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WHAT'S INSIDE

FCC Issues SOS for EAS

U.S. alert system needs makeover

by Deborah D. McAdams

WASHINGTON

There's an old joke about how to tell if someone is from the Midwest. Wait for a tornado warning and see who goes outside.

Tornado warnings are among the most common use of the nation's Emergency Alert System (EAS), now the subject of a major overhaul by the FCC. In a 28-page Notice of Proposed Rulemaking, the commission questions whether the system is worth saving, and if so, how to save it.

Conceived in the 1950s, the original system was created to warn the nation in the event of a nuclear attack.

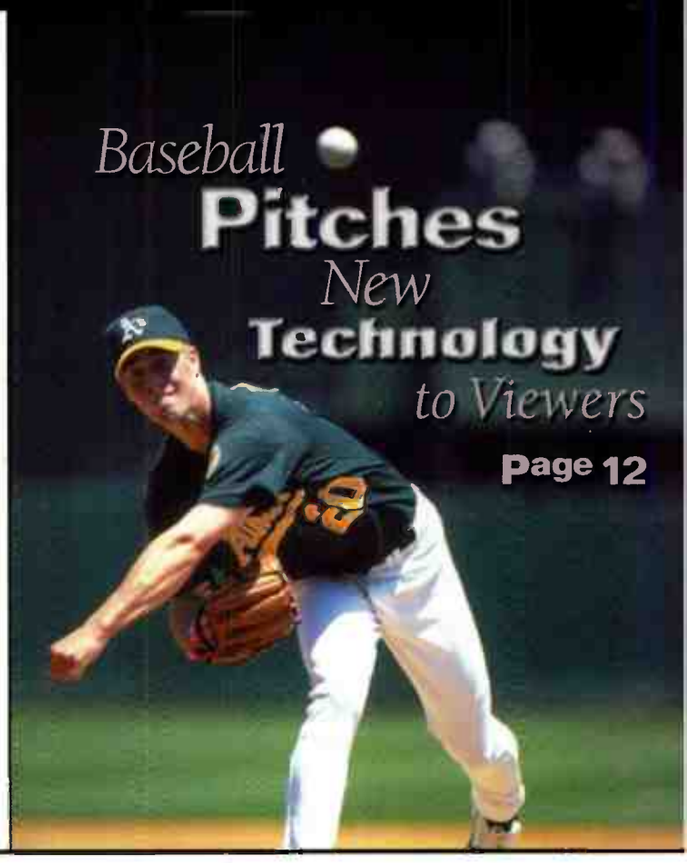
"It used to be for 'duck-and-cover,'" said Richard Rudman, an EAS expert who serves on the FCC's Media Security and Reliability Council. "Modern risks aren't that simple."

The current system is designed to work on multiple levels, from local tornado warnings, child abductions, wildfire alerts and hazardous chemical spills, to a nationwide alert initiated by the president. With EAS, however, design is a far cry from execution.

THE BIG ONE

In theory, a national alert would be relayed from the

EAS, PAGE 10



Diving Into the Spectrum Pool

USDTV's recipe for success

by John Merli

SALT LAKE CITY

To receive cable channels in some markets, consumers need look no further than their local broadcaster and maybe the old rabbit ears. Sorry, how's that again?

It's all about what innovative, cost-conscious upstarts like USDTV are doing with digital technology, some capital and marketing prowess. In three initial market rollouts, USDTV is taking the basic business model of cable and DBS, mixing in a bit of shared digital spectrum and a set-top box receiver, and for a price, asking broadcasters to feed the end-result to consumers. Yet although the Salt Lake City-based company is offering an otherwise $200 digital receiver for a hugely discounted $20, and charges only $20 monthly for cable-channel services on one receiver ($5 monthly for each additional box), USDTV also may be taking a bit more credit than it deserves for what it exclusively provides.

USDTV is attempting to bridge the niche between two extremes—the costly 200-channel universe of digital HD-SD, VOD and TiVo-like services on one end, and the free, but meager, menu of over-air analog

USDTV, PAGE 20

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IN THIS ISSUE

P.16
The latest in switchers

P.50
The TiVo-zation of commercials

P.52
ENG/EFP cameras and accessories

NEWS

FEATURES

BUYERS GUIDE

EQUIPMENT

P.48
WiMax, the other wireless standard

CONTRIBUTING WRITERS

NAME: Charles W. Rhodes

COLUMN: Digital TV

The tide is indeed changing. I refer to the fact that many broadcasters sought to minimize their initial investment in DTV by operating a low-power transmitter, perhaps not certain that DTV would catch on, or doubting the FCC would ever shut down analog transmission... PAGE 32

NAME: Craig Johnston

COLUMN: Production Manager

I was reviewing a pilot production budget for a former employee, who hopes to launch a show for young people, and I couldn't find a line for an audio operator. "Who's going to run audio on this thing?" I asked. "Oh, I thought one of us could," was the answer... PAGE 30

NAME: Tim Carroll

COLUMN: Audio Notes

Let's start with some good news before we jump into the difficulties and complexities of television audio. I am happy to report that in August, Dolby Laboratories was informed that the company had won a technical Emmy award for its LM100 Broadcast Loudness Meter... PAGE 38

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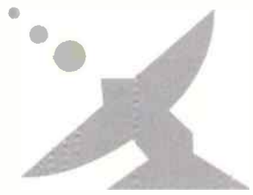

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FROM THE EDITOR

It's About Time

Three years after 9/11, the FCC is finally taking steps to bring the Emergency Alert System (EAS) into the 21st (and digital) century. By now, we are well aware of the alert systems' effectiveness—or lack of— during the terrorist attacks. There were plenty of excuses, but the fact remained that the system didn't work because it wasn't activated. For all the benefits of localism the broadcast industry touts, our most important asset is the ability to disseminate information in times of crisis. Citizens turn to broadcasters during emergencies. It's imperative that the industry retain that sense of trust. Digital broadcasting offers incredible potential to enhance and strengthen the ability to provide the latest information; the broadcast industry hasn't always been on the same page during the digital transition, but this is one opportunity for the industry to work together for a common cause.

Don't forget to join us for another informative Webinar on Sept. 29 at 12:00 noon, eastern. Join me, Paul Turner from Omneon and special guest Clyde Smith, senior VP of technology for TBS as we discuss "Efficiencies of a File-Based Workflow." To register, visit *www.tvtechnology.com/webinar3*.

Tom Butts
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LETTERS

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Setting the Record Straight

Dear Editor:

In response to Gary Shapiro's letter ("Promoting Digital Broadcasting," Aug. 18) in which he seems to never miss an opportunity to rant at Sinclair and me, I can only say, "Gary, get over it."

The only pain that Sinclair clearly inflicted arose from our efforts to expose the fraudulent representations made by Gary Shapiro and the CEA about the early implementations of 8-VSB receivers. Their representations that their 8-VSB receivers performed as desired and were ready to support a free over-the-air HDTV service were clearly, to be kind, misrepresentations of the truth. In fact, at that time, the CE industry was offering an HDTV product that was not ready for the mass consumer market. It was premature and poorly designed across the board. Sinclair's testing of the early generations of receivers exposed their inability to deal with the simplest real-world multipath distortions. Apparently the CEA manufacturers overlooked the real world environment and made little or no effort to actually measure real-world multipath distortions prior to developing their products. It was only after Sinclair and others demonstrated in a direct live one-on-one comparison, at a Congressional hearing, that the then current 8-VSB system implementation was vastly inferior to the DVB-T system did Gary admit there was a problem. He then admitted to Congress that improvements were needed. He promised that developments were underway that would make the 8-VSB system perform up to the demonstrated DVB-T system, within six months. As a result, we may all remember the pathetic efforts of some of Gary's CEA companies to divert attention from the truth by declaring that some new "miracle chip" had just emerged from the lab. All of these "miracle chips" are now long abandoned and several of their developers forgotten. It has taken five years, not six months, but one company stuck with the effort and finally made 8-VSB perform to meet the broadcaster's requirements that were posted years ago with the ATSC. Sinclair field tested the Zenith/LG solution with their cooperation and found that it met our expectations. We congratulate Zenith/LG and we will continue to promote their achievement.

Sinclair has monitored and encouraged the development of 8-VSB improvements within the context of improving over-the-air reception. It has always been our desire that the digital television service be as robust as the analog service that has been in use for six decades. CEA and the FCC promised us that outcome for the digital transition at the very start of the process. Sinclair was then—and is now—not prepared to give up on a free over-the-air digital service. Gary Shapiro and the CEA were ready to abandon an antenna service as soon as the going got a little difficult and the profitability of the cable and satellite hardware and subscription subsidy business became apparent. To quote Gary himself, "At first we thought the over-the-air broadcaster would drive DTV. We were wrong, it is cable and satellite; what were we thinking?" So much for Gary's claim of being an over-the-air advocate.

It is ridiculous to claim that Sinclair's efforts forced the CEA manufacturers to abandon integrated DTV sets because they were uncertain as to the outcome of the standards debate. Clearly they marketed a monitor without a DTV receiver because they learned through Sinclair's efforts that they had nothing that would work well enough to support an antenna service. The manufacturers wanted to avoid a large and costly return traffic of integrated receiver products. It was the profit motive in operation, not a Sinclair effect.

Finally, after five long years of waiting and billions of dollars of broadcaster investments (Sinclair alone has invested over $150 million in our DTV facilities) our industry can see some light at the end of the tunnel because of the work done by Zenith/LG. Clearly, our efforts have helped force the CE industry to meet the over-the-air broadcaster's requirements. It was easier and more profitable for the CEA manufacturers to concentrate on a cable and satellite business at the expense of solving the over-the-air problem. I believe that Sinclair's team effort fostered and now with Zenith's good work, enabled an over-the-air free HDTV business model that would not have emerged if Gary Shapiro and CEA had had their way. I offer Gary this advice: Be thankful that your members were enlightened by Sinclair to the fact that they did not have a solution to an over-the-air DTV system. They thus avoided the economic penalties associated with massive returns of inferior products and the subsequent loss of consumer confidence. Also be thankful that at least one manufacturer spent the time and money to perfect a receiver technology that has finally met the promises made to broadcasters so many, many years ago.

Sinclair again congratulates Zenith and we look forward to the birth and growth of a free antenna based, over-the- air DTV service.

Nat Ostroff
Vice President, New Technology
Sinclair Broadcast Group
Baltimore

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Microsoft Previews WM10

Hiccups on the DRM path

by Paul Yurt

REDMOND, WA

"Seamless Media Everywhere" was the mantra presented by Microsoft at a preview event for analysts and the press in which Windows Media Player 10, Media Center PC and Windows Mobile for Handhelds was demonstrated on hardware including rights-managed handhelds and satellite players.

In this Version 10 release, the software giant continues to use Version 9 codecs, servers and infrastructure while replacing its DRM, packaging it with online audio and video rental and sales.

The Windows Media Center PC and its associated technology offer a rich set of options and features for home viewing and "on the go" media with integrated DRM. This PC-centric system is in direct competition with hardware-based CE products.

Built into the new Media Player 10 is a top level menu to access 27 companies' online stores. These retail offerings position Microsoft and its partners in direct competition with Apple's successful iTunes digital music storefront and Real Networks' music store. The Microsoft difference is in its Windows Media DRM 10, which offers downloadable movies, video and audio as well as DRM for handheld audio/video players. DRM 10 offers more advanced rights control for content owners and media distributors, according to a Microsoft exec.

Microsoft CEO Bill Gates touted the portable video capabilities of WM10 at a CES preview in January.

"With DRM 10, OEMs can build a wide variety of devices to support various business models and consumer scenarios including subscription and rental," said Dennis Flanagan, product unit manager for Microsoft's Windows Media Devices group.

Using DRM 10 allows media to expire, be restricted to play a set number of times, to play only on specific devices, or to expire after being copied. DRM 10 for example, allows users to share music and video with friends for limited sampling before expiring. DRM-protected files require a license to be played.

CAN'T TAKE IT WITH YOU

At the event, all the software and services worked well, in fact without a hitch, until DRM 10 was turned on. DRM delayed some demos and caused others to be aborted. When software reviewers attempted to get

WM10, PAGE 19

ATSC Approves DTx

WASHINGTON

The Advanced Television System Committee (ATSC) has approved and released its standard, A/110, for distributed transmission (DTx) systems. The released standard covers distributed translator systems (DTxR) using two channels as well as distributed transmitters operating using one channel. Digital on-channel repeaters (DOCRs) are not covered under the standard, although it notes they can be used to extend and fill in coverage from DTx and DTxR systems.

"Distributed transmission holds the potential to greatly improve the coverage and service areas of DTV transmission," said ATSC President Mark Richer.

However, he cautioned that DTx systems should be carefully implemented, so the ATSC is also developing recommended practices on the design of synchronized, multiple-transmitter networks.

In DTx systems, some DTV receivers will get signals from more than one transmitter. To prevent the signals from interfering with each other, each transmitter in the DTx system has to send exactly the same data stream.

In addition, to appear as multipath rather than interference, the multiple signals have to arrive at the receiver close enough in time for the adaptive equalizer to compensate for them.

Acceptable "delay spread," as the difference in arrival times is called, is much smaller for older DTV receivers than for the latest designs. If the transmitters are not on the same frequency, in addition to the delay spread, the receiver will have to deal with the apparent Doppler shift.

ATSC Standard A/110 provides techniques for making sure all transmitters are transmitting the same data stream.

These include identifying the first packet in a data field so the modulators in all the transmitters initialize their pseudo random binary sequence values on the same transport stream packet, and properly slaving the pre-coders and trellis encoders at each transmitter site.

For more information on the subject, refer to Doug Lung's RF Technology columns in the Feb. 3, 2003 and March 4, 2003 issues of TV Technology, or access them at *www.tvtechnology.com*.

The FCC previously said it would open "a fast-track proceeding on distributed transmission technology while agreeing to consider individual deployments on a case-by-case basis in the interim." The ATSC Standard A/110 is expected to speed the plow.

Standards

Nemo Gets HD Treatment

BOSTON

The New England Aquarium is now producing its own HD material for the center's six-story IMAX theater. In addition to being one of the first aquariums to produce in-house HD programming, it is the first to digitally screen HD footage in IMAX.

Using a Panasonic HD VariCam with a Fujinon HA13x4.5BERD lens in an Amphibico HDAmphibicam underwater housing, the production staff makes the leap from digital video to HD capability.

"Producing in HD is a huge leap over producing in digital video, and the images we capture using a high-quality HD lens are perfect for digital projection on our IMAX screen. The enhanced resolution provided by the Fujinon lens is extremely beneficial to our productions," said Jeff Herzog, production coordinator for Global Marine Programs at the aquarium.

The aquarium is now showing its first HD production, a locally shot 90-second short on endangered sea turtles shown as a trailer before IMAX features. Final touches are also being put on an hour-long documentary on Teddy Tucker, a renowned shipwreck discoverer. The film, shot in HD in Bermuda, will be shown both at the aquarium and the Bermuda Underwater Exploration Institute.

Greg Stone, vice president for Global Marine Programs along with Herzog, said they chose the Fujinon for its flexibility.

"Part of the modifications to the camera system for natural history production is that we mount the lens in a different position to fit into the housing. We can shift this entire system from underwater to topside work in about 10 minutes, saving valuable time. Financially, this flexibility is a big benefit," he said. "We can use one camera and lens setup instead of spending money on a second system, with the opportunity to widen our range of lenses in the future."

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EAS

CONTINUED FROM PAGE 1

White House to the Federal Emergency Management System, then to 34 radio stations designated as Primary Entry Points (PEP). Meanwhile 550 Local Primary broadcast stations monitor their regional PEPs; while the 550 are monitored by 24,000 local broadcast and cable systems.

No president has initiated a national alert, so the efficacy of the system is unknown. Nor has the system been officially tested, but it was "accidentally" activated once in the Chicago area, according to Rudman. It worked, but for "gaps and holes," he said.

tions manager for the National Center for Missing and Exploited Children. Donnellan was integral in petitioning the FCC to create an EAS code for Amber Alerts—broadcast notifications of child abductions. "We've saved 150 kids."

EAS was also recently activated in Florida during back-to-back hurricanes. While most people got storm details from local broadcast meteorologists, evacuation notices came via EAS, according to Jack Wilson, a resident of Tampa, Fla.

"I thought the Emergency Alert System worked pretty well," Wilson said. "The first evacuation notices went out around noon on Thursday, effective at 6 p.m. We don't live in an evacuation zone, but that certainly got my attention."

"It's not failing all across America. We've saved 150 kids."

—Joann Donnellan, NCMEC

In some cases over the years, broadcasters have simply failed to install or maintain EAS equipment. The FCC levied about 80 fines in 2003 for such violations, and is contemplating raising the maximum fine from $32,500 to $325,000.

However, the FCC itself acknowledged that this type of noncompliance could be more a personnel and training issue than one of willful neglect. Of the 24,000 communications entities responsible for distributing EAS warnings, the majority are considered small businesses as defined by the Small Business Administration.

Even if every single one of the 24,000 were EAS-compliant, a power outage or signal interference could render huge parts of the distribution system inoperative. And aside from whether or not EAS is able to function properly, there are those who doubt its usefulness in a time when ENG cameras are everywhere.

