 41 ArtNets and 162 grandMAs, rather than a $40 video card and a single DVI link cable. Clearly, DMX512-controlled LED elements, driven by a lighting console, is not a sensible way to deal with more than a paltry few thousand pixels of video.

DEDICATED APPROACH

A more reasonable approach is to employ dedicated video processing systems that record, store, manipulate and replay video in formats more suitable to video projection and display systems. Although varying in format from dedicated hardware to desktop software packages, systems such as SAMSC's Catalyst, MA's grandMA Video, Green Hippo's Hippotizer, VJ from Arkaos, Martin's Maxedia, RADlite from Radical Lighting and High End Systems' Axon/ DL2, all fall into this category. Something that they have in common is an interface allowing them to be controlled by DMX512 data.

Once again, we come up against lighting consoles driving technologies that are shoehorned into an interface designed to do an entirely different task. There is nothing even slightly rational or intuitive about using two adjacent channels on a lighting console to set z-depth on a cubic morph and image rotation speed or left-edge image overlap. No matter how you map them, 200-plus hundred media server control channels just don't layout logically on a console with 96 faders, four scroll wheels and a trackball. This doesn't mean there aren't dozens of bright young lighting programmers who can drive a WholeHog console with each hand to program a powerful media server without taking their eyes off the stage. But once again, it begs the question as to why a system broadcasting 512-byte packets of 8-bit data, with no error correction, should be used for such a task.

Despite the way the development process has stumbled blindly into its present state, and the way we have acquired responsibility for designing powerful video elements in many productions, classy and subtle video designs are beginning to appear on our stages and hopefully, soon, in our studios. It's just hard to understand that we can get the production design so right while getting the interface design so wrong, again.

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.

Adobe, Apple, Canopus, Dayang, Main Concept, New Auto, Sobey and Sony Creative Software's Vegas, in addition to Sony's XPRI NS.

But one of the best features of the camera is that it uses consumer memory called SXS. At the show, Sony and SanDisk announced that they'd agreed to a memo of understanding to co-develop an SxS memory card specification with high-speed transfer technology compliant to the ExpressCard industry standard.

The SxS memory card spec uses flash memory and connects directly to computer systems through the PCI-Express bus.

MORE IS LESS

What this means is that as the cost of consumer storage comes down, broadcasters will be able to store more stories and footage on a card. Currently, Sony says that two 16 GB SxS cards will hold about 120 minutes of HD video. I saw a 32 GB card on the XDCAM EX display and they should be available shortly. This means that you will get four hours of HD record time.

As I've said in previous columns, it's all about content. What this year's NAB showed us was that there are many forms of content distribution other than broadcast, cable and satellite. The new sessions at NAB brought up many topics that content producers and distributors need to think about in the IPTV world.

Sessions such as "Making Money from Next-Gen Technologies;" "Reinventing Advertising;" and "Podcasting Business Models—Making Money with Podcasting," demonstrated content is king, and there are many ways that viewers can get it. IP platforms will allow you to deliver your content to viewers when, where and how they want it.

ALTERNATIVE DELIVERY

In the main hall, there were a number of content delivery companies, including Akamai, and a few newcomers including Grid Networks.

In the GridCast-based content delivery model, every computer and set-top device becomes active in the distribution network. GridCast delivery uses a small portion of the network serving capacity afforded by each device, reducing the costs for the content originator.

Another relatively new player in the content delivery world is Joost. Created by Niklas Zennström and Janus Friis (founders of Skype and Kazaa), Joost uses peer-to-peer technology.

The programming is expected to deliver near-TV resolution images to PCs without the need for a set-top. Additionally, multi-user chat sessions are possible through of semi-transparent widgets laid over the content.

This means that we have to learn about more platforms and develop new workflows to cost effectively deliver this content.

However, delivering content via IP is easier than delivering content to a cable operator, especially for VOD content and advanced features like interactive applications, advertising overlays and targeted advertising.

There are many toolsets that will allow you to deliver compelling content fairly easily. More importantly, IP delivery allows you to truly measure your audience, as there are a great number of tools to measure impressions, video plays and clicks, and the information is available almost instantaneously.

CALL NOW!

While the IPTV audience is much smaller than the current traditional television audience, more and more viewers are watching content on iPods, computers, portable or wireless devices and on large screens via Apple TV and the other Internet devices.

My advice: Learn about IP content delivery... quickly!

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

PRODUCTS & SERVICES SHOWCASE

PRODUCTS & SERVICES SHOWCASE

USER REPORT

KWTV Makes DTV Switch With Grass Valley

by Randy Cassimus
Director of Production
KWTV

OKLAHOMA CITY

After months of discussion and planning, KWTV, the CBS affiliate here, made the transition to digital television broadcasting on Nov. 5, 2006.

We began HD operations from a new production control room, new master control suite and new multilevel news set. Many thought we were crazy to do so, but we made the switch and have never looked back.

We purchased the Grass Valley Kalypso Duo Video Production Center for our all-digital control room because it included all the features we were looking for in a new digital switcher.

Dan Klopfenstein (L), KWTV newscast director and Randy Cassimus, KWTV director of productions appear with the station's new Grass Valley Kalypso production switcher.

SEVEN HOURS PER DAY

We produce and air seven hours of live local news per day, and all of it goes through the Kalypso switcher. We chose Grass Valley because we needed a switcher that could stand up to producing several shows a day, each with its own individual settings and unique program segments. Quick setup and reconfiguration of production elements was a critical requirement.

MIMICS THE 300

We had been using a Grass Valley 300-3A for more than 25 years before our digital transition. One of the things that we really like about the new Kalypso is that it mimics the 300's control interfaces and color-coded M/E rows, making it much easier for our staff to make an otherwise daunting transition.

Other features that we appreciate are the relatively small size—15 RU—the increased level of layering and effects, the improved flexibility in moving soft keys around and the easily recalled program settings for different newscasts. This is important for us, as we have eight different operators, each with their own individual switching style. The Kalypso switcher accommodates that, and makes our operation run smoother.

The improved GV internal DVE transforms made an external DVE unnecessary, and the eight output built-in stillstore allows us to add effects and program elements to our news programs that we were not able to accomplish before. Our operators also like the macros feature, which allows them to program complex transitions into single button selections. The system has improved the production value of our newscasts significantly.

FEEDS SISTER

The Kalypso switcher's secondary M/E channels are also a big plus for us. We have a sister station in Tulsa—KOTV—with its own Kalypso switcher, which simulcasts our weekly "Sports Blitz" show on Sunday nights. The show is produced here in Oklahoma City, and we send the switched semi-clean feed via fiber to Tulsa, where localized commercials and graphics are added. The Kalypso greatly enhanced our ability to send KOTV exactly the feed that they needed.

Our news set is one of the most expansive and complex sets in the country, featuring dozens of integrated plasma, LCD, DLP and rear projection screens to support the dynamic look and functionality of our newscasts. It was designed by FX Group in Orlando, Fla., and has 38 different shooting positions. The Kalypso, with its numerous aux busses, helps organize the graphic elements (stills, animations and live video) displayed on the screens.

We've been on the air in digital for about six months and are pleased with the way our transition has gone. The Kalypso sits at the center of our production workflow and has performed flawlessly since day one. I held my breath for practically the entire hour that first Sunday night in November when we debuted in digital, but the Kalypso worked wonderfully and is still working wonderfully.

Randy Cassimus is director of production for KWTV, the Griffin Communications CBS outlet in Oklahoma City. He's been with KWTV since 1986 and has also worked at KARK-TV in Little Rock, Ark. WUFT in Gainesville, Fla. and WATL-TV in Atlanta. He may be contacted at randy.cassimus@news9.net.

For additional information, contact Grass Valley at 800-547-8948 or visit www.thomsongrassvalley.com.

REFERENCE GUIDE

The Reference Guide is a selected sampling of current products. Specifications and prices are supplied by the manufacturer and are subject to change without notice.

MASTER CLOCKS

MANUFACTURER	MODEL	EXTERNAL REFERENCE	OUTPUT TYPES	BACKUP AVAILABLE	DISPLAY OPTIONS	TIME OFFSET	SIZE	PRICE
American Tine & Signal Co. 800-328-8996 *www.atsclock.com*	AllSync Master	GPS	Pulse, digital	Yes, optional	Digital, wallmount, rackmount (optional)	No	Occupies a 5 RU space	$579.95-$1,329.90
BRG Precision Products 800-295-0220 *www.brgproducts.com*	RSGP5	GPS, SMPTE and others	Wireless, wide area coverage	Yes, standard	Digital, analog, rack-mount, wallmount, custom	Yes	Occupies a 7 RU space	$1,600
ESE 310-322-2136 *www.ese-web.com*	ES-185U/NTP	GPS	SMPTE, ESE and ASCII	Standby unit available	Various heights, desk top and rackmount	Yes	1 RU	$2,495
Evertz 877-995-3700 *www.evertz.com*	5600MSC	GPS	LTC	Yes	Digital and analog in various sizes	Yes	1 RU	Call for pricing
Harris Corp. 800-231-9673 *www.broadcast.harris.com*	NEO CSD-3902	GPS, PPS, 10 MHz, phone line	LTC, VITC, impulse drive	Yes	Various models, analog and digital	Yes	1 or 3 RU	$1,995-$9,590
Masterclock 800-940-2248 *www.masterclock.com*	NTP100-GPS High stability	GPS	NTP reference	Yes	LED (various colors), analog	N/A	1 RU	Call for pricing
Solari Corp. 212-868-0126 *www.solaricorp.com*	Master clock	DCF77	Synchro R/L 24 V	Yes	Flat fluorescent, LED, analog	N/A	3 RU	Call for pricing
Torpey Time 800-387-6147 *www.torpeytime.com*	GPS-1	GPS	BCD, SMPTE NPR, DQS codes	No	Various	Yes	1 RU	$2,400

USER REPORT

Echolab Opera Is Just Right for WMGT-TV

Chris McLendon
Chief Engineer
WMGT-TV

MACON, GA.