"We are surrounded in live news," said Henry Ruhwiedel, chief engineer at WYIN in Gary-Merrillville, Ind. "Annoying EAS tests are just false security that a message could be relayed from station to station, to arrive long after the far-end station has most likely already carried the news live from the source."

SORRY, CHARLEY

While Ruhwiedel is ready to relegate EAS "to the same status as smoke signals and jungle drums," active emergency managers are not so willing to trash the system, particularly for local alerts.

"It's not failing all across America," said Joann Donnellan, communica-

Then there were people like Sarasota resident Robert Gerhart, whose relationship to media makes him nearly EAS-proof.

"What television I do watch is usually from my TiVo, and I surf radio stations the minute the news comes on," he said. "The EAS did me little good."

It's for folks like Gerhart that the FCC would like to spread the EAS burden to other communications industries, like wireless providers. The wireless industry had yet to officially respond to that part of the FCC's proposal at press time, but Jeffrey Nelson, spokesman for the Verizon Wireless group, said the concept is tricky technically.

"Wireless is not designed as a multipoint distribution channel, and that informs the technology and the position on public policy," Nelson said.

Wireless providers are currently working on phasing in 911 service according to an FCC directive, Nelson said, but only 1,200 of the nation's 6,500 designated 911 call centers have the technology that works with 911-enabled cell phones. That's because there is no regulatory requirement for the call centers to have the equipment.

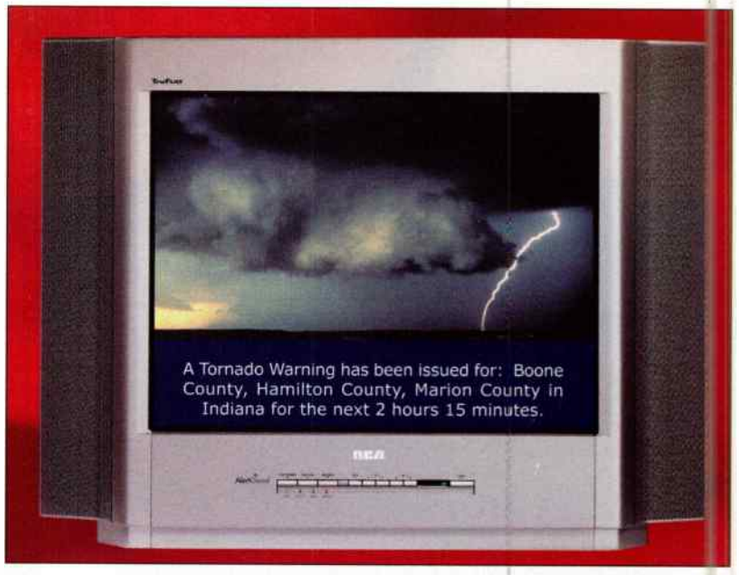
THE LOCAL LOOPHOLE

EAS is in a similar predicament. Broadcasters are required by law to maintain EAS equipment, but the law enforcement and civil agencies that authorize local alerts are not. Consequently, a majority of Amber Alerts are still conveyed by law enforcement agencies via fax or phone. In some civil emergencies, EAS has been overlooked.

"We had a very good example of it occur last November during the fires," said Oscar Medina, chairman of EAS in San Diego.

California has a state Office of Emergency Preparedness that's in charge of activating EAS warnings for wildfires. Apparently, firefighters were too busy fighting fires to notify OEP. A grand jury investigated the failure to activate EAS and found no fault because news outlets were all over the fire by the time a warning would have reached people.

Bob Gonsett would disagree with



The RCA 20F670T 20-inch direct-view color TV is among a series of Alert Guard models designed to provide consumers with peace of mind by monitoring and relaying emergency alerts in the event of localized or national disasters.

anyone who would use the San Diego wildfires to argue that broadcast news is an adequate replacement for EAS. Gonsett, president of Communications General Corp., and editor of an RF-related e-mail newsletter, lives in the northern San Diego County community of Fallbrook, where several smaller fires that threatened that community received no TV coverage at all.

"The problem is even more generic than talking about EAS," Gonsett said. "We're talking about getting receivers in people's homes that are on all the time, that are squelched unless there is something that pertains to them."

The FCC is indeed considering the use of self-activating devices, similar to those used in Germany, where the government has the power to switch on radios. The closest device in the U.S. market short of a police scanner is RCA's line of Alert Guard TV sets that kick on in the event of an EAS warning.

CAPT. MIDNIGHT RIDES

Should all the holes in EAS distribution somehow be plugged, there is still the issue of security. Encoders are equipped with password functionality, but as the FCC notes in its NPRM, "there is no way of knowing which stations use password security." As such, anyone with an encoder and enough smarts can fake an EAS alert.

Art Botterell, an expert in communications and disaster management, said EAS security is a pressing issue.

"The system, in most of its incarnations, is pretty easy to hack," he said. "The problem is, there is no real consistency in how state and local jurisdictions access the system. They're free to whip up their own solutions."

Botterell is the chief architect and proponent of Common Alerting Protocol, or CAP, a sort of HTML that would work for EAS over a variety of communications systems.

"As an emergency manager, you may have a choice of several warning conduits, but they all have different procedures," he said. "CAP would make all procedures consistent."

CAP would also enable emergency communications with the blind, the hearing-impaired and with non-English speaking populations—something the current system lacks.

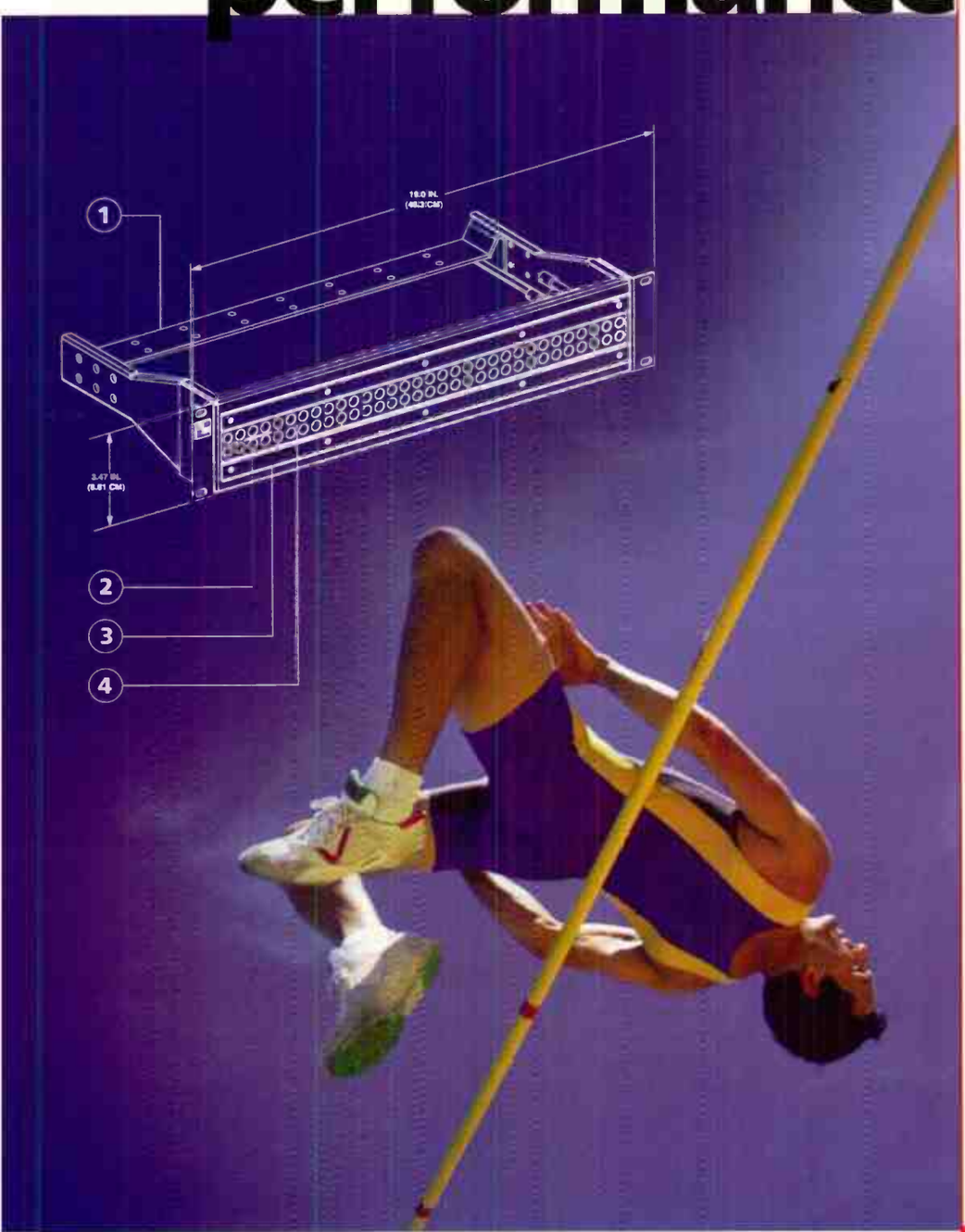
DIALING FOR DOLLARS

Ultimately, money, and possibly legislation, will be necessary to overhaul the nation's emergency alert system into a smooth, cohesive operation, Rudman said.

"I'd like to see a piece of legislation out of Congress called the National Warning Responsibility Act that sets up the mandate and the funding, pulls together an overall needs assessment and issues an annual report on the state of warnings in the country," Rudman said.

Last year, Sen. John Edwards, (D-N.C.), proposed allocating $50 million over five years to EAS improvements, but the funding died before the final budget was approved, and Edwards has since become preoccupied as a vice-presidential candidate. ■

performance by design.



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Baseball Bling Bling

Spend the money and they will come

by Robin Berger

SAN FRANCISCO

Major League Baseball is determined to cash in on the potential of free-spending fans lured by a better TV experience.

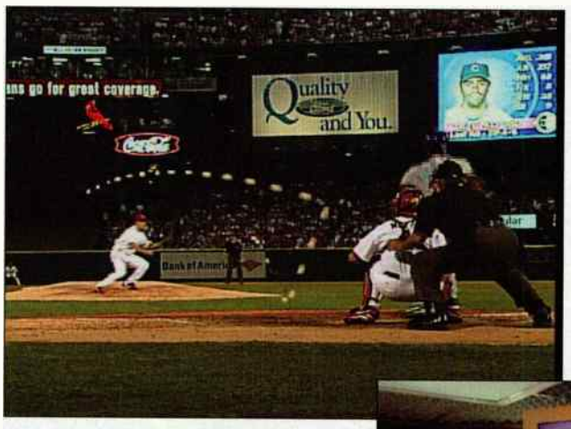
"The Commissioner's Initiative in the 21st Century Pilot Club Program" was spawned by a report from the NFO Research Group in the spring of 2003. The report concluded that there was a lot of opportunity for big gains through more engaging broadcasts.

This March, representatives from Fox Sports Network (FSN)/Rainbow Media, Comcast and NESN assembled in Phoenix for the game plan. Experimental coverage from June 15 to Aug. 15 was decreed for six teams: the San Francisco Giants, Seattle Mariners, Chicago White Sox, St. Louis Cardinals, Boston Red Sox and Philadelphia Phillies. Technology and new opportunities for commentary from players and coaches followed soon after.

On the tech menu was "StroMotion," a graphics enhancement application made by Switzerland-based Dartfish (Sportvision is the exclusive distributor for broadcast in the U.S. through 2004). The app highlights the trail of incremental movements of a feat or error by superimposing replays. FSN Northwest was the first to debut the technology for MLB games.

In addition to the MLB-initiated experiment, FSN Chicago added one of its own from July 15 through July 30, using the Secondary Audio Programming (SAP) channel for a younger, edgier option geared to guys in their 20s.

"We selected 10 games and we got the local cable companies [Comcast being the biggest] and DirecTV to open up the SAP channels," said FSN Chicago's Vice President of Programming and Production Don Graham, the brain behind this brainchild. He said the SAP channel "hadn't been used in years."



Dartfish's Stromotion technology illustrates the arc of the ball.

The experiment was more procedural than anything else—there was nothing special about the equipment used. Instead of using stereo, FSN Chicago used a mono broadcast of the alternative commentators' play-by-play mixed with natural sound, sound effects from the "Fox Box" (Fox's Saturday morning program block) and Fox music. The Rainbow Network hub on Long Island, where the satellite uplink is, encoded the feed into the SAP channel.

Separately, ESPN and Fox trotted out the latest in specialty cameras (see sidebar).

And regional Fox networks got serious about HD.

COMCAST PARTNERSHIP

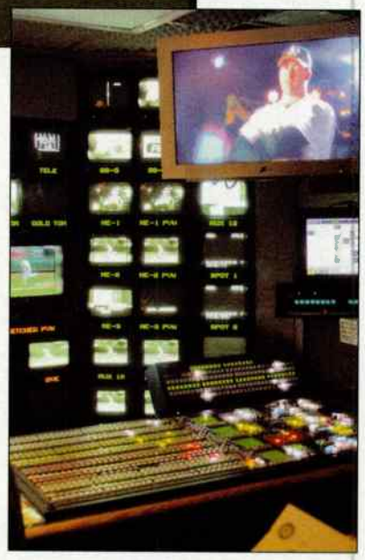
FSN Bay Area broadcast its first game in high definition on July 30, when the Giants hosted the St. Louis Cardinals. The Oakland Athletics' first HD game was July 31, and its first home debut was on Aug. 13 against the Kansas City Royals. Comcast is the exclusive provider of the 37 games scheduled for HD this season, billing its customers an additional $5 for viewing privileges.

"We have a partnership with Comcast," said Ted Griggs, vice president of programming and operations for FSN Bay Area. "They came to us and said 'we'd like you to do a certain number of HD games—50—for the year.'" The rest of the slate consists of HD transmissions for the NBA's Golden State Warriors and NHL's San Jose Sharks.

"A good size infrastructure upgrade was required," said one source. Another source pegged the broadcaster's investment at half a million dollars just to get the master control room ready. And, with HD trucks at a premium now, booking is an expensive and tricky scheduling challenge. According to National Mobile Television President Jerry Gepner, there are currently only 28 HD trucks in the U.S.

Meanwhile, FSN is doing tests in Florida and Ohio for more MLB fare.

The existing 1080i transmission path for the Giants and A's originates with mobile trucks at home and at some away games. NMT provides about 90 percent of them, and Denver-based Mountain Mobile Television's dual broadcast trucks provide five to seven percent.



The control room of NMT's HD truck at FSN Bay Area's inaugural Oakland A's HD home telecast, Aug. 13.

HTN transports the stream from the stadium to Rainbow Network's master control on Long Island, which feeds it via Intelsat's satellite network to Comcast headends back in the bay area at 45 Mbps or better.

About 25 people support the HD production, including company employees, long-term contract personnel and others. At least three people man the HD tech ops, network and control room, according to a source.

"All of our graphics are in HD, and all of our animation," said Griggs. "And now we shoot a lot of our feature material in HD [like player headshots] and [are] archiving every one of our games in high definition so that our teases are all in HD."

UP CLOSE AND PERSONAL

Longer lenses onboard the HD trucks particularly impressed Griggs. Canon's 100:1 lenses have been out for about a year, but they are clearly new to regional sports.

"They're unique to high-end trucks," said NMT's Gepner. "100:1 lenses run about $175,000 apiece—so we charge more."

Another important edition is EVS Broadcast's networked equipment. NMT's HD7 truck, for instance, lists an XT LSM, three Replay Only six-channel XTs, and an XT four-channel Spot Box with Lance controller. Unlisted but available is the EVS Xfile archive station that enables a removable file to be produced during the event, which saves a lot of time otherwise spent in the "melt" process of selecting and copying clips onto a highlight reel.

"The Xfile is a series of hard drives that sits on the EVS network, so it has access to all of the recording and replay channels," said Gepner. "The spectacular thing is that it uses removable hard drives, so customers can walk away from the truck with their highlight reel—at the end of the event, you literally pop the hard drive out and walk away.

"EVS machines all talk to one another over a digital network—think of it as one giant server," Gepner added. "It gives producers instant access to multiple channels of replay—and you can transfer video clips between machines while they're recording and playing back."

"People are blown away," said Griggs.

These new technologies may get even more of a workout with the announcement last month that Major League Baseball is developing an all-cable MLB channel. The 24-hour baseball channel, which will initially complement video content streamed on MLB's Web site is expected to launch by next year.■

New Specialty Cams Aim to Dazzle

Fox Diamond-Cams, provided by Broadcast Sports Inc., were installed at Houston's Minute Maid Park in June for upward-looking, field-level views of home plate and the pitcher's mound.

Each Diamond-Cam has a Camera Control Unit (CCU) that contains a Charged Coupled Device (CCD) sensor and a lens, which altogether is about two inches long and one-quarter inch wide. Two were buried in the ground facing home plate and the batter. A third, positioned on the centerline of the pitching mound, looked upward at the pitcher.