WMGT is a small market NBC affiliate owned by Morris Network Inc. and serves middle Georgia. We launched our news operations, consisting of three daily newscasts, in 2004, and today we have the second most-watched TV news programs in our market. This past March, we enhanced the quality of these newscasts significantly and simplified our production operations by bringing online a new Echolab Opera 3932 dual-format production switcher. This replaced our older analog system.

Because of our size, we really needed the biggest bang for the buck when we went shopping for a new system. The Opera switcher offered all the functionality we wanted at a phenomenal price. We evaluated more switchers than you can shake a stick at, and the Opera provided all the features we needed, along with a hybrid digital/analog design that made it possible to drop the switcher right into our production workflow.

Though our news operations are tapeless and we've launched 24-hour HD broadcasts, we haven't completely upgraded to digital yet.

FLEXIBILITY A PLUS

The flexibility of the Opera in handling analog and digital inputs, managing crossconversion internally and outputting composite and digital video enabled us to make the big jump forward. This single purchase simplified our technical director's job and improved the quality of our news production.

Chris McLendon, chief engineer at WMGT-TV, explains a feature of the Echolab Opera switcher to Ashley Strokes., director of the station's 5:30 and 11:30 p.m. newscasts.

The Opera's internal frame sync on every input also allowed us to eliminate external processing gear and reduce potential points of failure We bring up inputs and everything is properly timed.

The Opera was also appealing to us because of its intuitive control panel. The layout has just with what we need, and not the features we don't. It took me only a couple of days to train the TD on the new production switcher, and we've found that we now can include many more sophisticated elements into our programming with far fewer button pushes. The switcher's two DVEs now give us a lot of new options during production and have improved overall video quality as well.

To get the most out of the Opera, we're also using Echolab's Commander auxiliary panel. This extends switcher control to internal and networked devices, providing easily customizable shortcuts to all switcher functions. As a result, the TD can move from one preset effect to the next using just one button instead of 12. With this capability, we can do a lot more during the show with less risk of error. While we've added elements that make our news more interesting, exciting and dynamic, we've actually simplified the work required to produce each show.

Getting the Opera online was very easy. We did it ourselves and when I did have a few questions, I was able to talk to an Echolab engineer right away. As we complete our transition into the digital world, we can swap out analog cards for digital cards. This ensures that the Opera will continue to be a useful and valuable part of our operation.

Chris McLendon has been with WMGT since 1991 and has overseen the growth of the station, including the start of HD broadcasting. He may be contacted at cmclendon@wmgt.com.

For additional information, contact Echolab at 978-715-1020 or visit www.echolab.com.

USER REPORT

Televisa Goes HD With Kahuna

by Juan Carlos Salazar
Operations Coordinator
Grupo Televisa, S.A.

MEXICO CITY

Televisa is the largest media company in the Spanish-speaking world, and our broadcasts reach viewers all across Mexico and around the world.

We launched our HD programming a year ago with coverage of the 2006 FIFA World Cup, broadcast throughout Mexico on two HD channels. Among the key pieces of equipment that allowed us to make this shift to HD was the Kahuna SD/HD multiformat production switcher from Snell & Wilcox.

One of the Snell & Wilcox Kahuna switchers installed at Televisa

Though we had begun upgrading our broadcast infrastructure to HD, the Kahuna's ability to integrate SD content from archives or from SD sources seamlessly with HD content was critical to the delivery of our new HD service.

TWO KAHUNAS

We began using Kahuna production switchers, with two units provided by systems integrator Insitel Mexicana, for FIFA World Cup

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USER REPORT

Trials Demand Brick House Switcher

by Mitchell Pietz
Vice President and Operations Manager
Desert Sky Digital Satellite

LOS ANGELES

As I write this, I'm sitting outside the Los Angeles County Courthouse providing three-camera switching and satellite uplink feeds of the Phil Spector murder trail for Court TV and other networks around the world. Next to me is a powerful, rugged little Brick House Video 270 Mbps SDI/composite switcher/mixer that our company relies upon to make it all happen.

On a preview monitor, I'm watching Spector squirm in his chair—his eyes flashing a hot reaction. On the program monitor, I see that our engineer anticipated the shot, smoothly switched and it's feeding out. Beautiful!

RAPID DEPLOYMENT

Many of the murder trials west of the Mississippi captured by Court TV cameras since 1997 have been handled by our portable production studios. Guilt or innocence is none of our business, but what is vital is the flexibility to accomodate all the various camera inputs we encounter in the field, rock solid reliability and seamless shot transitions.

That's what I was looking for at NAB2006 when I stopped at the Brick House Video booth and spotted a miniaturized broadcast-spec eight-input SDI switcher, which also had analog composite and DSK options. It was packaged in a compact, single rackmount with an optional remote unit. To understand why the Brick House switcher looked so appealing to us, you should understand how Desert Sky operates.

We're headquartered in Los Angles and have a field shop in Prescott, Ariz., but we are known for the rapid deployment of the unique flypacks that we have painstakingly developed over the years.

These are self-contained broadcast studio equipment modules for remote studio, editing and transmission applications that are mounted into rugged, wheeled shipping containers. At a moment's notice, we fast-freight forward to the job site by truck or plane—depending on the number of cameras at the site—anywhere from one to four flypacks with the gear customized for the job.

For outdoor jobs, we bring our own portable shelters. We're totally self-contained, with switching, monitoring, editing, audio, cell phone, satellite phone and satellite uplink. We're always looking to keep the size and weight down to a minimum, while at the same time providing our clients with the latest and most reliable technology.

Our jobs usually don't require a huge switcher with a lot of effects, but at the same we couldn't trust our business to an entry-level switcher, or even a medium quality box.

The Brick House Callisto 270 Mbps switcher is a favorite at Desert Sky Digital Satellite.

The Callisto-R has auto and manual dissolves and wipes with auto-fade to black, which is all we need. There's simultaneous program/preview of SDI and composite outputs, and dual frame store synchronizers, genlock and embedded audio-VBI processing. Optional analog composite decoders allow signal acquisition in mixed digital and analog environments. And it's all compact and lightweight!

We've been using Callisto for about a year now and it really does a fine job for us.

No matter what the verdict, we think the Callisto will help us win at long murder trails for years to come. In fact, Brick House just shipped me another Callisto switcher for a tough assignment in the Middle East. Paul Hiorns at Brick House really went out of his way with many late night phone calls to make it happen quickly.

Mitchell Pietz has been operations manager of Desert Sky Digital Satellite for 10 years. He may be contacted at Mitchell@SatTruck.com.

For additional information contact Brick House Video at 44-1-962-77-7733 or visit *www.brickhousevideo.com*.

USER REPORT

Broadcast Pix a Hit at Media 3

by Damon Haimoff
CEO
Media 3 Ltd. LiveShots NY

NEW YORK

Media 3 Ltd. provides live shot services to a host of domestic and international networks and media organizations. We recently opened a new spacious and elegant 16,000-square-foot facility in Midtown Manhattan.

The space was designed with attention to detail and provides a welcoming and calming environment for important on-air guests. Our private greenrooms and executive conference/viewing room offer fitting accommodations for the heads of state, CEOs and other celebrities who frequent our facility.

Reliability is crucial to our business. As we rapidly approach our 40,000th live shot, we continue to set the industry benchmark for reliability. We have

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USER REPORT

Freedom Chooses Ross Synergy MD/X

by Fred Lass
Director of Engineering
WRGB and WCWN

SCHENECTADY, N.Y.

The chief engineers of eight Freedom Broadcasting stations made plans last year to improve the operational efficiency at each of our stations. Freedom Broadcasting owns stations in Florida, Michigan, New York, Rhode Island, Tennessee, Texas and Oregon. We specified Ross Synergy MD/X production switchers and OverDrive integrated production control systems to achieve the goal.

Such collaboration had not occurred in Freedom since the purchase of DTV transmitters in 2001. Historically, each Freedom station has devised its own unique operational system. We needed to improve and standardize our workflow, plus use common equipment as much as possible.

ACHIEVING AUTOMATION

We began our selection process by first looking into our control rooms. We wanted a product that would help us bridge the gap between our existing manual operations and automated news production.

The consensus was that we should select the Ross Video Synergy MD/X high-definition video production switcher with its OverDrive integrated production control system.

We liked the Synergy MD/X switcher because the Synergy standard-definition series had already been selected for three of our stations. The possibility of HD news has been looming in several of our station markets, and the MD/X would allow HD production when such changes made sense.

The MD/X switcher is designed to work efficiently as a conventional manual production switcher, or in conjunction with OverDrive. Switcher control panels that we purchased for SD would be reused for HD.

NO RETRAINING FOR TDS

Technical directors who knew how to run the Synergy SD could operate the Synergy MD/X without retraining. Since the switcher can operate with a mixture of high-definition and standard-definition sources, we would be able to upgrade our peripheral equipment to HD at any time.

We looked closely at the workflow characteristics that are designed into OverDrive. Operationally, the news producer selects the camera shots, graphics, video and microphones from a pictorial list. That list of icons works as a plug-in for both ENPS and iNews newsroom systems in use at Freedom.

Keith Betts, director of engineering at Freedom Broadcasting's WPEC in West Palm Beach, Fla. operates the new Ross Synergy MD/X production switcher installed there.

Each producer adds the OverDrive templates to their own show.

The producers of our shows usually change every half-hour in our evening newscasts, thus allowing for continuous back-to-back shows without adding additional production staffing. The producers learned the system in a single half-day training session.

The third key to automated production was the control of external equipment. At first it seemed that the OverDrive interface was limited to an audio board without true mix-minus capability. Then we discovered that Ross had already added the Wheatstone D-10 board to their development list. The D-10 suited our needs, so the decision was finalized to purchase OverDrive and Synergy MD/X switchers.

EXTERNAL GEAR

The equipment was delivered on time and the Synergy MD/X switcher has performed extremely well. The new OverDrive audio board interface has worked without any software bugs! Any software issues that occurred with other peripherals have been addressed quickly.

Right now Freedom has four of the new Ross switchers operational and two more in the process of being installed. The more that we learn about the Synergy MD/X switcher, OverDrive automation and Ross Video; the more pleased we are with our decision.

Fred Lass is director of engineering for WRGB & WCWN in Albany/Schenectady, N.Y. and has been the chief engineer and director of engineering with WRGB since 1984. He headed up the selection process for Freedom's group purchase of Ross switchers. He may be contacted at fredlass@wrgb.com.

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

Broadcast

CONTINUED FROM PAGE 51

24 fiber tie-lines linked to Ascent Media's Fifth Avenue hub. Our four live shot studios are pre-lit and ready to go at a moment's notice, 24 hours a day.

In keeping with our established reputation for reliability and excellence, we were extremely careful when selecting equipment to add studio capabilities. We considered several options that would satisfy our clients, with the Broadcast Pix Slate 2100 switcher identified as an ideal system that would strengthen our live production capabilities.

Damon Haimoff with the Broadcast Pix production switcher installed at Media 3 Ltd. LiveShots in New York.

Our Studio One facility is a 20-by-30 foot production studio is equipped with the Slate 2100 system and three Sony HD cameras.

We first saw the Slate 2100 at last year's NAB and basically designed a control room and studio around this piece of equipment. The single device design of the Slate 2100 simplifies engineering and allowed us to install the system without the complex integration requirements of a legacy control room involving more than a dozen pieces of equipment.

We were sold when we found the Broadcast Pix system was within our budget and provided excellent value with its long list of features. The Slate 2100 offers four keyers, three DVEs and chromakeys. There's also an Inscriber character generator with animations, clipstore, stillstore and logo generator. This made the decision to purchase very clear. Picture quality has also lived up to our expectations, confirming that the broadcast quality images do not suffer at all, even with the low price point of the system.

For a minimal investment, we have made our end product look even better than it already did. In evaluating products, there were many that offered some, but not all of what we felt we needed. In each instance we were faced with having to purchase multiple pieces of equipment.

With the Broadcast Pix Slate 2100, we realized there was no better solution. I estimate we would have had to spend hundreds of thousands of dollars to get these features with another system. The technical training and maintenance alone would have been prohibitive as well. Everything we do is designed around a single operator configuration. With Broadcast Pix we were able to maintain that single staff element, as the switcher product operates simply and easily with one person.

We chose the Broadcast Pix switcher because it allows us to take what we are already doing to the next level quickly and efficiently.

Even before the studio facility was complete, our customers were lining up to use it. We know this is a service our clients want and with the addition of the Broadcast Pix Slate 2100 switcher, we now have the flexibility to offer it.

Damon M. Haimoff is the CEO for Media 3 Ltd. LiveShots NY and is based in New York City. He may be contacted at damon@LiveShots.com.

For additional information contact Broadcast Pix at 781-221-2144 or visit www. broadcastpix.com.

USER REPORT

Focus Enhancements Fits Church's Needs

by Randy Melchert
Media Director
Brookside Baptist Church

BROOKSIDE, WIS.

Brookside Baptist Church wanted to bring more services and an enhanced worship experience to a growing membership of 700 people. We've all witnessed how the Internet and iPods are revolutionizing the way people communicate and connect with the world around them. We wanted to see how technology could help our church reach out to members and non-members in new and exciting ways.

We started building up an audiovisual system several years ago, one component at a time. Critical to this development was a video mixer. Our early solution—a switch box with RCA jacks—was too cumbersome and inflexible for our needs and it also yielded the occasional screen blackout. We researched digital mixers to determine which one could accomplish what we needed today, as well as deliver added functionality tomorrow.

PLENTY OF I/Os

We selected the MX-4 DV digital mixer from Focus Enhancements. It gives us a wealth of input/output options and the MX-4 DV's intuitive user interface reduces the learning curve—a critical feature when it comes to training our volunteer users.

We've incorporated a second camera to enhance our productions and send a live signal to a projection screen in the sanctuary, along with LCD screens scattered throughout the church's lobby, nursery and overflow rooms. During live services we project hymn lyrics onto the top third of the sanctuary screen. This has become a highly popular feature with our congregation, especially hearing-impaired members.

Randy Melchert with the Focus Enhancements MX-4 DV digital mixer

Using picture-in-picture, the MX-4 DV helps us to coordinate which video goes where. For example, we might choose to place only the song lyrics on the screen in the sanctuary, but combine the lyrics and a live broadcast of the service to other screens throughout the building.

If a guest speaker brings along a DVD or presentation, the MX-4 DV allows us to integrate this content. We just included PowerPoint slides as a fourth source and can blend the slides with the live speaker for a powerful result. While the MX-4 DV comes equipped with more than 700 automatic and manual transitions, we've stayed with a few of the more basic ones.

BEYOND THE CHURCH

The MX-4 DV gives us a professional production quality that lets us expand beyond the four walls of our church. This year we were able to make available our annual Christmas concert to 300,000 digital cable subscribers in the greater Milwaukee area.

By Podcasting and VOD-casting our sermons, audio and video broadcasts, we help members and non-members attend church, even when they can't leave the house. Users can view services and other church activities on the Web, or download them to their iPod. To accomplish this, we typically send an output signal from the MX-4 DV to a DVD burner and then post the final to our Web site. And we've been testing out live Webcasts using the mixer's FireWire connection. For our less Internet-savvy members, we can distribute copies of DVDs, or even VHS tapes.

We've witnessed a tremendous response to our new media. Local members are downloading sermons to play on their iPods while stuck in traffic. New members find us on the Internet. And former members stay connected from wherever they are in the world.

Randy Melchert is the media director at Brookside Baptist Church, located near Milwaukee, Wis. He may be contacted at rmelchert@gmail.com.

For additional information contact Focus Enhancements at 800-338-3348 or visit www.focusinfo.com.

USER REPORT

Tristar Selects For-A Hanabi for HD Work

by John Rybacki
Technical Director
Tristar Products Inc.

FAIRFIELD, N.J.

Tristar Products is a leader in infomercial production. We recently purchased For-A's HVS-1000 Hanabi switcher based upon its multiformat capability, price point and high-quality production value.

Tristar Products houses several soundstages with HD multicamera capabilities. The company uses the space to create infomercials for a host of celebrity-endorsed products, such as long-time fitness guru Jack LaLanne's Power Juicer and former wrestling star, Terry "Hulk" Hogan's Ultimate Grill. The HVS-1000 is located in a state-of-the-art digital control room, and the switcher can be routed to control any set within the facility.

The HVS-1000HS supports 1080i, 720p, and 24 fps, as well as standard-definition formats. This is an

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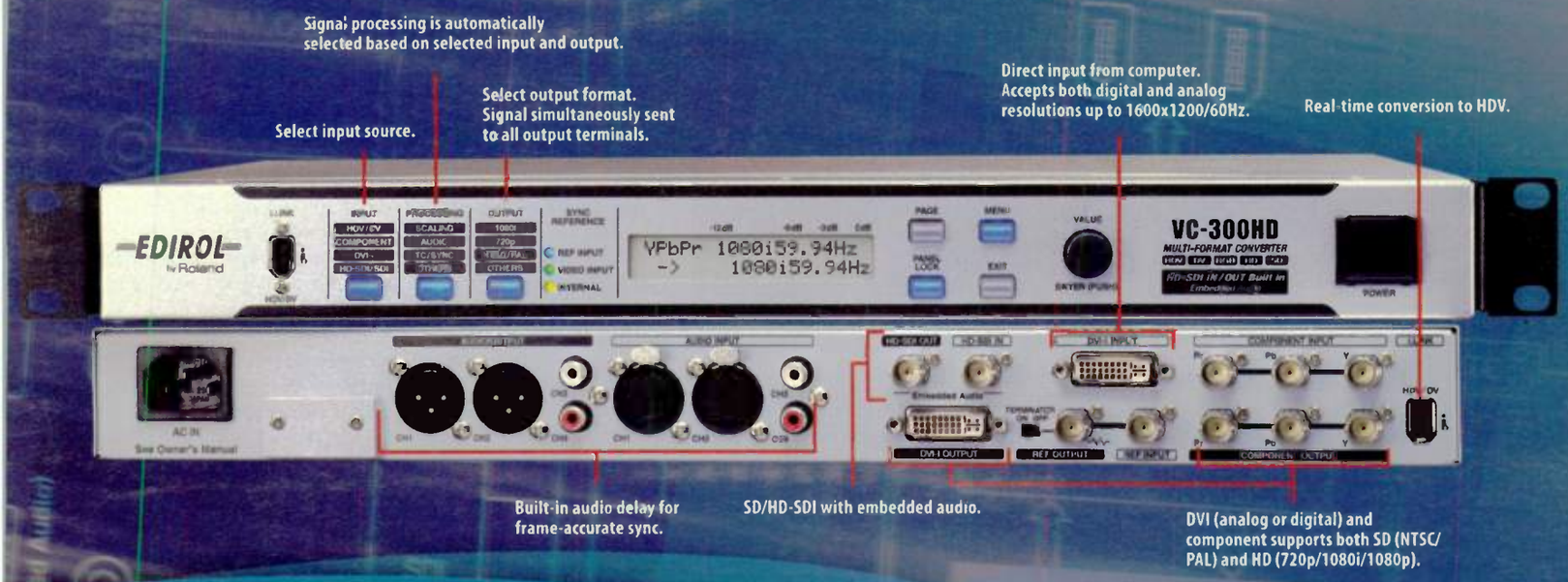
Multi-Format Converter for a Multi-Format World



What do you need to convert today? Tomorrow? Next week?