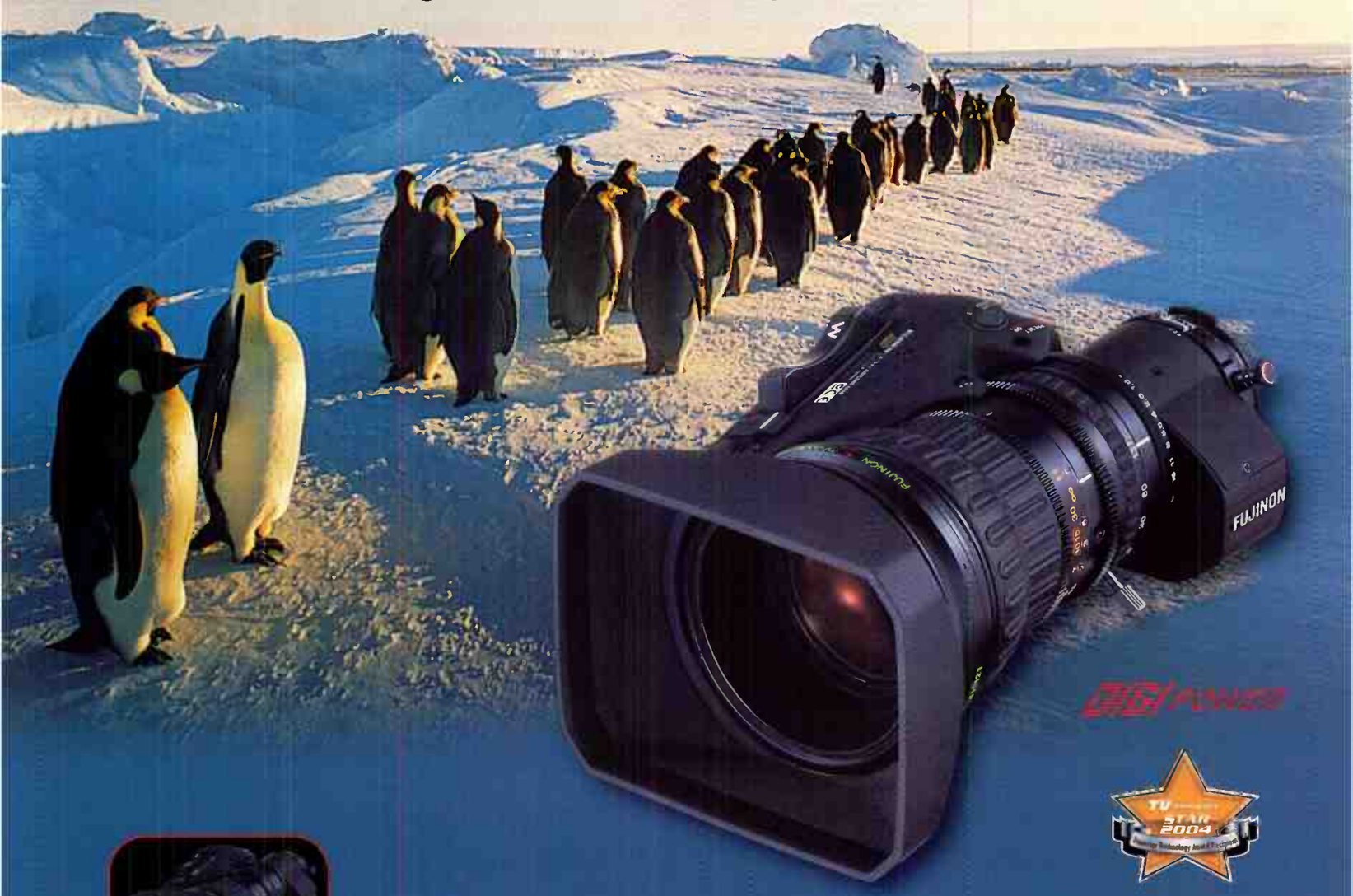
ESPN debuted its remote-controlled FlyCam in April at a Giants vs. Padres game and its Home Run Cam at July's Home Run Derby, part of the All Star Game festivities in Houston. Both cams traveled down the base paths from home plate on a wire 20-30 feet above the stands. They can zoom, pan and tilt.

This Side Up Productions provided the FlyCam Tracking Camera System; Cablecam International makes the Home Run Cam.

Robin Berger

18X

Everyone's waiting to see it.



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Protecting Video-on-Demand

Keeping one step ahead of the pirates

by Mary Shacklett

OLYMPIA, WASH.

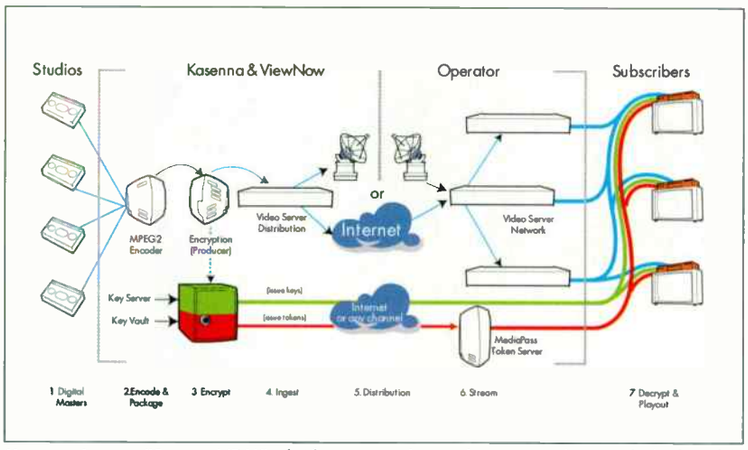
The Motion Picture Association of America (MPAA) estimates the average cost to produce and market a movie today at $80 million—and annual worldwide video content piracy losses at $3 billion. That doesn't count Internet theft or other security-related effects on consumer revenues, such as service interruptions that do not allow consumers to access video content.

Is it any wonder there are major concerns about video-on-demand security?

SECURITY CONCERNS

MPAA witnessed a 32 percent increase in piracy investigations initiated and a 12 percent increase in raids worldwide in a 2003-2004 fourth-quarter comparison; the best news was an 86 percent increase in merchandise and equipment seizures. One case in July 2004 involved chipmaker ESS Technology, which was ordered by a California state judge to cease sales of descrambling chips to unauthorized manufacturers whose products enabled illegal copies of DVDs. The decision was a response to a lawsuit levied by seven major U.S. motion picture studios, which claimed ESS violated its license for the Content Scramble technology (CSS) that protects DVDs.

Meanwhile, MPAA meets with industry players every six weeks and with Internet companies weekly to discuss copy protection. The FCC has issued a digital content policy, and there is continuing work on international copy protection standards.



Kasenna's new "Secure VDN" platform encodes and encrypts the movie before it's uplinked to the VOD provider.

MPAA says that legal and political actions are not enough. "There are two areas of VOD security vulnerability related to technology," said Brad Hunt, MPAA CTO. "First, it's important that content is encrypted or scrambled across the transmission path to the consumer's set-top box. The second security concern is the set-top box itself."

SECURE TRANSMISSIONS

After a movie is digitally mastered by the studio, it is delivered to an aggregator or an uplink facility, and encoded in 3.75 MPEG-2 format. From there, the movie is uplinked and delivered to a service provider, cable or satellite operator's headend, and then to a video server. Content from the video server is transmitted to the consumer's set-top box upon demand.

"There are two ways to do this," Hunt said. "Using 'push' technology, content is pushed to a PVR hard drive that the consumer accesses. With 'pull' technology, the consumer accesses video content from the network headend, where it is stored."

Technology providers have been working to close security gaps in this end-to-end process. Kasenna's ViewNow Group has just launched its Secure Video Delivery Network (VDN) in response to these concerns. "Our distribution network takes the movie from the studio and encodes and encrypts it before it's uplinked to the operator," said Mark Gray, CEO of the Mountain View, Calif.-based VOD technology company. "You can push or pull content, which goes from the operator's headend to the video server and then to the set-top box, where it is decrypted and played."

Gray says that the technique accomplishes three things: There is no place in the content delivery chain where there is unencrypted copy; the operator does not need to buy an encryption system for VOD; and the operator eliminates a liability from employee theft.

Joe Ambreault, director of broadband Systems for SeaChange International in Maynard, Mass., agrees that "the top priority for everyone is pre-encryption" that can eliminate the gaps created by video content sitting out on network hard drives, or signaling that can happen "in the clear." SeaChange offers solutions that secure networks and servers through its VOD system and command center software, which provides end-to-end automaton for video-on-demand.

"A good VOD security plan covers all bases," Ambreault said. "There's technology, but there are also practices, policies and cultural components. The only thing an organization can bank on with video security is that it will constantly change."

VULNERABILITY LINK IN THE CHAIN

One area of change is the consumer set-top box—the second major area of security exposure.

"For digital set-top boxes, there is an obligation to support Macrovision copy protection, which will stop video copying," Gray said. "The Macrovision technology sends out signals to the recorder that confuse it and stop the copying process—and it is up to video content providers to decide whether they want to invest in Macrovision licenses to enable this process."

Manufacturers have ensured that Macrovision chips are built into their digital set-top boxes, but many analog set-top boxes do not have this built-in copy protection. "That's why CGMSA [Copy Generation Management System for Analog] is so crucial," said Gray. "It allows for copy control signaling to be embedded in analog devices, and it uses vertical blanking interval signals to stop copying." As one of three methods used to copy-protect DVDs, CGMSA—which HBO began

VOD, PAGE 18

"The only thing an organization can bank on with video security is that it will constantly change."

—Joe Ambreault, SeaChange International

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Variety Is the Spice of Switchers

Manufacturers aim for markets outside the studio

by Craig Johnston

SEATTLE

The basic toddler's rule of property rights is that what's mine is mine, and what's yours is mine too.

Along those lines, production switcher makers have each carved out their own customary market segments in the broadcast and video production arenas. Many are now looking to broaden their reach into others' territory, while fighting to hang on to existing customers.

SMALL FOOTPRINT

Videotek has a single line of switchers aimed at the small-market users. "Our market is small broadcast and industrial applications," said Dave Guerrero, Videotek vice president of technology. Examples he gave include graphic art suites needing layering, churches and government institutions.

In its Digital Prodigy switchers, "we have some features that parallel many larger switchers," said Guerrero. "We can control DVEs and other switchers... there are protocols embedded in the switchers so they can do complex effects using other manufacturer's products."

"However it's a small footprint switcher. It's made for a very minimal production environment." With its audio follow option, the Digital Prodigy has also found master control use. Videotek was acquired by Leitch Technology earlier this year.

Thomson's Grass Valley unit has long been king of the heap in the large production switcher market. "More recently we've been moving downmarket," said Mark Naverson, Grass Valley product manager for production switchers.

Targeting churches, educational facilities and government institutions has been made possible by a switcher jointly produced by Thomson acquisitions Grass Valley Group and the video division of Philips: the KayakDD. The Kayak comes with one or two M/E rows, and a high-definition version in the offing.

"The key to the Kayak line will be affordability," said Naverson. "Essentially we'll have two lines, serving both the SD and HD markets, [Kayak] with the emphasis on affordability but still high-quality production, and [Kalypso] with no-holds-barred production capability for high-end sports and entertainment."

TARGETING MOBILE HD

Sony's production switcher line is so flexible it can be used in all size applications, said Paul Green, product manager for switcher systems. "But primarily we're focused on the outside broadcast van market because of the proliferation of high-definition production that's going on."

The company's MVS-8000A multiformat switcher can be configured from one to four M/E rows, and "supports all formats in SD and HD, 720p, 1080i, 24p," he said.

Sony's MVS-8000 is used in producing NASCAR in HD.

"The full four M/E system, either in standard definition or high definition, is only eight rack units high," said Green. "So it's very light, very small, and fits into these trucks very well."

Green pointed out that Sony's production switchers have been selected for several high-profile live events, including the Summer Olympics in Athens and the 2004 U.S. Open Tennis Tournament.

Snell & Wilcox introduced a switcher, the Kahuna, at IBC earlier this month that signaled the company's targeting of the large live and live-to-tape production market.

"Kahuna is a product that's scalable," said the company's product manager for switcher products, John Carter, coming in two, three and four mix/effects configurations.

"It can be standalone SD, and standalone HD," he said. "But it also bridges the gap because it allows you to be SD today, but with an HD strategy in place that will meet your HD requirements."

Carter pointed out that one of Kahuna's features is that it will mix standard definition and high definition. That allows HD sports broadcast producers to mix in shots from SD specialty cameras.

COME TOGETHER

"At Ross Video we strive daily to lead the world in live production solutions," said Ross' president David Ross. He noted the company's strength in production switchers is spread broadly across the market, including live event and news production, sports stadiums and mobile trucks, and churches and educational facilities.

"Our Synergy series offers a complete range of digital production switchers for virtually any live production application" said Ross. "It starts with the compact Synergy 100 [one M/E row], with a variety of models up to the full-size Synergy 4 [four M/E rows], in standard-definition digital." At press time, Ross had begun delivering the new Synergy MD line of multidefinition switchers capable of handling all SD and HD formats.

Ross said a key differentiating feature of the Synergy series is the extensive list of external devices that can be controlled, enabling a fully integrated production control room.

Like some of its competitors,

SWITCHERS, PAGE 22

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switched on

VOD

CONTINUED FROM PAGE 14

using in June to prevent subscribers from videotaping on-demand content—is embedded as two bits into the MPEG-2 DVD content itself, which is then added to the analog video output stream.

Scientific-Atlanta provides set-top boxes that can control the security of video-on-demand on a session-by-session basis. "Each individual play of a video movie is encoded for each specific customer set-top box, but not all network operators have activated this capability yet," said Bill Wall, Scientific-Atlanta's technical director for subscriber networks.

The secured transmissions use PKI (public key infrastructure) security with RSA digital certificates that are embedded in the operator headend equipment and in the individual set-top boxes. Digital connectors on set-top boxes can be IEEE-1394 (FireWire) connectors using DTCP (digital transmission copy protection) or DVI interfaces for high-definition television using HDCP (high definition copy protection).

Scientific-Atlanta's new Explorer 8300 DVR encrypts all recordings on an internal hard disk drive or on an optionally attached external SATA hard disk drive.

Those analog set-tops that do have copy protection use Macrovision. "All of these security safeguards are available on set-top boxes," said Wall, "But they require technology licensing agreements that operators must enter into."

The FCC's requirement that digital cable set-top boxes be equipped with FireWire connectors went into effect this summer, but cable operators have been lax in responding to consumer requests for the technology upgrades.

The final leg of secure VOD technology is network tracking, monitoring and reliability.

Technology solution providers like Kasenna's ViewNow Group and SeaChange provide 24/7 real-time tracking and reporting of video content usage from networks to providers. In the future, it is likely that data certifications of usage by third-party audit firms will also enter the picture.

"A studio wants protection of intellectual property, but a network operator wants assurance that content is delivered in an uninterrupted television viewing experience to the subscriber," said Ambreault. "To get both, content must be protected—and so must the network delivery channel."

Secure VOD is being addressed on multiple fronts of policies, legalities, cooperation, enforcement and technology. With the stakes so large, entities and individuals on both sides of the law continue to develop methods of exploitation and containment.

New copy protection initiatives and pre-encryption technology assist studios in maintaining their intellectual property, while network content purveyors have now completed most of the infrastructure and software upgrades that will allow them to license new security technologies for headends and set-top boxes—and move toward third-party video content certifications of usage reporting that will further assure content providers of operator security commitments.■

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VSM6800+	**SDI Monitoring DA** SDI-ASI input, SDI-ASI outputs w/EQ and reclocking, Composite outputs	4 SDI/ASI and 4 Composite outputs **VSM6800+D**	2 SDI/ASI and 2 Composite outputs **VSM6800+S**	4 SDI/ASI and 4 Composite outputs **VSM6800+**
VTM6800+	**SDI Triple Monitoring DA** 3 Separate SDI-ASI inputs, SDI/ASI w/EQ and reclocking, and Composite output for each input	1 SDI/ASI and 1 Composite output per input **VTM6800+D**	Not Available with Single Back Module	1 SDI/ASI and 1 Composite output per input **VTM6800+**
VSE6800+	**SDI Video Equalizing and reclocking DA** SDI/ASI input, SDI (or SDI and ASI) outputs w/EQ and reclocking	8 SDI outputs (or 4 SDI w/4 ASI outputs) **VSE6800+D**	4 SDI/ASI outputs **VSE6800+S**	8 SDI outputs (or 4 SDI w/4 ASI outputs) **VSE6800+**
VSD6800+	**SDI Video Equalizing DA** SDI/ASI input, SDI (or SDI and ASI) outputs w/EQ and reclocking	8 SDI outputs (or 4 SDI w/4 ASI outputs) **VSD6800+D**	4 SDI/ASI outputs **VSD6800+S**	8 SDI outputs (or 4 SDI w/4 ASI outputs) **VSD6800+**
VSI6800+	**SDI/ASI Equalizing reclocking DA** SDI/ASI input, SDI/ASI outputs w/EQ and reclocking	8 SDI/ASI outputs **VSI6800+D**	4 SDI/ASI outputs **VSI6800+S**	8 SDI/ASI outputs **VSI6800+**
USM-6800	**Universal SDI Encoder and DA** (Not CCS Compatible) SDI input, SDI outputs w/EQ and reclocking with selection of composite, RGB/YUV with composite, or YC with composite outputs	4 SDI w/4 selectable analog video outputs **USM-6800+D**	Not Available with Single Back Module	4 SDI w/4 selectable analog video outputs **USM-6800**
Analog Video				
VDA6800+	**Video DA** Composite or component video input, composite outputs	8 outputs (looping input) **VDA6800+D**	4 outputs **VDA6800+S**	8 outputs **VDA6800+**
VEA6800+	**Video Equalizing DA** Composite or component video input, composite outputs w/continuous or fixed cable EQ	8 outputs (looping input) **VEA6800+D**	4 outputs **VEA6800+S**	8 outputs **VEA6800+**
VRG6800+	**Video Remote Gain DA** Composite video input, composite outputs w/remote gain, EQ and clamping adjustments	8 outputs (looping input) **VRG6800+D**	4 outputs **VRG6800+S**	8 outputs **VRG6800+**
VPD-6830	**Video Equalizing and Clamping DA w/Programmable Options** (Not CCS Compatible) Composite or component video input, composite outputs w/EQ, selectable clamp and AC or DC coupling, and additional EQ, clipping, or delay options	8 outputs (looping input) **VPD6830-CLP+D**	Not Available with Single Back Module	8 outputs **VPD6830-CLP**
VCA6800+	**Video Equalizing and Clamping DA** Composite or component video input, composite outputs w/selectable clamp and AC or DC coupling	8 outputs (looping input) **VCA6800+D**	4 outputs **VCA6800+S**	8 outputs **VCA6800+**
Audio				
AES6800+	**AES Audio DA** Balanced(B) or Unbalanced(C) digital audio input, Balanced or Unbalanced outputs w/manual or automatic EQ	8 outputs **AES6800+BD or CD**	4 outputs **AES6800+BS or CS**	8 outputs (Unbalanced only) **AES6800+C**
ARG6800+	**Analog Audio Remote Gain DA** Balanced analog audio inputs-Stereo or Mono, balanced audio outputs with local or remote independent channel gain adjustment	8 Mono or 4 Stereo outputs **ARG6800+D**	4 Mono or 2 Stereo outputs **ARG6800+S**	Not Available in FR6802+DM(F)

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UDA-683	**Utility Video DA** Composite or component video input, composite output, ultra low cost	8 outputs (looping input) **UDA-683**	8 outputs (looping input) **UDA-683**	8 outputs (looping input) **UDA-683**
VDA-683	**Video DA** Composite or component video input, composite output	8 outputs (looping input) **VDA-683**	8 outputs (looping input) **VDA-683**	8 outputs (looping input) **VDA-683**
VEA-683	**Video Equalizing DA** Composite or component video input, composite output w/continuous or fixed EQ	8 outputs (looping input) **VEA-683**	8 outputs (looping input) **VEA-683**	8 outputs (looping input) **VEA-683**
VEA-684	**Video Equalizing and Clamping DA** Composite or component video input, composite output w/EQ, selectable AC or DC coupling and clamping	8 outputs (looping input) **VEA-684**	8 outputs (looping input) **VEA-684**	8 outputs (looping input) **VEA-684**
VPD-683	**Video Equalizing and Clamping DA with Programmable Options** Composite or component video input, composite outputs w/EQ, selectable clamp and AC or DC coupling, and additional EQ, clipping, or delay options	8 outputs (looping input) **VPD-683**	8 outputs (looping input) **VPD-683**	8 outputs (looping input) **VPD-683**
VEH-683	**Video Wide Band Equalizing DA** Composite or component or HDTV video input, composite outputs w/precise four-pole EQ, clamp selection with 120MHz bandwidth	8 outputs (looping input) **VEH-683**	8 outputs (looping input) **VEH-683**	8 outputs (looping input) **VEH-683**
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AMD-880	**Mono Audio DA** Balanced mono audio input, balanced mono outputs w/selectable output impedance (66 or 600 ohm)	8 Balanced outputs **AMD-880**	8 Balanced outputs **AMD-880**	8 Balanced outputs **AMD-880**
ASD-880	**Stereo Audio DA** Balanced stereo audio input, balanced stereo outputs w/selectable output impedance (66 or 600 ohm)	4 Balanced stereo outputs **ASD-880**	4 Balanced stereo outputs **ASD-880**	4 Balanced stereo outputs **ASD-880**
ARG-880	**Mono Audio Remote Gain DA** Balanced mono audio input, balanced mono output w/remote control of + 20dB gain	8 Balanced outputs **ARG-880**	8 Balanced outputs **ARG-880**	8 Balanced outputs **ARG-880**
APD-880	**Mono/Stereo/Summing Programmable Audio DA** Mono or stereo input, output determined by programmable sub-module stereo, mono, stereo & mono, summed stereo to mono	4 Stereo, 8 mono, 16 single-ended mono, or 3 stereo, 2 mono outputs **APD-880**	4 Stereo, 8 mono, 16 single-ended mono, or 3 stereo, 2 mono outputs **APD-880**	4 Stereo, 8 mono, 16 single-ended mono, or 3 stereo, 2 mono outputs **APD-880**
ATG-880	**Audio Tone Generator** Low-cost audio tone generator that provides four sets of stereo outputs, each at a different level	8 Balanced outputs (4 dual outputs) **ATG-880**	8 Balanced outputs (4 dual outputs) **ATG-880**	8 Balanced outputs (4 dual outputs) **ATG-880**
AES/EBU Digital Audio				
AES-880	**AES/EBU Digital Audio DA** Balanced digital audio input, balanced output w/manual or auto EQ and error indicators	8 Balanced outputs **AES-880**	8 Balanced outputs **AES-880**	8 Balanced outputs **AES-880**
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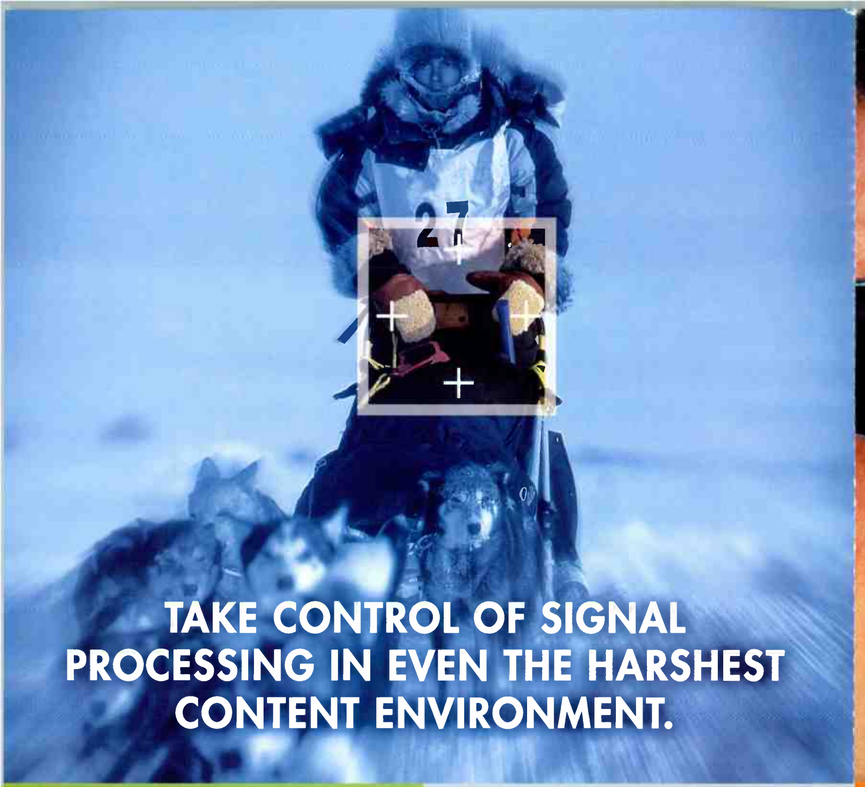

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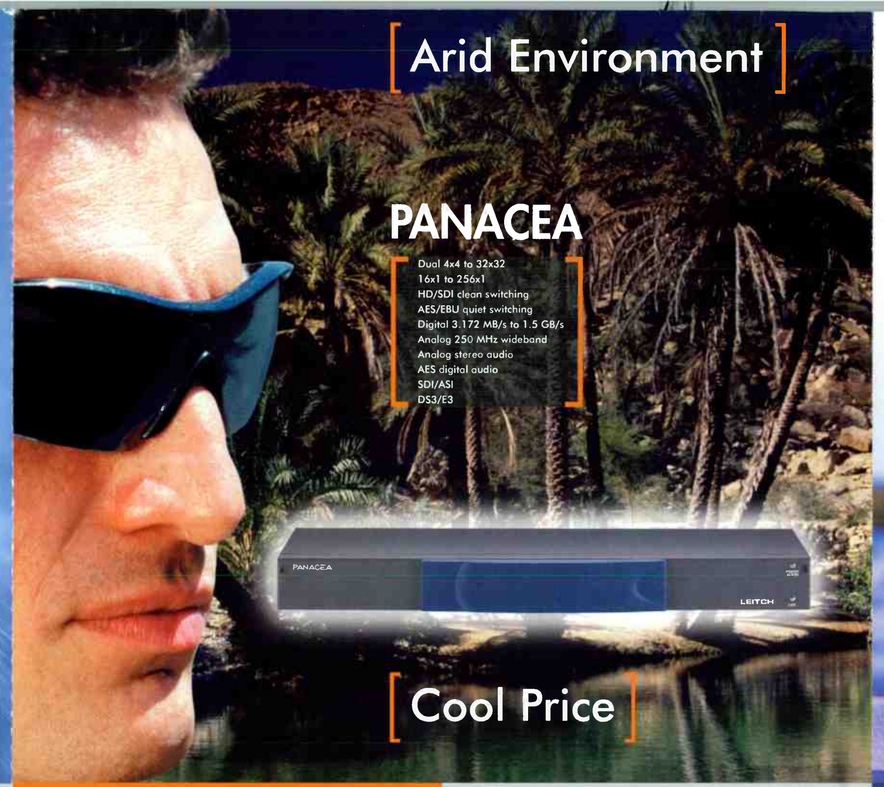

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When It Absolutely Must Be Recorded

Solutions for potential FCC recording regs

by Craig Johnston

SEATTLE

Anyone who insists that nothing good came out of the Janet Jackson thing at the Super Bowl this year has been ignoring the possibility of a payday for broadcast equipment makers, courtesy of the FCC.

This summer the commission proposed that broadcasters be required to retain recordings of 16 hours of their broadcast day, 6 a.m. to 10 p.m. (Commission rules have allowed indecency during the eight hours in the middle of the night in order to satisfy First Amendment protections.)

The idea behind compliance recording is for broadcasters to supply evidence against themselves in indecency cases.

As FCC Commissioner Michael Copps stated in his letter accompanying the Notice of Proposed Rulemaking, "[With program recordings], when someone complains about what went out on the public airwaves we can have a record to see how those airwaves were used—or abused."

Telestream's MAPreview offers digital capture, indexing and desktop review of aired program content.

Although there are a lot of unknowns, such as—if this will actually become a requirement, and how long the material will need to be kept (somewhere between 60 and 90 days)—broadcasters have to be ready to meet the requirements, whatever they are.

There's always the good old VHS machine, on EP, with the master control operator (if there is one) tasked with remembering to change and label the tape every six hours. Luckily, with all the asset management efforts over the past few years, a number of digital products are ready to take on the task as well.

READY TO ROLL OUT

The United States isn't the first country to propose a program-recording requirement. To meet the demand for a solution overseas, two years ago at IBC, Axon Digital Design B.V. introduced the two-rack-unit TX-Compliance system.

At IBC2004, the company presented its second-generation TRACS (Transmission Recording And Compliance System) in a one-rack-unit frame. This new system consists of a range of networked video servers with a monitor unit acting as a Web server, which allows users to archive, monitor and browse video clips.

The company also introduced complementary modular HDTV solutions that fit into the Synapse SFR04 and SFR18 frames.

Last spring, New York-based

RECORDING, PAGE 24

WM10

CONTINUED FROM PAGE 8

"The Sopranos" onto a PMC from a Media Center PC the process was not allowed by DRM.

"I want to take The Sopranos with me while I'm traveling but Microsoft DRM is not allowing a second copy to my PMC, even though the PMC is a secure device," said Steve Morgenstern technology correspondent for "Rolling Stone" magazine.

While not confirmed, it seems that HBO's protected video precluded the Media Center PC from transferring "The Sopranos" from the Media Center PC to the PMC.

"In a future release, I'd expect Microsoft to include an option in its Media Center PC software to record directly to the compact Portable Media Center format, instead of recording big files and transcoding them down later," said Morgenstern referring to Media Center PC DRM.

Since multiple entities determine access and control limitations and restrictions, DRM is a complex technology to deploy.

"Rights management at user's media hubs can make or break the digital media experience for consumers," said Jim Burger a member of the law team at Dow, Lohnes and Albertson in Washington, D.C. "Content must be protected and at the same time users need and expect access."

Last month, the FCC moved to allow TiVo, Microsoft, Sony, and 10 other companies to make a variety of digital output and recording technologies for limited sharing. The FCC decision went against the will of the MPAA and NFL, allowing users greater flexibility in sharing.

If users do not experience "Seamless Media Everywhere" as promised by Microsoft due to DRM issues they'll reject this digital media and hold back its market acceptance.

Samsung is among the CE manufacturers offering WM10's DRM technology to offer video on the go.

VIDEO FOR SALE

In the past five years the online audio market has grown dramatically. Microsoft's David Fester, general manager, Windows consumer, seems to think video is poised for similar growth to audio.

"Video today is where audio was in 1999," he said. "Broadband is at 50 percent penetration, most consumers have watched video, and most have at least one video on their computer."

Microsoft has committed to video and online sales with Player 10 which includes a top menu linking retail stores offering video and audio.

More than 30 companies including CinemaNow, Napster, and MSN Music are participating in the online audio and video retail program. Sales, rental and subscription models are supported by Windows software and partnering stores.

Santa Monica-based CinemaNow, a leading IP movie distributor, is working with Microsoft, building an online movie store for Player 10. Version-specific PMC downloads will be supported sometime in the near future according to company officials.

Video retail content is presently limited but if audio history is a barometer, expect broadband video sales to ramp up quickly.

Due to consumer feedback, MP3 ripping and burning are now integrated into Player 10. Under the hood, the Windows media codecs are still Version 9 codecs and MPEG-2 is the TV codec in the Media Center PC.

HANDHELD VIDEO

Cindy McCurley, an industry analyst at In-Stat/MDR who has been studying the handheld video market, said that handheld audio/video players offer a way to make video downloads portable. "Current players are targeting three primary markets: commuters, travelers and parents with children," she said.

Microsoft's Personal Media Player (PMC) is a handheld device capable of storing 17 hours of video and playing about three hours on a charge. PMC can also hold thousands of pictures and music files. Supporting a 5-inch color screen, a savvy Windows interface, and USB I/O, PMCs operate as PC "satellites."

Getting TV into the PMC is cumbersome, requiring a PC with Media Center Edition, Windows XP, Player 10 and a capture card. Media can be set to automatically transcode (in the background) before auto-syncing over the USB interface. There is no audio or video input in a PMC. Microsoft partners including Samsung, iRiver and Creative Technology have either launched or are close to launching their PMC products.

While it is still early in the game, with this release, users have more options for portable digital media. If DRM issues can be resolved by making the "media everywhere" concept workable, more traditional technologies, distributors, and broadcasters could be significantly affected by this new generation of digital media technology.

"We anticipate growth in this market of more than 700 percent in 2004 and a compound annual growth rate of 179 percent through 2008," McCurley said.■

USDTV

CONTINUED FROM PAGE 1

stations, on the other. As a remedy, USDTV is marketing a compromise diet of 20-30 channels (arguably) of both broadcast and cable fare, which is fed to subscribers terrestrially with digital spectrum dedicated by as many local broadcasters as needed to digitally send out a dozen cable channels. Each local broadcast partner digitally transmits its own portion of USDTV's service using its own digital transmission facilities (see accompanying sidebar).

Future Hisense receivers will be equipped with LG/Zenith's new fifth-generation DTV chip.

The identity of USDTV's local broadcast partners (and any spectrum-usage fees they receive) remain a guarded secret for now, since the company said it does not want to jeopardize any future negotiations on digital must-carry. And at least one affected broadcaster has indicated he has signed a nondisclosure agreement and, therefore, could not comment on the service. USDTV's current trio of markets served only has to tap as few as three to four broadcasters in each market—Salt Lake City, Albuquerque and Las Vegas—especially since at least one local broadcaster (and perhaps others) committed a full 75 percent (15 MB) of its total digital spectrum to the cause, according to Brent Petersen, USDTV's senior vice president of communications & marketing.

Although the huge commitment leaves very little spectrum left for a broadcaster's own services (even with ever-improving compression technology), the FCC requires that the broadcaster only has to provide the equivalent of one digital SD channel at least equal to its analog service, and it requires no spectrum-sucking HD programming whatsoever.