Never before have so many video formats been used by the industry at the same time. The EDIROL VC-200HD and VC-300HD are fully bi-directional converters that convert, scale, adjust, encode/decode and embed audio all in the same unit. Simply choose your input source - component, DVI-I, DV/HDV, or SD/HD-SDI* - set your conversion parameters and the converted output is sent to all outputs simultaneously (up to 1080p). The VC Series supports genlock as well as embedded audio that also allows for delaying audio by frames or milliseconds to achieve the perfect "lip sync". Designed for a wide range of workflows in mid, post and live video productions, including international formats, the VC Series offers the hassle-free and flexible format conversion you've been waiting for.

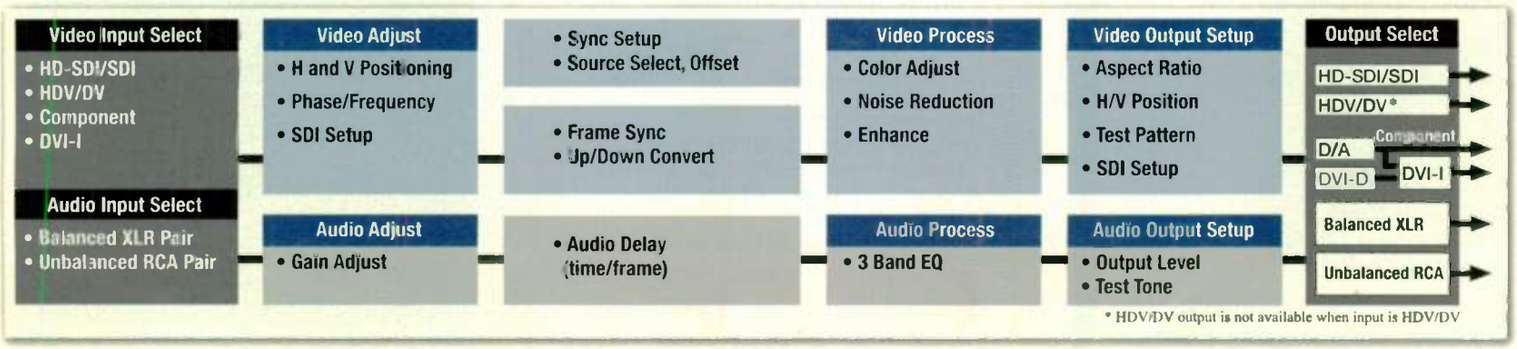
* VC-300HD only

Input/Output Chart

INPUT FORMAT \ OUTPUT FORMAT	HDV(1080i)	HDV(720p)	DV	COMPONENT	DVI	HD-SDI	SD-SDI
HDV(1080i)	—	—	—	○	○	○	○
HDV(720p)	—	—	—	○	○	○	○
DV	—	—	—	○	○	○	◔
COMPONENT	○	○	○	○	○	○	○
DVI	○	○	○	○	○	○	○
HD-SDI	○	○	○	○	○	○	○
SD-SDI	○	○	○	○	○	○	○

VC-300HD/VC-200HD VC-300HD

Signal Processing Diagram



* HDV/DV output is not available when input is HDV/DV

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EDIROL by Roland

USER REPORT

Edirol Is 'Perfect' in TV Training Program

by Dave Baumgartner
Radio & Television Instructor
Warsaw Community High School

WARSAW, IND.

Warsaw Community High School offers students an enhanced vocational curriculum including broadcast production training. In the last five years, the radio and TV program has grow from a few cameras and VCRs to a three-camera production studio, complete with the latest technology. Our latest additions include an Edirol V440 HD video mixer, five Edirol DV7 DL editors and three Sony HD cameras.

Dave Baumgartner with the Edirol switcher used in the Warsaw Community High School television training facility.

PROGRAM VERY POPULAR

More than 50 students apply for the 30 positions in our television broadcast program each year. We create a daily news broadcast called Tiger Eye News, which is broadcast throughout the school, on YouTube and also on a local radio station's Web site.

Students are assigned jobs just like those in a traditional television operation including floor director, cameraman, graphic designer, switcher, studio manager and anchor. We've created a mini television production studio, complete with a control room.

The students come into the classroom with little knowledge of broadcast technology. In order to get them rolling quickly, we looked for tools with a short learning curve and reliable technology.

We worked like cavemen back in 1996 to make this program happen. With the help of ESCO Communications, we've made a gradual build-out, which extends to the present with the addition of five new edit bays. Instead of PCs that crash all the time, we went for Edirol's dedicated editing machine, the DV7-DL.

The Edirols are perfect for us, as they are fast, reliable and not subject to viruses and system conflicts. We have them in all five of our editing bays, as we can count on their stability, high quality video and ease in doing voice-overs. Also, students feel safer putting content on to the DV7-DL hard drives, as they have automatic file backup features.

We find that students are spending more time being creative and learning about broadcast technology, rather than configuring video hardware and dealing with software compatibility because of these wonderful video production tools from Edirol.

We know there are areas of our production that will improve over time. Currently we are broadcasting in SD, but we chose equipment like the V440-HD switcher that can grow with us, as can seamlessly mix SD and HD video formats. It allows us to do broadcast-quality production with music, graphics and professional transitions. It has direct VGA inputs for computer sources, so you can keep your graphics and text in its native resolution format. Some of the students are even way ahead of me with the switcher operations.

This year we have two students accepted into the broadcast program at Indiana's Vincennes University, and I have a former student graduating from Ball State with a degree in television broadcasting.

Dave Baumgartner is Radio & Television Instructor at Warsaw Community High School in Warsaw, Ind. He may be contacted at dbaumgartner@warsaw.k12.in.us.

For additional information contact Edirol, part of the Roland Systems Group at 800-380-2580 or visit www.edirol.com/v440hd.

For-A

CONTINUED FROM PAGE 54

important feature for Tristar, as we also produce outside projects on a for-hire basis. There's only a short list of switchers that were capable of doing what we needed, but none fell anywhere near the price point that worked for us. For-A's HVS-1000 gives us the best of both worlds—high quality, an unbeatable track record, and the versatility to alternate between HD and SD projects as needed.

Tristar has successfully completed more than a dozen projects since the installation of the HVS-1000. The response from our customers has been overwhelmingly positive. This switcher works very well with our cameras and our set up. It helps us give our clients exactly what they want.

The For-A HANABI multiformat production switcher proved to be the right choice for Tristar Products.

A SOLID SWITCHER

When it came time to build our facility for high definition, the company gave careful consideration to the equipment selected. The reputation of For-A and the HVS-1000 fell in line with Tristar's dedication to high standards. Not only were we dealing with a highly regarded manufacturer, but the HVS-1000 is also a solid switcher with an established reputation.

Currently, Tristar has four Panasonic HDX900 HD cameras for use with the HVS-1000, with plans to upgrade the switcher in the works. The ability to add features as needed and ease of upgrade were major selling points.

UP TO 16 INPUTS AVAILABLE

The HVS-1000 comes standard with eight inputs, and can be configured for up to 16 inputs. Four still pictures can be stored in frame memory and the HVS-1000HS features five standard outputs (two PGM outputs, PVW, and an AUX bus output and also an Input Preview output).

The switcher is optionally expandable to seven outputs. One channel of key is also standard with the HVS-1000. Up to three independent key layers and key edge/shadow generators are available. The two optional keys can be used for chroma-key operations.

John Rybacki is the technical director of Tristar Products, which is based in Fairfield, New Jersey. He may be contacted at johnr@tristarproductsinc.com.

For additional information contact For-A at 714-894-3311 or visit www.for-a.com.

BUYERS BRIEFS

The iris series of production switchers from **eyeheight** are small-footprint, modular units engineered for broadcast, post production and outside broadcast/ENG applications. The largest model in the iris family has 12 inputs and a program, preset and two AUX busses. This HD switcher can accommodate signals up to 1.5 Gbps and feature mix, wipe and cut transitions under automatic or operator control.

A total of eight transition types are available with the switcher and there's also a safe area generator. Twelve GPI inputs are provided, along with 12 tally outputs.

The switcher control surface connects to the rack mounted electronic support unit via a four-wire cable (2-wire I bus control and two power conductors). Total power consumption is 25 W.

For additional information, contact eyeheight at 866-469-2729 or visit www.eyeheight.com.

The HSS-3000 from **Ikegami** is a next-generation, full-size HD/SD production switcher designed to meet HDTV requirements. The HSS-3000 can input HD or SD SDI signals and can support up to 96 inputs and 64 outputs, with all output signals fully assignable.

The switcher provides four M/E busses, with either high-definition or standard definition signals assignable to each of the M/Es. A two-channel DVE, suitable for basic programmable effects, is built into each of the M/Es.