CAUTIOUS OPTIMISM

USDTV subscription sign-ups began last winter in Salt Lake City and last spring in Las Vegas and Albuquerque. By mid-August, a total of about 9,000 customers in all three markets had been tallied. USDTV originally projected its service would be available in 30 markets by the end of 2004, but recently it scaled that back to about 7 markets. The company expects to expand the service to 40 more markets next year.

USDTV Chief Operating Officer Richard Johnson told TV Technology that each market has a fairly equal share of the customer pie, somewhere under 3,000 subs per market. He said USDTV, for its part, is satisfied with the numbers: "We consider more than 8,000 [subs] very good, considering we had a soft launch and some other factors. We're very pleased." Johnson said USDTV will keep the identity of new markets under wraps for now, but will be announcing new ones starting later this fall.

Petersen said that "more than half of USDTV's current subscribers are 'antenna people,'" those TV homes that had no cable or DBS service at all. But he stressed its customer base is coming from both sides of the economic spectrum: "The point is, there is a broad demographic appeal not only for the low [income groups] but also for high demographics, who are looking for value for their money. And there's always that group that simply never liked cable to begin with, or the idea of paying for [television]," Petersen added. USDTV reasons that most cable and DBS viewers watch only a small percentage of the scores of channels offered to them and that they pay for. Therefore, they contend, providing fewer channels for far less money provides a value-added benefit to this no-frills option.

USDTV offers its subs a sampling of cable fare that includes one news channel (Fox), two sports outlets (ESPN I and II), a Discovery Channel, Lifetime, Disney Toon Channel and a few others. It does not provide such cable staples as CNN, The Weather Channel, Comedy Central, USA, A&E, Sci-Fi, AMC, CNBC, Disney Family, Nickelodeon, The History Channel, Bravo, AMC, TNT, MSNBC and dozens of other basic-tier offerings, and no premium channels such as HBO's various HD and SD offerings (although it does provide Starz! for a few extra dollars).

DOING THE NUMBERS

Although some of USDTV's marketing literature and Web site seem to boast of offering high-quality digital broadcast channels in local markets as part its overall package—in fact, all local SD and HD broadcast channels are already retrievable with widely available receivers, whether someone subscribes to USDTV or not. For example, more than half the lengthy list of USDTV channels noted for Salt Lake City is comprised of already-available local DTV stations, including five PBS channels. (Currently, none of the cable channels the company provides to subs is HD.) Petersen acknowledged that this could be confusing, and said his firm does make both the cable and broadcast offerings more convenient to access on the USDTV receiver box.

It's also been pointed out by some industry observers that by simply providing an HDTV receiver to subs for only $20, the company is helping expand the overall DTV universe of customers (especially since its primary receiver distributor is Wal-Mart, the largest retailer in the U.S.). As for the value-added factor, that depends on one's perspective: The typical cost to cable and DBS viewers today is under $1 per-channel (using a basic menu of 50-plus channels and a monthly fee of $50 or less). USDTV's dozen cable offerings, going for $20 monthly, amount to nearly $2 per-channel. Still, when all is said and done, USDTV's monthly fee is less than half of most traditional basic cable/DBS bills.

"More than half of USDTV's current subscribers are 'antenna people.'"

—Brent Petersen, USDTV

Those receivers for USDTV subs that sell for $20 at Wal-Mart are manufactured under a special agreement with Chinese plasma display maker Hisense. Wal-Mart also sells a second, virtually identical receiver under the U.S. Digital brand for about $198, also made by Hisense. Both receivers prominently feature the USDTV logo. The U.S Digital receiver is sold nationwide, and like the USDTV-Hisense box, it should encode all HD and SD terrestrial broadcast channels without subscriptions. Eventually, the U.S. Digital brand receiver could be used to encode USDTV's cable package, if and when the company expands into that given market.

An indoor or outdoor VHF-UHF antenna is available at Wal-Mart and elsewhere for about $30. In July, USDTV announced a partnership with LG Electronics to supply fifth-generation 8-VSB chips and ATSC tuners in its new receivers, available by late 2004. The technology is designed to enhance terrestrial digital reception in difficult viewing areas, especially urban canyons. USDTV also plans to equip new receivers with Microsoft's Windows Media 9 (WM9) technology to improve compression. An HD-PVR option is planned for 2005 as well.■

USDTV, The Technology

USDTV subscribers in Salt Lake City, Las Vegas and Albuquerque (more markets to follow) may receive a dozen cable channels terrestrially via traditional TV antennas and set-top receivers, but it takes a couple of roundtrips to space in order to make it all possible.

"Our [cable] content partners send their signals up to their satellite, and then we downlink that content to our Network Operations Center in Salt Lake City," said Brent Petersen, USDTV's senior vice president of communications & marketing. "Then we blend, or multiplex, together all their signals from the satellite, and we encrypt them—then scramble the signal and uplink it to a second satellite, PamAmSat, where we have a 29 MB transponder under contract."

Petersen said this is where a handful of local broadcasters in each market enter the picture, technically speaking: "USDTV's 'station partners' downlink the encoded signal from PamAmSat with dishes in their yards and send it out simultaneously. The [local broadcaster] does not touch the signal at all. It just passes it on."

Each broadcaster is allocated a specific number of channels it is responsible for in USDTV's cable channel lineup, depending on its dedicated bandwidth, which Petersen said usually varies between 6 and 15 MB of digital spectrum. Participating broadcasters blend their USDTV specific content with their primary broadcast digital signals, send it over the air to homes via regular VHF UHF antennas, and the content is encrypted by the set-top receivers that hold the specific decoding chips.

The final-stage terrestrial transmission scheme can vary from market to market. In Salt Lake City, USDTV's headquarters participating broadcasters have built a single transmitting facility, with all USDTV content being broadcast from a single tower. In Las Vegas and Albuquerque, broadcast partners transmit the end signals from more than one site.

Although none of the cable channels provided by the USDTV service is HD, both types of ATSC receivers (under the Hisense and U.S. Digital brands) decode 720p and 1080i HD signals. The receivers decode all SD-HD terrestrial signals in each affected market for free, regardless of the USDTV subscription service. (However, without a USDTV subscription, those $20 receivers available at Wal-Mart sell for about $198.)

Finally, although more than half of USDTV's subscribers come from that dwindling niche of noncable, non-DBS homes known as the "antenna people," the company does alert new customers to the four basic antenna rules to live by: 1) outdoors is better! 2) higher is better! 3) closer is better! 4) bigger is better!

John Merli

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LIKE NO OTHER

Switchers

CONTINUED FROM PAGE 16

FOR-A is also aiming for the small production application market with its switchers, including small remote trucks and telecine. The company has rolled out the Hanabi HVS-1000HS production switcher, a one mix-effects, HD/SD production switcher to capture this market.

Grass Valley's KayakDD

"This switcher is capable of HD and SD, switchable," said Hiro Tanoue, FOR-A sales manager for the eastern region and Central/South America. "It handles just about all the formats out there, including 1080i, 720p, 24p, 24SF, all the other formats.

"It's compatible with standard definition, so in a sense this switcher is future-proof, because if you have a standard-definition facility and go into HD in the future, this switcher is ready for the high-definition signal."

eyeheight covers a wide swath of the production switcher marketplace with its product line, said Martin Moore, sales director.

"The vista is a two-input A/B Mix/Wipe system with control panel, primarily aimed at telecine users for vertical wipe, and also presentation systems that require mix/wipe editing," said Moore.

"The irisOB is aimed at OB trucks because it is a simple eight-input SDI vision mixer, but it has a two small control panels. These can be mounted at the client's specific requirements and the electronic crate is only one rack unit."

For small facilities, eyeheight has the irisLite, an eight-input mixer in one rack unit with a full control panel for easy user interface, and the iris, a 12-input mixer with full control panel for larger studios and some larger OB trucks.

HD versions of the vista, irisOB and irisLite mixers are available.

ECHOlab is attempting to recapture the mid-market switcher customer base it ceded to others when previous ownership made a dot-com foray into the streaming video arena. "We have invested quite a bit of capital to re-energize the entire switcher line," said company president John Antretter, a member of the new ownership team.

ECHOlab's first new switcher is the Nova 1700. "Quite frankly, we overdid it," he said. People around the world are telling us, dollar for dollar [it's] the best switcher in the world."

The Nova series is presently a standard-definition SDI product, with an HD version down the road. Antretter cautioned those looking for an upgradeable SD to HD switcher: the customer is either buying an HD switcher that can output SD, or the customer will have to switch out the chassis to get to HD.

"If you buy an HD switcher, it's very expensive, because the active semiconductors you buy to handle all that information are more expensive than the chips you would use for SDI."

Ross's Synergy

Broadcast Pix is doing a "mix of things," according to company president Ken Swanton, specifically pointing to small broadcast stations, the corporate video market, churches and education.

"What attracts people to our product is that they start out looking for a switcher, and then they realize with our product they get kind of an integrated graphics system in there too with a CG, a stillstore, a clip-store and logo generators." Hence the company's slogan: "Pay for a switcher, get a studio."

The new Broadcast Pix 2000 is an SD switcher with eight SDI inputs, four of which can handle analog sources. "Everybody's talking about HD," he said, "[but our customers] want these analog converters built into the product."

He said Broadcast Pix switchers' ability to be controlled over a network is another big selling point. The capability has always been there in the product, but customers have started to learn how valuable it is to be able to control all those systems over an IP network from as far as a half a world away, he said. ■

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Recording

CONTINUED FROM PAGE 19

broadcast asset management specialist Venacá introduced AirCom I, a digital aircheck system. In addition to recording the station's air signal, its PC interface allows users to search and preview recorded material. The basic system comes with 90 days of internal on-line storage.

Authorized users can retrieve content from their desktop, exporting chosen material to tape, CD, DVD or other storage medium.

At NAB2004 Telestream introduced MAPreview sc, a single-channel capture version of its multichannel MAP*review* product. Both products enable digital capture, indexing and desktop review of aired program content.

Axon Digital Designs' TX Compliance recorder

The single server MAP*review* sc unit encodes and stores the programming signal in Windows Media 9 format. Metadata such as closed captioning, timecode, keyframes, as-run logs and labels are captured during ingest. That allows them to become an aid when searching the content.

MAP*review* sc is available as a bundled software/server package including a dual 2.8 GHz or faster CPU server with 2 GB memory and 146 GB HDD, DVD read/write drive for archiving, and the Windows XP operating system.

When word of the possibility of the compliance recording requirement for broadcasters first came out, Entone Technologies found itself with a pair of products that surrounded the solution.

The Silicon Valley-based company had brought to market a network personal video recorder called the Armada Network PVR, which offered video ingest technology. Entone found the two could be coupled together to yield a compliance recorder.

One of the advantages Entone claims is a very low cost per gigabyte of storage.

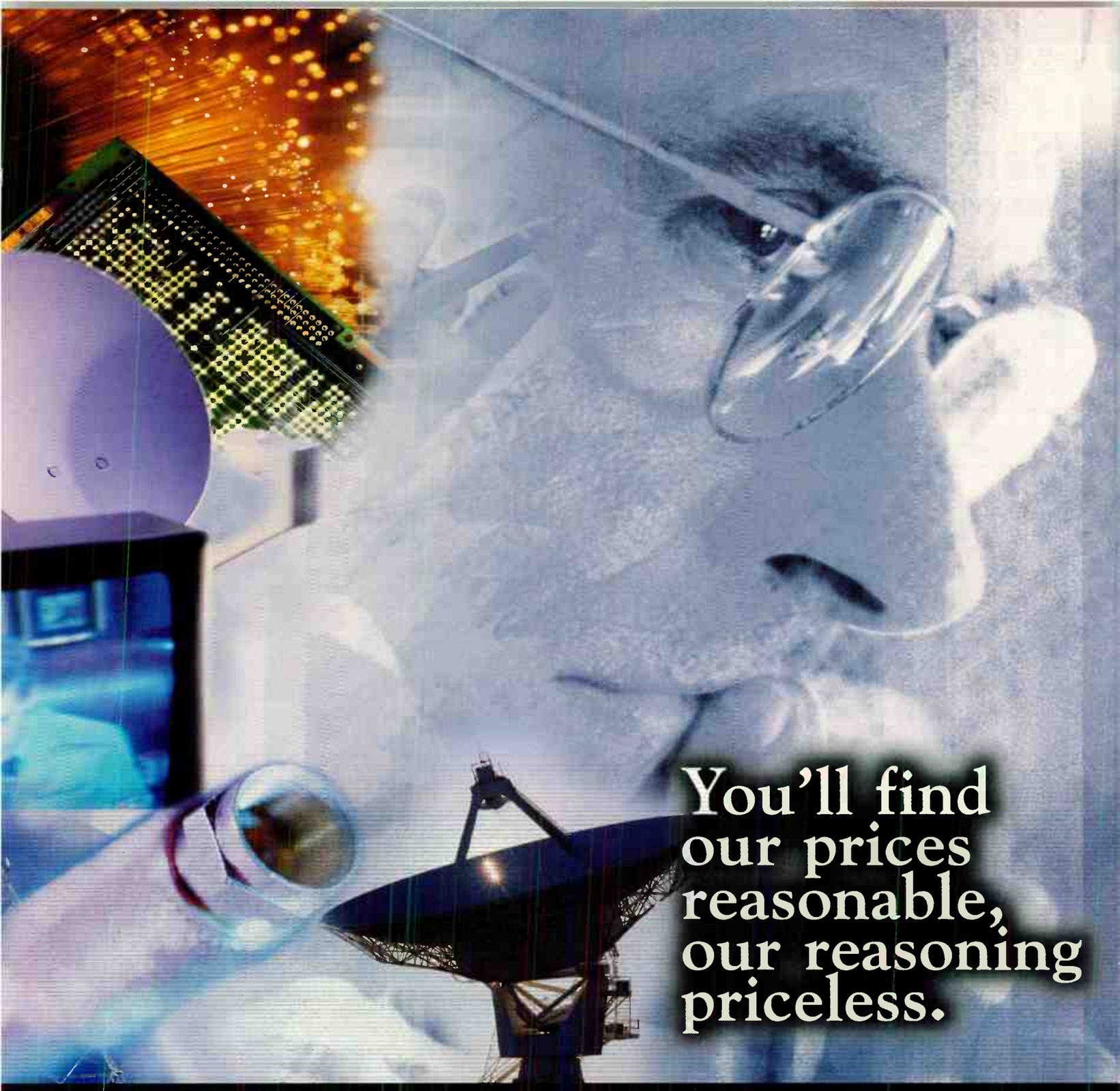
AND THE OLE STANDBY...

The author took a potshot at videotape earlier in the story, but it is obviously a lower-cost solution to compliance recording. JVC offers D-VHS format recorders that can record the full 19 Mbps transport stream on inexpensive oxide cassettes. At lower bit-rates they can be used for up to 35 hours of SD archiving on a single tape.

D-VHS records industry-standard MPEG-2 Transport Stream data, including standard- and high-definition program material. With the commission likely to accept lower bit-rate proxies of the program material, a single cassette could last a day or two.

Several broadcast equipment makers told us that although they had no product presently ready to fill the need for compliance recording, some small software tweaks to their existing asset management or news systems would be all it would take to incorporate such a function in currently installed equipment.

When you phone your vendors to see if there's an easy fix available for compliance recording, you might ask them if they can put in a Rosemary Woods foot pedal. (Ask someone over 40 what that pedal's function would be.) ■



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Denver Tower Reaffirmed

Opponents 'not giving up'

by Ken Freed

DENVER

Following a fresh round of public hearings, Jefferson County commissioners in Colorado voted unanimously Aug. 17 to reaffirm their 2003 approval for Lake Cedar Group to build a 730-foot digital TV "supertower" on Lookout Mountain west of Denver.

The project was put on hold March 26 by District Judge R. Brooke Jackson, who granted an injunction ordering additional hearings. The city of Golden at the foot of Lookout Mountain had filed a lawsuit on behalf of area residents claiming the county commissioners did not adequately consider public threats that posed a tower collapse and possible cancer risks from RF radiation.

The Lake Cedar Group consortium represents four Denver-area stations—KCNC-Channel 4 (CBS), KMGH-Channel 7 (ABC), KUSA-Channel 9 (NBC) and KTVD-Channel 20 (UPN). They propose building one consolidated ATSC digital tower to replace their four existing NTSC analog towers on the mountain. The proposal includes constructing a new facility for the collocated transmission gear of all four stations.

"We're disappointed but not too surprised by the decision."

—Charles Baroch, Golden Mayor

The lawsuit challenged the county commission's rezoning of the KCNC site to permit the new construction there.

NO NEW ARGUMENTS

Ten hours of hearings divided between Aug. 12 and Aug. 17 featured opposition testimony from more than a dozen members of Canyon Area Residents for the Environment (C.A.R.E.), a dozen assorted county residents, and the city of Golden's mayor along with four city council members.

Representatives of the nearby Squaw Mountain telecommunications facility urged that the tower be moved there, arguing that repeaters could cover any areas not reached by the signal.

Representing the Lake Cedar Group, former KCNC general manager Marv Rockford responded that Lookout Mountain is the only sensible place for a DTV tower. Two TV stations, most of the area's radio stations and numerous microwave antennas would still remain on Lookout Mountain, even if the Lake Cedar tower moved to Squaw Mountain. He also noted the likely difficulties in finding locations for repeater towers, given the trouble gaining approval for one new tower where four already stand.

Within 15 minutes after the close of the public hearing on Aug. 17, the three county commissioners concurred that the testimony echoed what they'd heard before, so there was no reason to change their original 2003 decision. They then voted unanimously to reapprove the zoning change that permits construction to go forward.

THE NEXT STEP

According to county spokesperson Heather Baniszewski, the county attorney put the decision into proper legal form for a formal commission vote on Aug. 31. After that, she said, "It will be up to the judge and the plaintiffs what they will do in response."

Golden Mayor Charles Baroch said, "We thought we had compelling reasons for the county commissioners to wait for a better evaluation of alternative sites, but the commissioners did not agree. We're disappointed but not too surprised by the decision." He said the city's next move is now being discussed with the city council.

C.A.R.E. attorney Deb Carney challenged the commissioners' decision. "It was not based on the evidence, and it certainly was not based on the best interests of the citizens of Jefferson County, the residents of Golden, or the health and welfare of the 9,000 people who live up here on the mountain."

As for what C.A.R.E. will do next, she said, "We're not going to forecast our plans to the Lake Cedar Group, but we're certainly not giving up." ■

Prompting Good Work in the Field

Newest prompter models tout low weight, high brightness

by Susan Ashworth

SAN FRANCISCO

They're quite unlike the bulky and fairly unattractive 25-pound prompting mechanisms that sat atop studio cameras years ago.

Rather, today's prompters are built to move from studio to field to laptop and back again, with software and ancillary features that make the prospect of using a prompting system easy, and sometimes even hands-free.

Rather than defining where the prompter ought to be used, several models from the Spectra-Lite family of prompters from Listec Video let the user decide. Like many Listec models, the 13-inch and 15-inch P-model field/studio prompters do double duty. The prompters are configured to accommodate a portable-style camera with ENG bayonet-mount lens. Both models offer a fold-down mirror and soft hood assembly, designed for easy transport and storage.

Focusing on quicker setup while in the field, many Spectra-Lite prompters have a two-part sliding balance assembly and weigh only a few pounds—the 13-inch ST-2013P weighs 14 pounds; the 15-inch ST-2015P weighs 20 pounds.

Other solutions from Listec include the standalone Solo Series, a tripod-mounted, ball-leveling standalone LCD prompter that features Listec's Spectra-Lite 15-inch composite TFT flat-panel and a medium-weight tripod or dolly with 4-inch lockable casters.

"Customers looking at prompters really need to consider construction and the way the pieces are manufactured together," said Joanne Camarda, president of Listec, based in West Palm Beach, Fla. "We have prompters still in the field from the 1980s, and people are calling to ask how to upgrade from a monitor to a panel while keeping the same mounting hardware.

"Users also need to recognize that mirrors are very important," she said. "Make sure you're getting a model with the correct reflective quality."

BRIGHT AND SHINY

One key feature nearly all prompters tout is brightness and readability. Most prompters in the field offer readability of up to at least 10 feet away, while several prompter models, such as those from Telescript, can be seen up to 25 feet away.

Portability and ease of use were other key components behind the design of the DV-8 from Telescript, which underwent a makeover incorporating a new folding design that can also be seen on the 12- and 15-inch systems, according to Andrew Wischmeyer, national business development manager for the Norwood, N.J.-based company.

The system offers a folding hood design and ultralight mounting plate, giving users more flexibility, Wischmeyer said. The system comes with an optional custom transport case and is battery-operable. Features include a screen size of 8.4 inches, a usable range between 2 and 15 feet, 350 nits of brightness and anti-reflective monitor glass.

On location with BDL Autoscript's TFT8

The newest generation of these prompters—the DV-8, as well as the 12-inch FPS-120-F and 15-inch FPS-150 F models—include new folding field configurations for more flexibility in the field. "The main focus of all these products is efficiency in the field," Wischmeyer said. "All the systems fold and unfold with minimal effort. The frame, folding hood, glass and monitor all stay together as one unit" and mount to the Telescript GlidePlate mounting system, he said. All these folding systems can mount to any ENG camera as well as any smaller footprint camera.

EASY TO CONTROL

When designing its prompter solutions, even those for in-the-field use, QTV put its focus on ease of control. Many of its prompters—including those designed for ENG applications—can be used with QTV's various control systems. The Stamford, Conn.-based company's Hand Scroll Control gives smoother control over the speed of the prompter text and offers forward, reverse and next marker buttons. Likewise, the company's Foot Scroll controller allows users to control the speed of the prompter text—both forward and reverse—the same way they'd operate a car accelerator pedal.

One of the company's prompting solutions for the field is the FDP-15, featuring a TFT active matrix display that can run full-motion video. According to QTV the EFP is for weight-sensitive applications such as field shoots, and it can also be used with robotic heads in a remote studio location. The prompter has a universal power supply, allowing users to pack it up and use the prompter worldwide.

In addition, the company's FDP-12 is large enough for regular studio use but light enough to take into the field. The prompter is available in standard-bright or high-bright versions and is especially suitable for robotic camera pedestals, the company said.

QTV's lightweight FDP-7 LCD, which weighs a little more than 3 pounds, is designed to be used with portable or lightweight cameras, especially handheld models.

LCD OPTIONS

Mirror Image Teleprompters decided to address the ENG market with its LC line of LCD-based teleprompters. The company's best-selling models are the LC-160, a 15-inch field prompter that can handle SVGA, composite and S-Video, as well as the LC-110, a 14-pound prompter with a screen that can be read as far away as 15 feet. The prompter accepts SVGA computer signals via a standard 15-pin connector or NTSC or PAL composite signals.

One of the company's newest solutions is the LC-110 TF, a 14-pound teleprompter with Mirror Image's Transflective design.

"Prompters that use an acrylic or plexiglass mirror tend to distort the image," said Mike Burdick, sales manager for the Oshkosh, Wis.-based company. As in all its teleprompter models, Mirror Image uses what it calls a "high-end glass beam-splitter mirror," rather than plastic acrylic that Burdick said can produce a color shift or optical apparition.

"The advantage is that there is better clarity for the lens and you don't 'lose' the image, as happens with acrylic," Burdick said.

Other field solutions from Mirror Image include the FP Series line of prompters. This family—which includes the FP-900 and FP-120—offers fold-down mirrors and housing, as well as removable side panels.

UK teleprompting specialist BDL Autoscript has also tackled the ENG prompting market with its TFT flat-panel on-camera units. The 6-inch on-camera unit has a reading distance up to 8 feet and weighs 4.4 pounds. The 8.4-inch unit has a 400 cd screen brightness and can be used via a handheld or tripod mount. The company's 10-inch TFT unit has a viewing area equivalent to a 12-inch CRT and a reading distance of 13 feet.

Computer Prompting and Captioning (CPC) put its mark on the teleprompting market back in 1985 when it introduced the first IBM Windows-based teleprompting software solution, according to Dr. Dilip K. Som, president of the Rockville, MD-based company.

Since then, CPC has been offering both software and hardware solutions for the prompting industry, including resale of systems like the Mirror Image 7-inch flat-screen LCD for steadicams and jib arms and the Mirror Image 15-inch flat-screen portable field prompter, as well as manufacturing its own CPC-1000 SmartPrompter software, which runs on desktop and notebook computers.

Competitive pricing and solidly built prompters are the hallmarks of Audio Video Design's solutions, said Shawn McDermott, company CEO.

The Melbourne, Fla.-based company's field prompting solutions include the 12-inch high-bright AV-12HB, a 1,000 nits prompter that weighs 12 pounds; as well as the AV-15HB, a 15-inch teleprompting solution that offers 1,800 nits and weighs 15 pounds. While both are used for field or studio use, "the high brightness capabilities of these models make them perfect for field use," McDermott said, adding that the company was the first in the market to offer a high-bright monitor version back in 1997. ■

THE MASKED ENGINEER | Mario Orazio

Scaling Mount Ed Display

You might not have noticed that there is still a production aperture and a viewing aperture. Let me put that another way: Safe-action and safe-title areas exist even in the age of plasma panels and LCDs. And that's a problem.

Let me be among the very first to admit that the problem ain't restricted to new-technology displays. Shoot in HDTV or even in 16:9 standard definition, and send it out letterboxed to the "Great Unwide" (the 99-percent plus of TV viewers worldwide who are still watching 4:3 screens), and there's something interesting that happens to the vertical overscan. It disappears.

So, if you happen to be airing a widescreen Gene Kelly movie, and his feet are touching the edge of the active picture in the letterbox version, they'll be cut off on true 16:9 screens. Put them in the right place on the widescreen TVs, and the Great Unwide watch garbage above and below the good stuff.

"But, Mario, isn't this just a temporary situation until everyone has widescreen TV sets?"

Sure, it's temporary. So are the situations at the divided parts of Ireland, Korea and the Middle East. Hey, Germany wasn't twain forever. Someday all TV sets not in a museum will be widescreen. After all, no one watches a black-and-white TV today, do they?

Anyhow, that's not what I wanted to rant about this month. But what I did want to rant about this month does have something to do with overscan.

First of all, if you think overscan has something to do with picture tubes, kindly run some floss through your ears. Then go to your CD-ROM of SMPTE film standards, or, if you ain't got that handy, pull an "American Cinematographer Manual" out of a library or film bookstore. It doesn't matter what edition.

SIZE MATTERS

Flip to the section showing apertures. Here's a typical camera aperture: 0.868 by 0.631 inches. Here's a typical projector aperture: 0.825 by 0.600 inches.

You have probably noticed that the first aperture is bigger than the second aperture. It turns out that 0.868 is a little more than 5 percent bigger than 0.825. And—surprise"—0.631 is also a little more than 5 percent bigger than 0.600.

I'll wait here for you while you search through the preceding two paragraphs for words like "video" or "television." Find any? No? That's good, on account of there ain't any.

Yes, Virginia, photochemical motion-picture film shot with a movie camera and shown in a cinema has pretty much always had overscan. That's on account of edges not being a nice place to be.

The ancients thought that if you got to the edge of the world, you'd fall off. Maybe they were right. I don't happen to know where the edge of the world is, but maybe they did. A lot of smarts have been lost over the years.

For instance, cinematographers have always known that there's a tolerance to projection aperture plates and that perforations need to be bigger than sprockets or the latter will tear the former apart. All of that spells jitter and weave, or to put it in words of at least four syllables each, positional instability.

Human vision can put up with a lot, but testing it with image edges dancing with cinema-drapery pleats is maybe not the best idea in the world. Ergo, the camera (production) aperture is bigger than the projection (viewing) aperture, Q.E.D. (which means "quit eating daisies" or something but looks good after a sentence that starts with "ergo").

Anyhow, that's film. In good old analog TV technology, the blanking intervals take the place of the perforations,

and the sweep circuitry takes the place of the aperture plate. Or maybe it's vice versa. Whatever it is, picture edges have always had a bad case of the uglies, and overscan kept us from seeing them.

That was in the era of the wise ancients, who understood stuff. Now we are in the digital era, where everything is perfect all the time, right?

I can't think of any other reason how come in most digital standards (but not all—*somebody* has a clue), there ain't any such thing as a production aperture and a viewing aperture. What's 1080i HDTV? It's 1920x1080 in the video camera, and it's supposedly 1920x1080 on the TV screen.

Someday maybe I'll do another rant about how even analog composite-video cameras have huge amounts of CCD oversampling (maybe 1300 active sensors per scanning line even in an NTSC camera from which the FCC won't allow more than about 440 lines of TV resolution in that same scanning line). So why do HDTV cameras still have just 1920?

DAT WAS DEN, DIS IS NOW

Yes, I could understand it 10 years ago, when the first chip-based HDTV cameras were just coming out, and we had to applaud even 1920. But then 10 years passed. Didn't they? Hello?

Anyhow, that's not this month's rant. This month's rant is about 1920x1080 in the camera and 1920x1080 on the TV screen.

Now then, there surely ain't a whole heck of a lot of picture tubes out there that can squirt out 1920x1080. I'll second the emotion for projection tubes. But times are changing.

There's some sort of a research organization called iSupply/Stanford Resources (Stanford's quartermaster, perhaps?). It published a list of shipments of TV sets for the first quarter (aha!) of this year for some portion of the world. The list went something like this:

- Direct-view CRT TV—11,186,000
- CRT rear-projection TV—1,001,000
- Direct-view LCD TV—365,000
- Plasma TV—356,000
- Microdisplay projection TV—265,000
- Home front projector TV—106,000

Unrepentant geezers among you rejoice! Cathode-ray tubes are dominating TV screens—about 92 percent, not even counting those front projectors—as recently as this year!

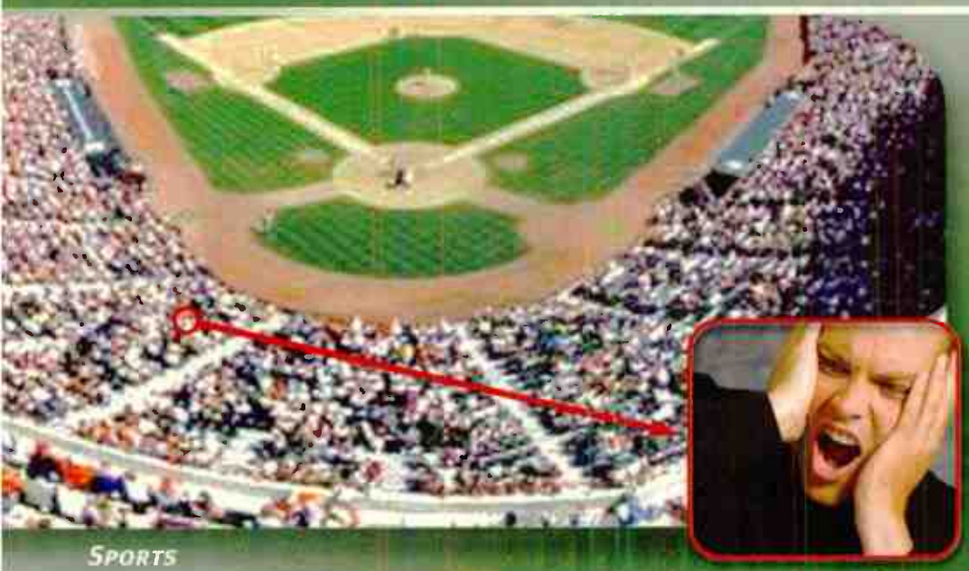
Salivating geeks among you rejoice! By just the first quarter of this year, non-CRT displays have already taken over close to eight percent of the market!

Now then, perchance somewhere in Geekland, folks expect cameras and screens to have identical apertures, but, if so, they're forgetting things like MPEG and rise-times. I mean, if you've got a white picture edge coming out of nothingness, it's going to take it a while to get white, and thanks to our friends the filters, it'll ring all the way.

As for MPEG, macroblocks are 16x16, but 1080 ain't evenly divisible by 16, so ATSC calls for coding 1920x1088, but the camera just puts out 1080, so... Oh, never mind.

MARIO, PAGE 36

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



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PRODUCTION MANAGER **Craig Johnston**

Don't Skimp on Audio

I was reviewing a pilot production budget for a former employee, who hopes to launch a show for young people, and I couldn't find a line for an audio operator.

"Who's going to run audio on this thing?" I asked.

"Oh, I thought one of us could," was the answer.

We talked about some programs we'd both been involved with years ago and came to the conclusion that when you've got a production problem on a show, it's usually audio. Sometimes it's simply a case of numbers. Except for graphic devices, every external source has one or two audio sources.

Then you have audio versus video cables. Video cables can be relatively beefy and may even be armored, because they're generally out-of-sight. Since microphones are often in the shot, cables are frequently miniscule and delicate. Finally, there's a long tradition in television to spend millions on video and dimes on audio.

"You really need to get someone who knows what they're doing, doing audio," I said.

I started in the business as a 16mm newsfilm photographer for a network affiliate back in the Pleistocene, so I know something about being a one-man band.

One way to look at videography is that it's the art of seeing what you want to see, hearing what you want to hear, and eliminating everything else. On the video side, with a zoom lens, you can point the camera in a particular direction and choose a lens setting that crops undesirable visual elements from the scene.

Lighting tools allow you to leave things dark so they won't show up. Unless you have a lightning storm or nuclear blast going on behind the camera, you'll only see what you've lit.

By contrast, audio problems come from 360 degrees in three dimensions. The airplane flying overhead, the building being torn down across the street, the kids taunting you—those sounds need to be eliminated or minimized.

Then there are things that aren't really sounds you can hear on-location, but end up as audio problems. Hum, which can have dozens of causes, comes to mind. And then there are wireless mics... more about them later.

To repeat myself, you need to get someone who knows what they're doing, doing audio.

BETTER GEAR

I started in the business as a 16mm newsfilm photographer for a network affiliate back in the Pleistocene, so I know something about being a one-man band.

We had cameras that laid a single channel of audio on a magnetic stripe down the edge of the film, and a battery-powered, cigar box-sized amplifier with two mic channels and one for line-level sources.

In the portable mode of operation, we had to keep one eye in the camera eyepiece and strain the other one down at a 75-degree angle to monitor the VU meter. Camera-mounted mics were out of the question because the camera was too noisy.

We held them.