The HSS-3000 is also equipped with a high-flexibility key control, a dual LCD touch screen system for set-up of complicated effect sequences, an optional frame store, external machine control and extensive networking capability.

For additional information contact Ikegami at 201-368-9171 or visit www.ikegami.com.

The AV-HS300G from **Panasonic** is a six-input digital video switcher for either SD or HD applications. It's designed in a compact form factor for both live event and recording applications, and is equally at home in broadcast facilities, studios, houses of worship, or in fly packs.

The switcher features nine wipe patterns, six tally outputs, an automatic internal frame synchronization that adjusts itself and Ethernet connectivity for importing images from a PC.

The AV-HS300G supports 480, 720 and 1080 line resolution at 50 and 59.94 Hz field rates. It operates from 12 VDC, making it well suited for for portable and remote applications. Features include linear, invert and self-keying functions.

For additional information, contact Panasonic at 201-348-5318 or visit www.panasonic.com/broadcast.

USER REPORT

KQED/NCPB HD Relies on Sony Switchers

by Steve Welch
Vice President, Television Engineering & Operations
Northern California Public Broadcasting

SAN FRANCISCO

KQED was the first PBS member station to receive HD equipment through the PBS/Sony High Definition Pilot Project. We're one of three television stations at Northern California Public Broadcasting (NCPB), and now that the program is in its second year, have had the longest experience with the new technology.

We recently integrated the second Sony MVS-8000A multi-format production switcher into our workflow. These switchers are the heart and soul of our studio operations. In the past few months NCPB has made the big HD jump, bringing all local production into the HD world. For KQED that includes five local series, which cover everything from current affairs, the arts, restaurant reviews, interviews, the sciences, nature and the environment.

Such a range of programming requires a great deal of flexibility in terms of signal management and effects capability.

The Sony MVS-8000 has the right combination of features, as well as modular control panel design that really caught everyone's attention. Also, the overall layout, touchscreen and menu items make this switcher extremely user-friendly.

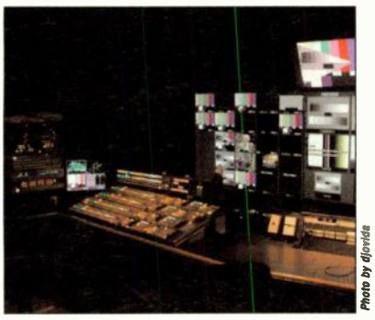

Photo by djovida

One of the two Sony MVS-800A production switchers installed at KQED

Additionally, its multi-format capabilities are a great benefit, especially when it comes down to managing the transition between standard and high-definition production requirements. The addition of these switchers puts us in the position of being easily able to handle legacy SD content as well as be prepared for the increasing flow of HD material.

UPGRADES EASILY

The ability to add switcher capabilities and perform software upgrades by simply swapping out boards is a big time-saver, and it allows us to keep pace with new technology developments. For example, one of the new features we've added has given us choices as to how we use the mix-effect banks. Depending upon our requirements, we can use a two-M/E processor like a four M/E switcher, and keyers can be assigned to either the main or sub-sections of the switcher, or to both of these simultaneously.

The MVS-8000A switcher is truly a technology we can build on in the future as our broadcast production requirements increase.

Steve Welch is vice president of television engineering & operations for Northern California Public Broadcasting. He may be contacted at swelch@ncpb.com.

For additional information contact Sony at 800-686-7669 or visit www.sony.com/professional.

Kahuna

CONTINUED FROM PAGE 50

coverage. Since then, we have integrated these switchers into our everyday broadcast operations, along with two additional Kahuna systems also delivered by Insitel.

These four units effectively standardized us on the Kahuna. Now a fixed part of our three main studios, these Kahuna systems—three fully loaded SD/HD units and one SD-only unit—facilitate production of HD news, sports and live programming. The use of multiple control panels per mainframe gives us added flexibility in the live production environment.

Across our three studios, we are able to mix a fairly even proportion of SD and HD sources into HD productions without the need for external up, down, or crossconverters, and this flexibility has allowed us to migrate our studios to HD incrementally over time. Video from our studios is captured in HD, but we can continue to take advantage of valuable footage from incoming SD sources. Likewise, we have been able to get the most out of our existing SD equipment and make carefully considered investments in new HD gear as our needs, budget and future plans dictate.

When we first chose to work with the Kahuna production switchers, they were the only products that enabled such straightforward and cost-effective blending of SD and HD formats. We were impressed by the performance of the Kahuna and the features and technology Snell & Wilcox built into the switchers.

The system was easy to install and required little training for our switcher operators. Simple software upgrades have allowed us to stay up to date and have equipped us with increasingly powerful functionality.

OPERATES FLAWLESSLY

The Kahuna has operated flawlessly for us since those first World Cup soccer broadcasts from Germany, and we've enjoyed continuous product support since that groundbreaking HD broadcast event.

The installation of Kahuna SD/HD production switchers, along with IQ Modular infrastructure gear from Snell & Wilcox, has enabled us to take control of our HD transition and provide Televisa viewers across Mexico with high-quality HD images that look their best. The advanced processing technologies within all of these Snell & Wilcox products provides our Mexico City facilities with the crisp, clean pictures so critical to successful HD broadcasting.

Engineer Juan Carlos Salazar has more than 20 years in the broadcasting business, and he currently serves as the operations coordinator of Televisa.

For additional information, contact Snell & Wilcox at 818-556-2616 or visit www.snellwilcox.com.

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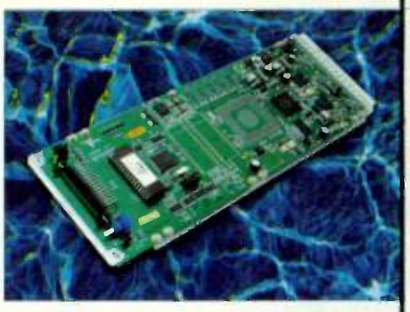

SDI Frame Synchronizer

The SYN HD from Crystal Vision is a new frame synchronizer for SDI high- or standard-definition applications. The unit features a delay of 3 microseconds and quick recovery of input timing.

The unit also has the ability to cross-lock—an HD input can be referenced to either HD tri-level sync or to SD color black. The SYN HD provides operator-controlled video freezes, allowing it to be used as a simple still store. It can be programmed to automatically freeze when input video is interrupted, or it may be set to fill with blue or black screen video. A TTL pulse is provided for use in automatically tracking audio with video synchronizer delay.

The SYN HD is another member in the Crystal Vision "space-saving" family. Its compact size allows up to 24 cards to be accommodated in a single 4 RU card tray.

For more information, contact Crystal Vision at 44-1223-497049 or visit *www.crystalvision.tv.*

Digital Microphone Capsules

Neumann has expanded its line of Solution-D microphone products with the release of three additional digital KM D miniature capsules. The KK 131 is a free-field equalized omnidirectional unit; the KK 143 has a wide angle cardioid pickup pattern; and the KK 145 is a cardioid response unit with high-pass.

With the addition of these new mic capsules, the Neumann KM D miniature family is now extended to six different models.

For more information, contact Neumann USA at 860-434-5220 or visit *www.neumann.com.*

Captioning Products

EEG's iCap Secure Realtime IP captioning system and HD480 Smart Encoder V HD/SD closed captioning server are designed to provide broadcasters with enhanced audio quality, reduced delay times, improved cost efficiency, enhanced security, robust administrative features and compatability with a wide range of captioning devices.

The IP technology provides greater audio bandwidth than telephone audio couplers, ensuring better intelligibility for captioners and eliminating the need for multiple telephone lines and associated usage charges.

The system has a full range of account management, password privilege, troubleshooting and other features for ease of operation and administration, as well as key encryption and the ability to operate behind firewalls.

For more information, contact EEG Enterprises at 516-293-7472 or visit *www.eegent.com.*

Cross Conversion Unit

The 1T-C2-400 cross conversion unit from TV One can convert virtually between any PC resolution up to 2048x2048 and any HDTV resolution up to 1080p.

The device features RGB/YpbPr connections on both input and output and is designed to allow laptop computers to be connected to high-resolution displays, as well as for other applications. The unit automatically detects incoming video resolution and sizes, and positions it to exactly fit the display screen.

The 1T-C2-400 can be controlled either by front panel push buttons, an infrared remote control unit, or via an RS-232 connection. It is housed in a desktop case and kits are also available for rack mounting.

For more information, contact TV One at 800-721-4044 or visit www.tvone.com.

Climbing Harness

The Miller Revolution tower climbing harness from Bacou-Dalloz features the company's patented PivotLink rotary connection for greater climber mobility. The modular design of the harness provides attachment points for tool belts and other accessories. The device can be supplied with a removable fully padded seat for increased comfort and productivity.

The harness can be also supplied with either DualTech two-sided contrasting color webbing with shape-retention memory for a more comfortable fit, or Kevlar/Nomex webbing for superior comfort and durability.

Miller harnesses meet applicable OSHA, ANSI and CSA requirements.

For more information, contact Miller Fall Protection, Bacou-Dalloz at 401-233-0333 or visit *www.bacou-dalloz.com.*

Audio Interface

The EtherSound interface card from Studer allows up to 128 audio channels (64 inputs and 64 outputs) to be connected to the company's OnAir 3000 console via a single Cat5 connection.

The new card is designed to be used with the Studer D21m I/O system rack unit and is also compatible with Studer's Vista series of consoles and with the company's routing systems. The card has a second Cat5 port to allow users to set up daisy chain or redundant ring topologies to ensure uninterrupted operation in the event of a cable break or disconnection.

Inputs and outputs can be patched within the OnAir 3000 via the console's I/O screens.

For more information contact Studer USA/Harmon Pro North America at 866-406-2349 or visit *www.studer.ch.*

Send new product press releases along with color photographs to:
Marketplace Editor, P.O. Box 1214,
Falls Church, VA 22041, USA

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ANTENNAS/ TOWERS/CABLES

Want to Sell

Channel 46 antenna, new in box, Andrew ALP16L7-HSOC-46, chnl 46, freq 662-668, beam tilt 1.75 degrees, input power rating 5.6kW average, input connection 1-5/8" EIA, polarization horizontal, pattern OMNIOID, gain 28.20 (14.50-dBs), addl Andrew specs are avail in the Andrew Catalog 38, pages 293-302, $16320. R Streeper, Liberty University, 434-582-7381 or rstreeper@liberty.edu.

AUDIO PRODUCTION

Want to Sell

ART MDC 2001, $99; Clear-Com AP-22, $2000; Sony DTC-75ES DAT audio rcdr/plyr, $399; 360 Systems DIGICART II digital audio rcdr & plyr, $799; Clear-Com ICS-2003 intercom, $1250; Sony WRR810A/WRT822B/ECM77 wireless mic, $1200; Graham-Patten D/ESAM 200 audio mixer, $2600; GV AMX-100S audio mixer, $499; Mackie 328 8-bus Series audio mixer, $1899; Mackie SR408 audio mixer, $2499; Eventide BD600 outboard, $2995; Graham-Patten ADC20 outboard, $299; Alesis Monitor One speakers, $279; Sony tape decks, $2499. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

www.tvtechnology.com
www.tvtechnology.com
www.tvtechnology.com

Wohler AMP 1A, $375; Sony PCM 7040, $3995; Sony PCM 7030, 2995; Sony PCM 7010, $750. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Graham Patten D/ESAM 820 digital audio mixer, BO; ADC DAL3-14MKIINS digital audio patchbay, $350; GVG 8550 tray w/8-8551 audio DAs, $800; 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

Want to Sell

(3) Hitachi Z One C studio config cameras, $15000; Ikegami HL-57 w/Sony BVV-5, Canon 14x8.5 IF lens, $4500; Sony DSR-300A w/Canon 14X, $3400; Panasonic SDX-900 PAL, BO; Hitachi Z3000 studio camera, call for price. 908-879-9590 or www.mccominc.com.

Sony HDC-F950 CCD digital 3 camera, BO; Sony BVW-300A Betacam camcorders, $5900; Sony BVW-400A w/lens, $4995; Sony DSR-130 DVCAM camcorders, $7995; Sony HDWF900PAC1B HDCAM camcorders, $82900; JVC GY-HD100AU HDV camcorder, $5495. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

CAMERA ACCESSORIES

Want to Sell

Ike HD-340 w/lens, $2550; Sony BVP550 SDI camera studio system, $2550; Sony DXC-D30 w/CA-537 adaptor, etc, $6599; Canon J20AX8B4IRS, $6500; Canon J20AX8BIRS, $8200; Canon J9aX5.2B4KLL-SC T2.0, $6900; Canon YJ 17x9.5B4 KRS SX12, $2375; Daiwa DW-11M1 tripod, $3199. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

BATTERIES

Want to Sell

Sachtler 30 head & sticks, $4995; Sony Cine Alta XDCAM HD PDW-F330 new demo unit, full warranty, Only $9,900; Sony BVP-50 Camera Head, $2750; BTS LDK93 w/Studio VF, Fujinon BEVM 15X lens, CCU & Paint Panel, (steal this camera), BO; Sony LDK 90 w/Studio VF, Fujinon BEVM 15X lens, CCR & Paint Panel, BO. Hitachi C2 Camera w/Canon J15 lens, BO; Sony AC550 Power Supply, Make an Offer; Sony VA500 Color Playback Adaptor, $1000. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Canon J20x7.5B studio lens $12800. (2) Sony BVF 77 studio VF, $4000; Fuji A18x8.5FEVM B3 VGrip, 2X, $850; Sony CA-905K studio build up kit/sled, $1200/ea. 908-879-9590 or www.mccominc.com.

www.tvtechnology.com

CSI Daiwa TD 25 ENG 20, weighs less than 10 lbs, adjustable counter balance & drag adjustments, die cast alloys, titanium, $1695; CSI Daiwa TD50 heavy duty tripod dolly DL15, $375. M Hemphill, 508-359-6671.

DIGITAL EFFECTS

Want to Sell

Abekas A-57 combiner, $8600; Accom DIS-422, $1750. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

www.tvtechnology.com

Chyron Duet, $6,000; Chyron Infinite SDI, last used on Regis and Kelly show, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

EDITING EQUIPMENT

Want to Sell

Sony DVW-A500 digital Betacam editor, $31995; Thomson TTV-3452N OEM of Sony DVW-A500 digital Betacam editor, $29995; CMX OMNI 1000E edit cntrlr, $3900; Avid 18GM drive, $350; Accom StrataSphere Spherephous, BO; Avid MCXPRESS-NT V 4.1, BO; Avid SYMPHONY V2.1 system, $6995; Discreet Inferno HD, BO; Discreet Smoke HD, BO; Sony RM-450 cntrlr, $850. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

SERVERS

Want to Sell

Tektronix PDR-100 analog server, $3800; Tektronix PRS200A 20x9GIG server, $4800. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

LENS REPAIRS

Focus Optics. Service and repair of broadcast video lens. Fujinon, Canon, Nikon, Angenieux, etc. **We have the fastest turnaround in the country.** We also repair lens that have bad inpact damage. **Call Stuart at 800-234-lens or www.focusoptics.com.**

MONITORS

Want to Sell

Aspen VS100 color monitor, $290; Marshall V-R151P-4 color monitor, $1500; Marshall V-R44P color monitor, $1231; Sony BKM-101C color monitor, $750; Sony PHM-20M8U color monitor, $1799; Sony PVM14N5U color monitor, $400; Sony PVM8042Q color monitor, $575; Ikan V7000 LCD monitor, $319; Ikan V9000 LCD monitor, $399; Marshall V-R72P-2SD LCD monitor, $2699; Barco 8100-DATA video projector, $3000. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Sony PVM20M4U 20" Color Monitor, $1750; Sony PVM14M2U 14-inch Color Monitor, $1050; Sony BVM 20 F1U Monitor, BO; Sony BVM14F1U 13" Color Monitor, $1750; Ikegami TM9-1 9" Hi-rez color monitor, BO; Tektronix 1720 Vectorscope w/1730 Waveform monitor & dual case, S900; Tektronix 1725 Vectorscope w/1735 Waveform monitor & dual case (PAL & NTSC), BO; Tektronix WFM 300, $750; Tektronix 601 M Serial component monitor, $5500; Tektronix 601 A monitor, $4500; Tektronix 601 serial component monitor, $3500; Tektronix 1755a Waveform/Vectorscope dual standard (PAL & NTSC) composite & component, $2995; Tektronix VM700a, $9,000. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Panasonic BT-LH2600W 26" multi-format LCD, new, call for price; Sony PVM-15L5 w/BKM-120D, $2300; Ikegami TM20-20R w/SDI option, BO; (2) Sony PVM-14M4U, $975/ea; Sony BVM-14F1U, BO; Sony BVM-14E5, BO; (2) Sony BVM-20F1U, $2100/ea; (2) Sony BVM-20E1U, $2300/ea; (15) Sony PVM-96 9" BW monitor w/16:9, BO. 908-879-9590 or www.mccominc.com.

SIGNAL PROCESSING

Want to Sell

Convergence ECH-HD large HD playout turnkey system, $31000; Darim Vision FDSR2000 playout turnkey system, $11995; Convergence ECS-550LT Media Lite D.Co 1 chnl TV automation turnkey system, $7395; Convergence ECS-650P Digitizer Pro Media D. Co TV automation turnkey system, $39885; Chyron INFINIT! CG, $7999; Chyron MAX CG, $3690; D.Co MediaPlay CG, $2395; DaVinci 2K 3 Power tiers color corrector, BO; Blackmagic Multibridge HD-SD encoder/decoder, $1795; Darim Vision MV401exp, $6995; Darim Vision MV410EXP, $6495; Leitch FR-6802 w/10 VSM-6801 serial DA, $3000; Tekniche Genesis 6001, $1600; Tektronix 2715, $8500; Sony HKDV501A, BO; Digital Vision DVNR1000 4x4 NR, BO; GVG M9131 SDI DA, $150; GVG 9560 PAL sync gen, $1150. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

(6) For-A CCS-4360 color correctors, $1000/ea; Chyron Maxine w/Xform II, $1500; Pinnacle DVExtreme 3-chnl SDI DVE, call for price; Pinnacle Lightning 2-chnl SDI stillstore, $3500; Axon ARC-2000 aspect ratio converter, $1800; Chyron Infinit 060, SDI, BO; Leitch X75HD, call for price; GVG DPM-700 dual chnl, BO; Sony BE-2000, $2000; Sony PFV-L10 tray w/10-BKPF-L603 SDI DA 1x8, BO; GVG 8500 w/8-8501 video DAs, BO; GVG 9520A sync gen w/TSG, BO. 908-879-9590 or www.mccominc.com.