Network news crews usually had a separate soundperson who ran the amplifier and mics, and was connected to the camera by an umbilical cord.

What a difference in equipment today! The amplifier is incorporated into the camcorder, with maybe four channels of audio. Audio can be metered in the viewfinder, and auto-

AUDIO, PAGE 40

Ikegami's HL-60W sets performance standards, but our customers get all the applause.

HL-60W

Some broadcasters really know a good thing when they see it. Take Ikegami's HL-60 for example. This remarkable fully digital camera incorporates newly developed 0.18 micron digital signal processing, containing 3.3 million gates and equal to 12 million transistors, all in a single IC. Providing compact size, low power consumption and attractive price, the HL-60W delivers Ikegami-quality in a switchable camera (16:9/4:3) that makes users stand and cheer.

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DIGITAL TV

Charles W. Rhodes

The Tide is Turning

The tide is indeed changing. I refer to the fact that many broadcasters sought to minimize their initial investment in DTV by operating a low-power transmitter, perhaps not certain that DTV would catch on, or doubting the FCC would ever shut down analog transmission in the United States.

Now that the FCC has established its timetable for broadcasters to elect which channel to return, I believe these same broadcasters will seek to maximize their DTV facilities.

For UHF broadcasters with a DTV channel in the 14-51 core set of UHF channels, this would appear to be simple. But readers of this column know of my concern about interference between DTV signals, an unresolved issue largely hinging upon whether manufacturers provide enough linear dynamic RF signal power range.

Intermodulation products generated in a receiver front-end are what cause interference from signals on adjacent and taboo channels. I understand that the ATSC recommends receivers be designed for maximum RF power input level of –8 dBm. But is this the highest level at which third-order intermodulation products are below some yet-to-be-defined level; or what is the significance of this number?

What if more than one powerful signal is received? How do you sum the power in multiple undesired signals? We will examine here what the maximum DTV received power can be and analyze the interference from one or both adjacent channels and from UHF taboo channels. Oh, by the way, there are no D/U limits for DTV-DTV interference from taboo channels. The limits on D/U from adjacent channels are –28 and –26 dB. These were changed in 1998.

Broadcasters seeking an ERP for their DTV signal of 1,000 kW (30 dBK above 1 kW) are required to hold their field strength at the horizon

One dB below the field strength at the horizon that would have resulted from their present allocated ERP. In most cases, the allocated power is 50 kW (17 dBK). So in order to increase their ERP by 13 dB to 30 dB, they must lower it at the horizon by 1 dB. The FCC specifically said this could be done by employing sufficient beam-tilt.

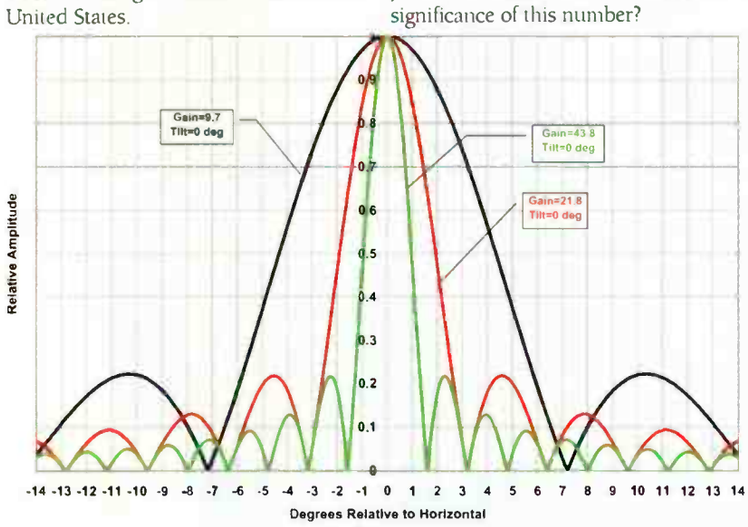

Fig. 1

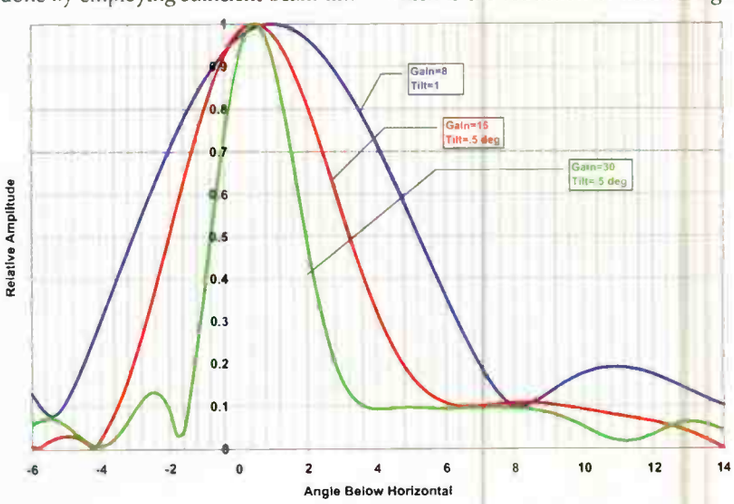

Fig. 2

The required beam-tilt depends on the vertical beam profile of the transmitting antenna. Examples of this are shown in Fig. 1 for three antennas to make the point that antenna gain determines the required beam-tilt to reduce field strength by 14 dB at the horizon.

A reduction in field strength of 14 dB corresponds to a relative amplitude of 0.2 in Fig. 1. This figure gives the vertical beam profiles for UHF antennas with gains of 9.7 (low), 21.8 (medium) and 43.8 (high). These antennas have a symmetrical beam profile; they do not provide null-fill. Most UHF antennas provide null-fill. Three examples are provided in Fig. 2. These figures and the supporting data files were provided by Dr. Oded Bendov and used with his permission and my appreciation.

He noted that low-gain antennas are favored for LPTV, but full-power UHF TV broadcasters use moderate- or high-gain antennas. Gain of transmitting antennas is a number; not expressed in dBlogarithmic units (dB). I think this stems from the fact that the numerical gain of an antenna is related to its physical size in terms of wavelengths.

Dr. Bendov's plots are normalized to a relative gain of one. In these normalized plots, a gain of 0.2 is –14 dB, which is the reduction of field strength required in seeking to increase ERP from 17 dBk to 30 dBK. You give up 1 dB at the horizon to get much stronger signals inside your coverage area, which may benefit users with indoor antennas.

HORIZON PROTECTION

How much beam-tilt is necessary to protect the horizon depends on your antenna gain as shown in Figs. 1 and 2. As null-fill antennas are much more generally used, we will look at Fig. 2, which gives us three examples of vertical beam profiles *with* null-fill. For an antenna with G=8, Fig. 2

TIDE, PAGE 36

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COUNT ON IT

André V. Mendes

The Great Debate: To IT or Not to IT

I am positive that almost all of you have run into this recently. You go to a broadcasting technology conference and lo and behold! There it is. Sitting silently in the middle of the agenda, as inevitable as rain on a holiday weekend or a bad reality show during sweeps, the dreaded, "Does IT belong in your network center?"-moderated panel.

You want to skip it and get nine holes in, but you can't. After all, this might be the one panel at which somebody unveils the magic trick to this so-called convergence that everybody keeps talking about. So you sit, listen and hope for enlightenment.

But then it happens. Instead of gaining knowledge, you start hearing the same thing you have heard countless times before. One side of the aisle says "Never!" while the other side says "Now!" You might as well have stayed in the office! But the truth, as often is the case, lies somewhere in between.

THE TIME IS NOW!

On one side, now is definitely the time for a well-planned and controlled connectivity-to-baseline infrastructure. After all, most modern systems will need access to a domain controller, DNS services and other enterprise applications that may not necessarily be collocated. From a security standpoint, having a shared, well-run, authentication-and-access control service like Active Directory will allow you to establish and enforce proper password schemas that should include well-delineated and -communicated length-complexity and expiration parameters.

Since these systems need to be backed up on a nightly basis, being connected to an enterprise-level backup system, preferably one that is geographically diverse, will ensure that you can survive minor hardware crashes, data center malfunctions or even incapacitating disasters.

The majority of automation, traffic, digital asset management and other broadcast systemst now run on commodity hardware and operating systems. As such, they should be regularly checked for patch levels and upgrades to ensure they have the highest possible stability and security.

This is a work-intensive process best run in an automated fashion with an updated server. In an optimum scenario, you should have a test system, configured similarly to your on-air system, on which you test the latest releases before releasing them into production.

THE TIME IS NEVER!

On the other side, the time is never for complete and unfettered access to your mission-critical on-air equipment. This should come as no surprise even to the most optimistic IT manager.

A large percentage of all hacking is done from the inside, either by disgruntled employees or by decidedly low-tech social engineering.

Just because some of your equipment is on a shared network doesn't mean it has to be exposed. As with any other high-level system, your mission-critical broadcast equipment should be installed, configured and maintained to constantly exhibit the smallest possible surface of attack. What does that mean? Well for one, only absolutely necessary software services should be running at any time.

Many versions of popular operating systems will install with a bevy of services turned on by default. Your plant should research and publish a specific configuration that specifies which particular services are needed and turn off all others.

Your Ethernet connections should be configured on specific subnets whose particular purpose, traffic type and access routes are well-defined and updated within proper change management records.

Insist that your application provider develop systems to run as services rather than standard desktop applications with a standard GUI interface. This will allow you to run the applications even after you have logged off from the particular server, minimizing access to an unauthorized intruder.

If you are relying on the false security of walled-off networks and systems that never get touched after they become stabilized, you should be aware that a large percentage of all hacking is done from the inside, either by disgruntled employees or by decidedly low-tech social engineering. Keeping these systems at their original status just makes a hacker's job that much easier, not to mention that if a maintenance technician from your preferred server provider happens to have an infected laptop harboring the latest port-scanning Trojan, it will cut through your setup like an acetylene torch through rice paper, literally within seconds of plugging into your "safe" walled-off network. And then you might be stuck recreating a setup based on operating systems and drivers that are no longer supported.

So next time you listen to such a panel, wait 'til the end and then ask them this question:

"Can't we all just get along?"

Because at the end of the day, we can, we should and we must. The future of our organizations is at stake.

You can count on IT! ■

Andre V. Mendes is the Chief Technology Integration Officer for PBS. He can be reached via TV Technology.

Ross Video Introduces 10 New Multi-Definition Synergy Switchers

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www.rossvideo.com/synergy/switchers.html

ROSS PRODUCT HIGHLIGHTS

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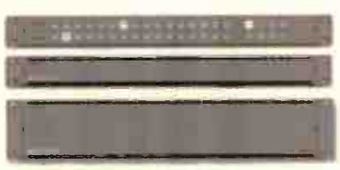

TALIA NK ROUTING SYSTEM

The NK Series is a new line of compact and cost effective routing switchers. NK routers are available in sizes of 16x16 or 32x32 and in a full range of signal formats including serial digital, analog video, AES/EBU, analog audio and data routing. NK ships with a powerful web browser based configuration system and is available immediately.

www.rossvideo.com/talia/nk/nk_overview.html

GEARLITE MD

GearLite MD is a line of Multi-Definition (High Definition & Standard Definition) products. These include the DAC-9213 Multi-Definition Digital to Analog Converter, the SRA-9201 Multi-Definition Reclocking DA, and the SEA-9203 Multi-Definition Serial Equalizing Amplifier.

A -PVM version of the DAC-9213 is used specifically for Sony PVM/BVM monitors.

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http://www.rossvideo.com/gearlite/gearlite.html

Tide

CONTINUED FROM PAGE 32

shows the beam-tilt would have to be increased from 1 degree, as shown, to 5.5 degrees to reduce the field strength by 14 dB at the horizon from its peak.

For G=16, the required beam-tilt would be increased from 0.5 degree to 4 degrees and for G=30, the beam-tilt would have to be increased from 0.5 degree to about 1.8 degrees. Higher-gain antennas need less beam-tilt.

Fig. 3 demonstrates. The "nose" of the beam (where relative amplitude is 1.0) for the G=16 antenna will reach 30 feet above ground at a distance from the tower base for an HAAT of 1,200 feet with 4 degrees of beam-tilt.

CLOSE-IN FIELD

The maximum field strength for an ERP of 0 dBK (1 kW) at one mile is 102.8 dB above 1 microvolt/meter. It decreases by 6 dB for each doubling of the path length over line-of-sight paths.

I am assuming that there is a line-of-sight path from the roof of this home to the center of radiation of the transmitting antenna, simply because it is only 3.2 miles from the tall tower.

So we can expect the field strength at 3.2 miles to be about 92.5 dB uV/m for an ERP of 0 dBK. For 30 dBK, the estimated field strength at this distance would be 122.5 dB uV/m. Using the well-known dipole factor, which at 615 MHz is 130.8 dB uV/m -dBm, the received power would be –8.3 dBm for *a resonant-dipole-receiving* antenna.

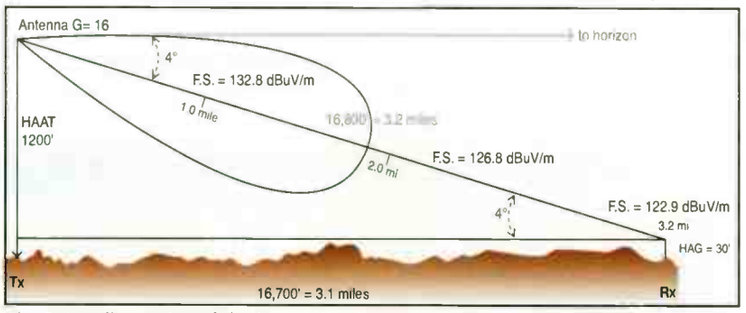

Fig. 3: Landing point of the beam-tilted antenna, G=16 for maximization

With a a high-gain rooftop antenna, the signal power (dBm) available to the receivers will be about the same as the line loss, plus the signal splitter attenuation is about equal to the gain of a good rooftop antenna over a dipole. The effect of beam-tilt is to increase signal levels for many viewers by up to 14 dB. The effect of maximizing ERP is to increase these signal levels by another 13 dB. By some coincidence, the D/U ratio for adjacent DTV channel interference is now –27 dB.

Consider two stations on adjacent channels sharing the same transmitting antenna, an extreme case of being co-sited One maximizes to 30 dBK with beam-tilt, the other stays with 17 dBK ERP. Their field strengths over a line-of-sight path can now differ by 27 dB.

Note that I've assumed co-siting and the same antenna, both of which tend to reduce signal differences. Without co-siting, the D/U can have a greater range. With different antennas, there will be greater signal-level differences. This is a real problem.

What if there are three stations and the third maximizes, too? Is not the D/U ratio now –30 dB? It sure is for me. But as receiver overload (the real cause of adjacent-channel interference) is a nonlinear process, the intermodulation products (the interference) will go up 6 dB for a 3 dB increase in the undesired signal, not 3 dB. With two undesired signals, their combined effect is somewhat stronger, but this has never been investigated.

These unintended consequences will also apply to undesired signals on UHF taboo channels. At present, there are no D/U limits for DTV-DTV taboo channel signal interference.This column has shown that there is a "disconnect" between the levels of signals that will exist due to maximization and the receiver performance recommended recently as a "voluntary standard."

Designing a receiver front-end to remain linear for multiple signals, each of which may exceed –8 dBm, is no simple matter but then, fitting an HDTV signal into 6 MHz was no simple matter either, but we did it. ■

Charlie Rhodes is a consultant in television broadcast technologies and planning. He can be reached at charlesrhodes@worldnet.att.net. He and Dr. Bendow will be presenting papers Oct. 15 at the IEEE Broadcast Symposium at the Hotel Washington in Washington, D.C.

Mario

CONTINUED FROM PAGE 28

Elsewhere in Geekland, those employed in the design and manufacture of TV sets know that image edges are still a problem and need to be overscanned. No, scratch that. *Some* of those employed in the design and manufacture of TV sets know that image edges are still a problem and need to be overscanned.

A whole bunch more know only what they read in standards, and the standards say 1920x1080 and don't make any distinction between cameras, recorders, transmission channels, and screens.

The way I see it, Group B designs fixed-pixel display components like plasma panels, direct-view LCDs and projection microdisplays (like DLP and LCoS) with 1920x1080 or 1280x720 (or, worse, 1280x768) pixel counts. Group A designs the driving circuitry that ensures there will still be overscan.

That means that a 1920x1080 TV set showing a 1920x1080 picture is actually showing (if I plug in the old 5-percent overscan) something like the central 1824x1026 of what the camera captured. That ain't a terrible idea. If Group B made 1824x1026 fixed-pixel displays, it would be a downright great idea. But they don't.

They make 1920x1080 displays. That means consumers are watching HDTV through the haze of a scaling processor even when they watch 1920x1080 pictures on 1920x1080 TV sets. Now, then, the mathematician and theoretical physicist in me would like to point out that, in an ideal world, a scaling engine is perfect, and display resolution doesn't have to have anything to do with source resolution.

AHEM

Are those guys gone? Good. Hi, everybody! It's the TV-watching practical engineer here, and I'd just like to point out that, no matter what anyone says about scaling, you just can't beat a pixel-to-pixel matching relationship between camera and display.