SOFTWARE

Want to Sell

Apple G4 933mhz with Kona SDI I/O card, BO; Avid Symphony Nitrus, newest hardware & software, BO; Avid LVD MediaDock, $2295. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

SWITCHERS

Want to Sell

Thomson 9200 8-input SDI switcher, BO; BTS DD10 16-input SDI switcher, BO; Echolab DV7 Switcher, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

GVG 3000-2 w/12 SDI & 20 analog ins, call for price; GVG 200-2 loaded, $5500; Sony DVS-6464M 128x128 SDI router, BO; GVG 1200 w/10 SDI Ins & chroma key, BO; Pesa 24x16 Lynx VAA router, BO; Phipip Saturn master cntrl, Leitch VSM-4044MB 4x4 video router, $200; GVG 200, 3000, 100CV 110 Master 21 boards & ps, call for price; Sony DVS-6464 64x64 SDI router, call for price; Pro Bel TX320 Master Control, Philips DD30 32 SDI switcher, call for price, Sony DFS-300, $2000. 908-879-9590 or www.mccominc.com.

Snell & Wilcox Kahuna 4 M/E HD/SD switcher, BO; GVG M-2100 master cntrl switcher, $19600; GVG 100N prod switcher, $2499; GVG IPS-110 prod switcher, $6999; Sony DVS-8000C 2 1/2ME standard def prod switcher, BO; GVG 20-TEN w/20-TenOSA stereo audio routing switcher, $5500; GVG 7000 very large matrix w/SDI video routing switcher, $85400; GVG Series 6000 32x32 VAA w/5 panels routing switcher, $8600; Leitch 128x64 V6 Integrator w/10 panels, $31500; Leitch 16x1 routing switcher, $1100; Lighthouse K Series 32x32 SDI vdieo, AES audio routing switcher, $11000. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

TAX DEDUCTIBLE EQUIPMENT

Needed, 700' of 3" antenna transmission hard line, also xmtr for TV chnl 31 & if you are changing to HDTV studio equip, we could use analog bdct equip for our not-for-profit 501-c3 org, we give tax deductible receipt for your donations. Please contact us at 317-920-1000 or email srsue@catholic-television.tv.

Low-power, non-profit TV station needs a 1kW-2kW digital xmtr for the transition to digital television, we are a 501 c3 org, please contact us at 505-884-8355 x. 215 or email: rfranks6609@msn.com.

TELECINE

Want to Sell

Thomson Shadow complete telecine suite, $725000; GVG Spirit, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

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.

The cable carries HD-SDI video, audio and intercom back to the Flypak™ while at the same time sending genlock, time code, tally lights and power to the camera.

The For-A HVS-500HS Video Switcher supports all HD and SD formats and frame rates. This 8-input digital switcher includes:
DSK with Chroma Key Function.
Two Still Stores and Picture-in-Picture.

Powerful Switcher Supports HD and SD

NAM, FAM, and 100 different preset wipe patterns. Color matching with process control. A vertical, horizontal or diagonal gradation matte can be used for assigning to backgrounds, wipe borders, and keyer mattes.

Record on DVCPro-100, HD-Cam or uncompressed on a DDR. The standard configuration includes a Panasonic AJ-HD1400 and Sony DVD recorder.

Flypak™ works with any type of VTR

Panasonic HVX-900

JVC GY-HD250U

The Miranda screen splitter feeds ten images into a 42" Panasonic screen display while simultaneously displaying tally, time-code, time of day and up and down timers. A Leader 7700HD rasterizer sends video levels and test signals to the monitor.

Signal distribution and patching. The inputs and outputs of every device in the 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.

Ten Input Audio Mixer, Stage Box and other unique features. Audio is handled by a 10-input Sennheiser mixer. A stage box couples to a 150 foot audio snake with bayonet connectors on each end allow quick deployment. The stage box allows the signal from eight microphones to be sent to the Flypak™ while receiving program audio and two channels of intercom.

TVPG Audio Stage Box

The Flypak™ access panel has outputs for program audio and intercom. The access panel also has connectors for HD and SD component video to feed a floor monitor or projection system.

6-Camera Flypak™ Access Panel

A Clearcom MS-232 master station supplies two channels of intercom. Also included are a Clearcom RM-232 remote station, five beltpacks and seven headsets.

Clearcom MS-232 2-Channel Intercom

Highly portable. Designed to survive adverse conditions. The 42" Plasma screen electrically retracts into the case for shipment. The entire system is mounted in a jig welded, shock mounted aerospace quality frame capable of sustaining a 3g impact. An extreme-heat and dust resistant version of the Flypak™ is available that includes temperature controlled fans.

The entire Flypak™ runs off of a (UPS) uninterruptible power supply. TV Pro Gear's Flypak™ is completely immune to low voltage conditions or power spikes. If you lose power, the system will keep operating for over an hour. The Flypak™ draws less than six amps so even ancient household circuits are not a problem. 220 Volt versions are also available.

Warranty, Training and Documentation. The system comes with a ninety-day warranty. An optional one-year warranty is available. On site training is included.

The system comes with a full set of CAD drawings and operations manuals. Every wire in the Flypak™ is labeled at both ends designating where it goes to and where it comes from.

Call us for a quote on a system customized to fulfill your requirements.

TELEPROMPTERS

TEST EQUIPMENT

Want to Sell

Leader 5850c, $750; Leader LV 5100D, $3495; Leader LV-7700 HD/SD rasterizor, (new) $6,500; Tektronix TSG170D Digital Composite Generator, $1500; 171 PAL sync generator, BO; TPG625 PAL pattern generator, BO; SPG 271 PAL sync pulse generator, $2250; TSG 371 PAL test signal generator, $1200; (2) TSG422 w/ECO changeover unit, $2500. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Tektronix 1750 combo wfm/vec, $1000; Tektronix 1740 combo wfm/vec, $900; Tektronix 1735 NTSC/PAL wfm, $950; Tektronix 1730D wfm, $950; Magni MM400, BO; Tektronix 1730/1720 wfm/vec, $850; Tektronix WFM-610M SDI wfm/vec, $5000; Tektronix 1750A combo wfm/vec, $2500; Leader LV-5700A HD/SDI wfm/vec, call for price. 908-879-9590 or www.mccominc.com.

Tektronix 1720 vectorscope, $900; Tektronix 1730 waveform monitor, $900; Tektronix WFM-601E waveform, $5200; Tektronix WFM601i waveform, $3750; Tektronix 1740A waveform/vector, $2950; Tektronix 1750A waveform/vector, $3800; Tektronix VM700A, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

(2) TENMA oscilloscopes, 72-5025 60 Mgz & 72-3060 20 Mgz, both working for $500, incl shpg in the US. 888-301-8273.

TRANSMITTERS/ EXCITERS

Want to Sell

Transmitter off-air? Can't get transistors for it? We can help! 954-792-7207.

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

VIDEO PRODUCTION EQUIPMENT

Want to Sell

Darim Vision VS2010-STD Virtual Studio Video system, $22800; Darim Vision VS2020-STD Virtual Studio Video system, $34995. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

VTRs/VCRs/ RECORDING MEDIA

Want to Sell

Panasonic AJ-HD2700P w/down converter board D5 VCR & EQ, $22900; Sony BKFC-200 Playback systems parts, $4500; Sony BVU-950 3/4 U-Matic VTR/editor, $1799; Sony DNW-A220 Betacam edit system, $10650; Sony BVW-75 Betacam editor, $7250; JVC BR-D750U D9 digital-S editor, $3750; JVC BR-D350U D9 Digital-S plyr, $2250; Sony SRW5500 HDTV rcdr & plyrs, BO; Sony DIR1000H, new, BO. 818-551-5858 or 212-268-8800 or www.broadcaststore.com.

Sony UVW1800 Betacam SP Recorder, $3995; Sony BVW 75 Betacam Recorder, $4950; Sony DSR-80 DV Cam VCR, $3500; Sony SVRM-100A remote for UVW series VCRs, $200; Sony VO 9850 ?" U-matic recorder, $1500; Sony SVO5800 S-VHS Editing VCR, $1250; Panasonic 7350 S-VHS Editing VCR, BO. LA 818.788.4700; NY 212.564.9933 www.tvprogear.com

Sony BVW-D75, call for price; Sony BVW-75 & Sony BVW-70's, call for price; Sony UVW-1800, $2800; Sony DVW-A500, call; Sony PVW-2800, $4500; Sony UVW-1400A PAL, BO; Panasonic AJ-D580, BO; Panasonic AJ-D351, BO; Sony BKDW-515, $2000; Sony PVW-2650 & BVW-65, mint, BO. 908-879-9590 or www.mccominc.com.

Sony UVW1800 Beta rcdr/editor, 800 drum hrs, rack ready, serviced 3/07, $4000. 864-370-3117.

PROFESSIONAL SERVICES

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Motorola to Acquire Modulus Video

SCHAUMBURG, ILL.

Motorola Inc. is buying Modulus Video Inc. for an undisclosed amount. The handset giant adds Modulus to a list of recent acquisitions aimed at end-to-end video delivery on a variety of architectures.

Modulus Video, located in Sunnyvale, Calif., is a pioneer in the development of MPEG-4 compression systems. The privately held company has been working with Motorola for more than two years. At NAB2007, Modulus introduced the MRE2000, an MPEG-4 based platform of video receiver/encoder systems that streamlines direct broadcast satellite and IPTV headend operations.

Upon completion of the transaction, Modulus Video will become a wholly owned subsidiary of Motorola and integrated into the Home & Networks Mobility business. The operation will remain in Sunnyvale. The deal is expected to be completed in the second or third quarter of this year subject to customary regulatory and stockholder approval.

"As consumers demand more high-definition video and interactive services, the need for advanced compression technology is increasingly important, said Dan Moloney, president of the Home & Networks Mobility business at Motorola. "As part of its advanced real-time video encoding products, Modulus Video has a powerful architecture and product development framework that is well suited for continued technological advancement."

Other recent Motorola acquisitions in the IPTV/broadband market include Broadbus, Kreatel, Tut Systems and Netopia.

Meredith Sells Oregon LPTV

DES MOINES, IOWA

Meredith Corp. has finalized the sale of its low-power Fox affiliate, KFXO-LP, in Bend, Ore. The station will be acquired by NPG of Oregon, a wholly owned subsidiary of News-Press & Gazette Co., which owns KTVZ, the NBC affiliate in Bend. Terms of the sale were not disclosed.

"The decision to sell KFXO supports our strategy to focus on larger markets, as well as markets where we have or can create duopolies," said Meredith Broadcasting Group President Paul Karpowicz. "We thank our hardworking KFXO employees for their dedication over the past decade."

KFXO-LP was acquired by Meredith in 1997 and features the only 10 p.m. newscast in the Bend market. Meredith owns or operates 13 television stations along with one radio station.

Chinese Government Taps Tektronix for DTV Measurement

BEAVERTON, ORE.

The China Academy of Broadcasting Science has selected Tektronix Inc. measurement equipment for its DTV and HDTV standards development, compliance testing and certification work.

ABS is the arm of the Chinese government that develops and defines standards for HDTV, CATV, satellite broadcasting and FM radio, as well as digital audio broadcasting. ABS is purchasing Tektronix MTS430 MPEG analyzers, WFM7100 waveform monitors and a PQA500 picture quality analyzer to add to the group's inventory of equipment.

"We evaluated every video diagnostic and measurement solution based on performance, reliability and capability to address the complexity of DTV/HDTV video format and standards," said Zou Feng, ABS vice president. "All of the Tektronix gear is very professional, but I was particularly impressed with the unique PQA500 Picture Quality Analyzer. Its implementation of a comprehensive Human Vision Model will be a key asset that allows our engineers to efficiently and objectively evaluate video quality in a multiformat environment."

The ABS organization was established in 1958 and is under the direct leadership of the China State Administration of Radio, Film and Television.

Robert Henry Named Harris COO

MELBOURNE, FLA.

As part of a new organizational structure, Harris Corp. has chosen Robert K. Henry for its executive vice president and chief operating officer.

Robert Henry

"Effective with its fiscal year 2008, which begins July 2, 2007, the company's segment reporting will be adjusted to reflect the new organization structure. The four segments will include Government Communications Systems, Defense Communications and Electronics, Broadcast Communications and Harris Stratex Networks," according to the company.

Henry began his career with Harris in 1997 as vice president and general manager of Government Communications Systems. He had been executive vice president and president of that division when the revised organizational structure was announced. His oversight now extends to technology transfer, research and development, acquisition integration, facilities, supply chain management, manufacturing, government affairs, information systems, contracts and security.

Prior to joining Harris, Henry held executive positions with Lock, General Electric and RCA.

Sony Selects VSG for Mobile Production Trailers

EAST RUTHERFORD, N.J.

Venue Services Group Inc. has been chosen by Sony to design and build video production trailers, which will be sold by Sony under the name Mobile Video Producer.

The 24-foot long MVP will have a price tag of from $500,000 to $1,500,000. It will be a complete turnkey production facility on wheels, containing up to six cameras, monitoring, recording, a production switcher, graphics and more. Sony plans to offer both SD and HD versions of the MVP.

MVP units will be completely production ready and equipped with a full documentation package.

Sony featured the MVP-02, a complete HD production unit based on the XDCAM format, at NAB2007. It included three cameras, a camcorder, switcher and a Chyron LX character generator.

CBS Interactive Acquires Wallstrip

NEW YORK

CBS Interactive has acquired Wallstrip, an online producer and syndicator of a daily Web show, which focuses on financial news.

Wallstrip will maintain a separate identity from that of CBS Interactive, but the Wallstrip production team will be working with CBS Interactive to create original Web and mobile video content.

"CBS recognizes that original Web content—whether it's news, sports or entertainment—is starting to show real traction with audiences, producers and advertisers," said Quincy Smith, president of CBS Interactive. "As CBS evolves from a content company into an audience company, we need to build a team of talented web producers who 'get' the growing online demand."

Wallstrip launched about six months ago and has secured placement with YouTube, iTunes, Yahoo!, Google Finance, AOL Uncut and other outlets.

"CBS is a great match for Wallstrip," said Howard Lindzon, Wallstrip founder and CEO. "The CBS Interactive team is committed to growing the property and expanding the programming while keeping true to the core product. We have a lot of room to grow inside of the financial news vertical and CBS will help us get there faster."

Thomson Marks HD Milestone

PARIS

Thomson has announced the delivery of its one-millionth MPEG-4 high definition set-top box to DirecTV in the U.S. Thomson began shipping MPEG-4 receivers and DVRs to DirecTV less than two years ago.

"Demand for high-definition and DVR services continues to accelerate among DIRECTV customers," said Jim Butterworth, senior vice president of Technology and Operations at DirecTV. "Thomson's delivery of its high-performance and technologically advanced set-top box platforms, has greatly supported DirecTV's initiative to provide its customers with a unique and compelling viewing experience and lead the industry in the delivery of HD content."

Thomson has been supplying receivers to DirecTV since it launched in 1994.

DirecTV says their number of HD customers have doubled during the past year and that it will have capacity for 100 HD channels by year's end. Launch of a new satellite is scheduled for this summer and this will provide capacity for local high-definition channels in up to 75 markets. Another satellite is being readied for launch in early 2008. This will expand the DirecTV HD capacity to 1,500 local HD channels and 150 national HD services.

According to Screen Digest, almost 60 percent of U.S. households is expected to be HD-ready by 2010. ■

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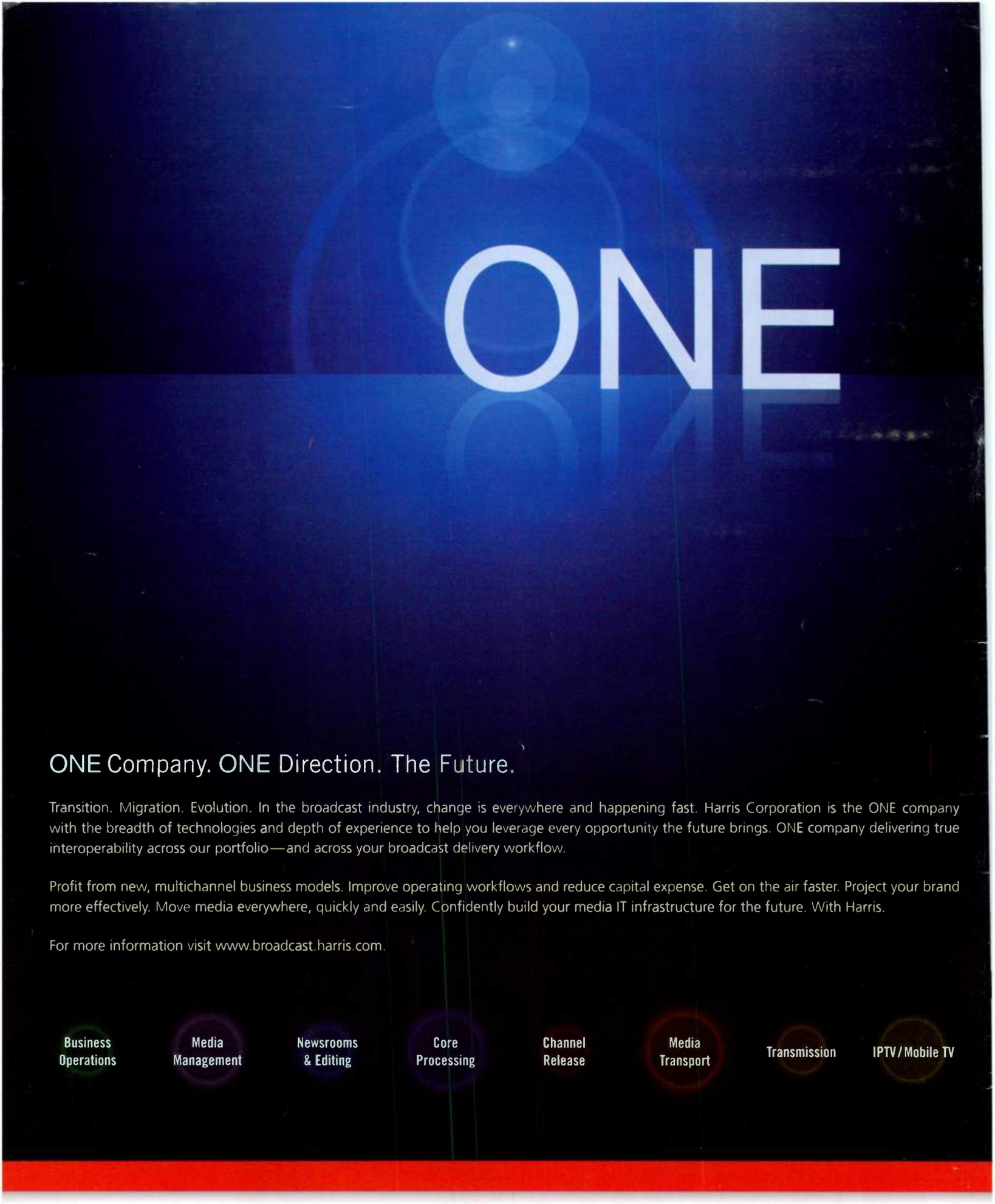

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