Did you happen to wander into Dalsa's exhibit at the NAB show? Did you see the slightly shrunken image on the LCD monitor? Do you know why it was shrunken? Exactly. It created a perfect pixel-for-pixel match between imager and imager.

That made the pictures look as good as possible. Having pix look as good as possible is what companies at NAB live for.

Too bad you can't do it at home. If you want the best-looking 1920x1080 on a TV with 5-percent overscan, try watching it at 1824x1026.■

Mario Orazio is the pseudonym of a well-known television engineer who wishes to remain anonymous. E-mail him at Mario_Orazio@imaspub.com.

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AUDIO NOTES

Tim Carroll

Of Dolby, DVRs and Distant Signals

Let's start with some good news before we jump into the difficulties and complexities of television audio. I am happy to report that in August, Dolby Laboratories was informed that the company had won a technical Emmy award for its LM100 Broadcast Loudness Meter.

This is a definite sign that the rest of the world is noticing that there is a real problem here, and that the first step toward solving it is being able to measure it.

So congratulations to everyone at Dolby, specifically Jeffrey Riedmiller (the well-known father of the LM100), Matthew Robinson, Marvin Pribadi, Charlie Robinson, Mark Vinton, Steve Lyman and of course Ken Gundry (who wrote the best set of articles explaining noise reduction I have ever read and re-read many times).

Also, congrats to the folks at Dolby who bring the products to life: from the PAS Engineering group to the gang in manufacturing down in Brisbane (the one slightly down from San Francisco; that is, not the Brisbane way, way down in Australia).

STORE AND FORWARD

Believe it or not, TiVo (and TiVo-like devices) and video-on-demand (VOD) are very closely related. In fact, I would go so far as to say that TiVo is the consumer version of the massive server systems used for VOD. Both have the same goal of delivering content when a consumer wishes to receive it, and the only major difference is the ability of VOD to serve more than one viewer. Still, they are very close.

These services are also a close cousin to the PBS and Fox transport/distribution model, in that all the encoding is done before the signal is distributed and stored. This model is particularly useful and cost-effective for VOD, because the whole transport stream is stored, then forwarded (on-demand); the MPEG video and Dolby Digital (AC-3) audio encoding only needs to be performed once. This is a gigantic cost-savings.

Think about a newly released film entering the VOD lineup on a typical Saturday night on a typical cable system. If the feature is popular, many, many different streams will be requested and delivered. This functions similarly to how people can visit a Web site at different times but see the same content.

If the entire transport stream were not available, each separate delivery would require an MPEG and Dolby Digital (AC-3) encoder. Not only would this make the system cost-prohibitive for the cable companies, it would very likely take so much rack-space, power and HVAC for the equipment that it just would not be physically possible.

Transport stream technology to the rescue. Yes, there are certain complexities to this approach. As we have discussed, because the transport stream is carrying compressed audio and video signals, you cannot easily do "baseband" things to it like crossfades and voice-overs.

However, with VOD, there is little need for these types of operations. So, simply providing the stream then as gracefully as possible and splicing it with other programming allows for many simultaneous versions of the same program to be delivered, all with the capability for 5.1 channel audio.

DVR DOWNMIXED

I remember the first TiVo boxes that became available when DirecTV began carrying programming with Dolby Digital (AC-3) 5.1 channel audio. They would simply record the stereo downmixed audio and the video, certainly acceptable, but not the best capture method for a program.

The problem was the lack of access to the nondecoded bitstreams, which required the external TiVo-type recorders to recompress the incoming audio and video streams (bad on many levels). The solution appeared with the integrated receiver and recorder, as now the transport stream could be recorded and decoded upon playback. This simplified things immensely because no real-time encoder was necessary for the satellite channels, and because the whole transport stream was stored, Dolby Digital (AC-3) could come along for the ride.

Fig. 1 clearly shows how similar the two systems are. Although I would not recommend using consumer gear at a cable headend, the simple overall designs are amazingly close.

One additional point becomes appar-

ent. These services are further proof that encoding content into a transport stream as early as possible is a good idea and one that brings with it great efficiencies. While this could introduce additional complexities, I am confident that with all the benefits of this model, these will be worked through quickly.

OLYMPIC EFFORT

Did you happen to catch the Olympics broadcast on NBC? In my opinion, this was one fantastic job. High-definition video and multichannel audio is hard enough to do locally, but to successfully pull off a production of this magnitude that far away is a testament to the many visionary professionals involved.

Yes, there were some minor glitches, but that happens regularly with NTSC, a format that has been around for decades, so let's be a bit more patient with a format approved only in 1995. It was also nice to see NBC finally go from very little HD content to HD plus 5.1 channel audio for days at a time. This hopefully bodes well for the new primetime season, but we will have to wait and see. As I keep telling Jim Starzynski, I just cannot wait to hear "Saturday Night Live" in 5.1! If nothing else, the whole Olympics production is a good response to the shrinking group of naysayers who just cannot bring themselves to accept that HD and 5.1 channel audio go hand-in-hand and are what consumers are demanding.

ATSC AUDIO DOCUMENT

We started with a happy topic, so why not end with one? The ATSC has signed off on the document officially called "IS/318 Multichannel Audio Program Delivery and Metadata Considerations (Pre-Emission)." Composed by the Audio Section of the Systems Evaluation Working Group (SEWG), this document began almost three years ago and covers multichannel audio and metadata issues from production through storage, routing and distribution, right up to the input terminals of the emission encoder (i.e., the Dolby Digital AC-3 encoder). I have mentioned this document a few times in past articles, and it is finally public.

At the time this article was written, the location of where to obtain a copy was not yet known, but please drop me a note and I will happily forward it to you. I will report the exact address for downloading next month. On the ATSC topic, it seems that activity is winding down somewhat, which is expected, but a little disappointing. I suppose it is time to get down to making all this stuff actually perform in the real world. There are one or two more audio-related documents in process with the SEWG dealing specifically with loudness and lip-sync that may yet see the light of day. I'll keep you posted.

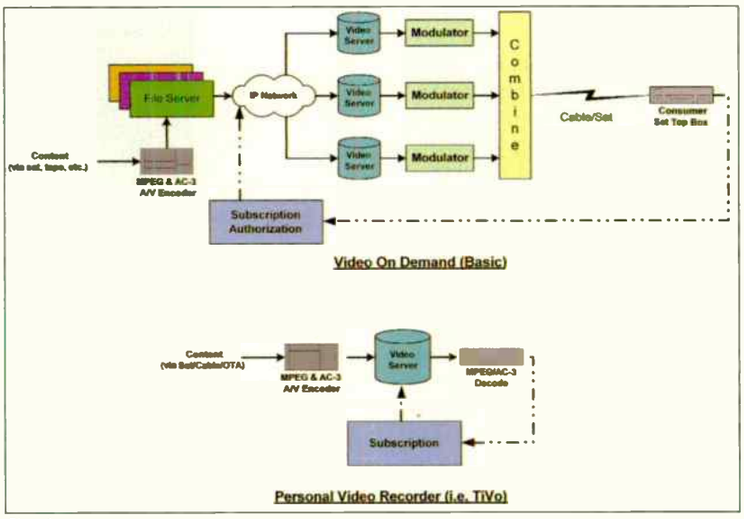

Fig. 1

NEXT TIME

Next time, we will look at how audio is being handled in the new fall season. There are lots of new infrastructures with all the requisite capabilities, and programs being produced with proper audio and hopefully metadata, but how does it sound in the real world? I will also share some feedback from DTV stations located between the two coasts to see if there is a difference in other markets.

We will also investigate the interesting and somewhat controversial audio technology called upmixing (i.e., two-channel to 5.1 channel synthesis) and explore the upsides and the caveats.

Until then, please keep the great comments coming, and any suggestions for specific areas that you think should be covered (or re-covered) would be more than welcomed. As always, thanks for your time! ■

Tim Carroll is a consultant based in New York City. He is currently the chairman of the audio section of the Systems Evaluation Working Group of the ATSC. He enjoys explaining that there is, in fact, a solution to the loud commercial problem and answering e-mail sent to him at: tjcarroll@ieee.org.

FOCUS ON EDITING

Jay Ankeney

Adobe in Action

How many of you can remember when Adobe Premiere editing software was available only on the Macintosh platform? Well, Adobe has brought out a new version of its desktop post-production package called Adobe Premiere Pro, and according to Richard Townhill, group product manager for Adobe Video Products, it involves such a fundamentally thorough rewriting of its code that Premiere Pro will only be available for Windows XP.

"We've added the appellation 'Pro' to the name and restarted the version numbering because this software is entirely new," Townhill said. "But with an existing customer base of more than 1 million users, the current Version 1.5 of Adobe Premiere Pro is completely backward-compatible with the earlier Premiere 6.5. And, as part of the complete Adobe Video Collection, the emphasis is on streamlined workflow, application integration and increased real-time functionality."

The Adobe collection includes Premiere Pro for editing, After Effects for motion graphics and visual effects, Audition for audio editing and loop-based soundtrack creation including 5.1 mixing, Encore for DVD authoring, and the ever-popular Photoshop CS to tweak images to perfection.

Premiere Pro 1.5 supports uncompressed HD editing with additional video cards, including 24p, or compressed HD with the help of a plug-in from CineForm. But the central idea behind this significant upgrade is that everything is completely integrated so you can, for example, copy a clip from the Premiere Pro timeline and paste it into After Effects without leaving the original application.

The goal of this column, however, is to find out how new editing products perform under real-world production pressures, so I contacted two editors using Premier Pro who faced intriguingly different challenges.

Have you heard of the "24-Hour Film Festivals?" Video production teams are given identical story guidelines to incorporate into a short video to be produced during a round-the-clock shoot-and-edit marathon. The movement seems to have started in Europe, but this summer at least a dozen 24- (or 48-) Hour Film Festivals were held across the United States.

In early August, editor Joe Mastromonaco was part of a crew formed by Team Pictures that took part in ScavengerFest 5, hosted by Scavenger Films in Studio City, Calif.

On Friday evening, Team Pictures and the seven other squads that qualified for ScavengerFest 5 met at Carney's Diner on Ventura Boulevard in the San Fernando Valley north of Hollywood, where organizer Jerry

ACTION, PAGE 42

A scene from "The Three Wishes of Paddy Cake," in which one woman was transformed into a stampeding pack.

Audio

CONTINUED FROM PAGE 30

matic gain controls do an adequate job riding the levels on background sound. Moreover, shotgun mics are built right into the camera.

So are the days of the separate audio man gone? I don't think so. In fact, I think you can often make a financial case for having a soundman.

TIME AND MONEY

In a studio or on-location, time is money. You're paying salaries or fees to the crew, fees for the facility, rent on the equipment, parking; and you may even have financial incentives to finish quickly. Someone whose job it is to pay attention only to sound can more than pay for himself in speed.

The camera, lighting and grip equipment all work in concert with the video side of the equation. Audio equipment and its challenges are on a separate plane. For someone concentrating on video, to set up, move and tear down the audio equipment is going to add to the shoot time.

When a problem develops with the audio side, or the beginning of a problem, the soundperson can often jump in and fix it quickly, sometimes without interrupting the shoot itself. The camera operator can't do that without shutting things down.

I've saved my favorite for last. Wireless mics, like camcorders, have come leaps and bounds ahead of what was available years ago. But they're still a specialty item with their own special problems.

In addition to the equipment itself, you've got frequency coordination issues, to keep from creating interference and from being interfered with. Given my druthers, when wireless mics are involved, I like to hire a soundperson from the area where we're shooting who's used to working with local frequency issues.

There's one circumstance where I don't favor having a separate individual operate audio, and that's where it's someone who knows a lot less about audio than the camera operator.

My experience is that this adds to the cameraman's burden rather than relieving it. I think it's better, in that case, for the cameraman to handle it all by himself.

If you can't ask the audio operator, if the sound is good and trust the answer, it's not worth having someone doing that job. It's like I said before, you need someone who knows what they're doing doing audio. ■

Craig Johnston is a Seattle-based Internet and multimedia producer with extensive broadcast experience. E-mail him at craig@craigjohnston.com.

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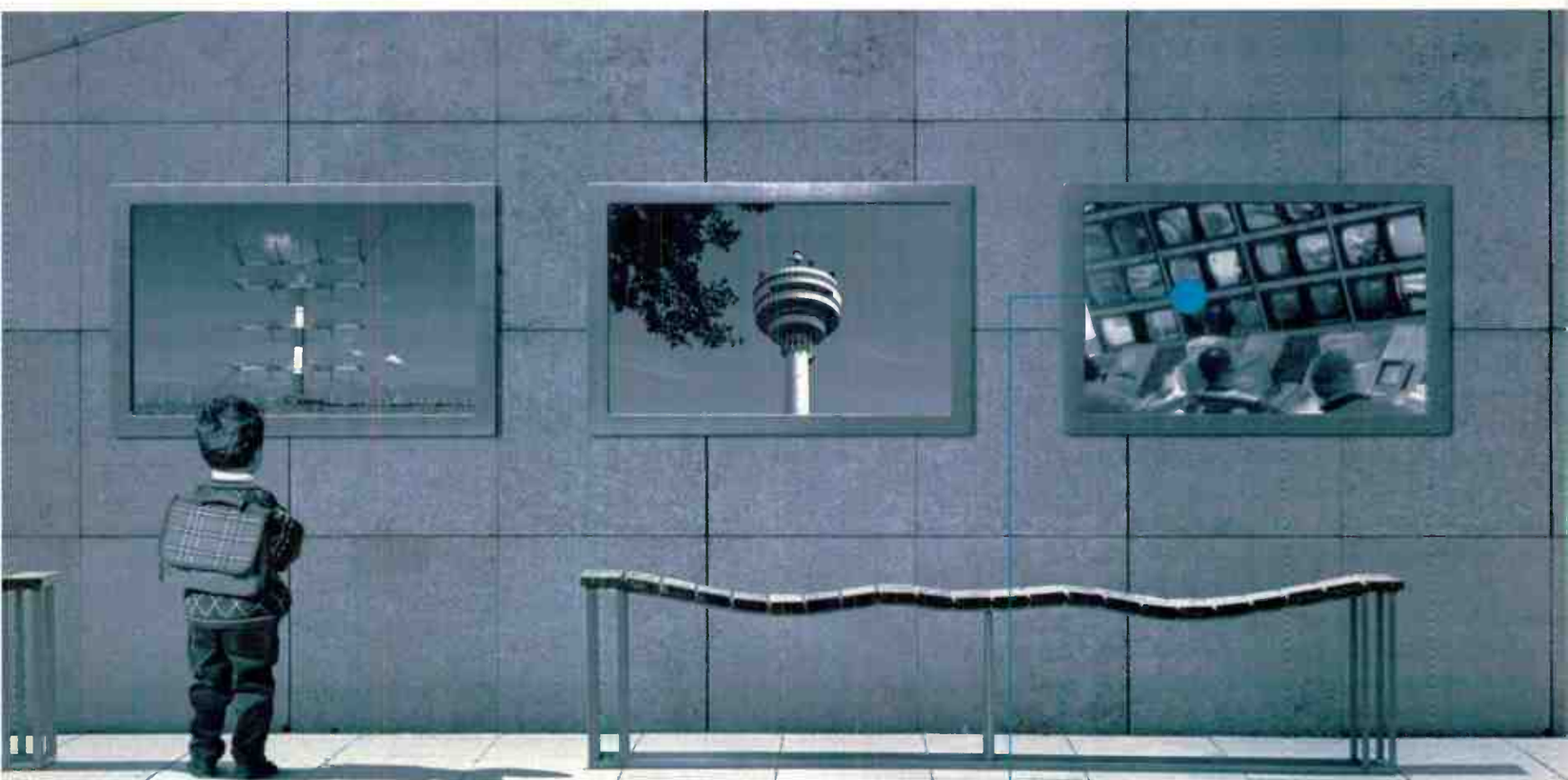

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Action

CONTINUED FROM PAGE 40

Trainor gave out the required production parameters.

The videos had to include mention of "patty-cake," involve a scene at a drive-through restaurant's intercom, and somehow contain the nonsense word "lobensnizzlehoffgluben."

Buying fresh mini-DV tapes from a local Rite Aid drugstore, Team Picture members Kurt Spenser, Matthew Pierce and Brandon Hill concocted a script for "The Three Wishes of Paddy Cake," transforming parameter No. 1 into the name of a character who asks a magical leprechaun for an aphrodisiac perfume called "lobensnizzlehoffgluben." You can see all the festival's videos streamed as QuickTime files at *http://scavengerfilms.com/video.html*, but for now let's just say Paddy's first wish results in his being chased through Hollywood by a herd of love-crazed women and his third wish leaves us with a surprise ending.

Editor Mastromonaco began creating the animated leprechaun in After Effects as soon as the production began, and the team kept feeding his laptop edit system DV tapes until 2 p.m. Saturday.

Between 2 to 5 p.m., they added the music composed by Chad Itskowitz in Steinberg's Cubase SX 2.0, mixed the tracks using Adobe Audition, and output a DV master to be shown to festival participants and patrons at 7 p.m. at The M Bar, a famed Hollywood watering hole.

As Mastromonaco described it, having access to all the modules of the Adobe Video Collection on the same platform made the production possible. For example, to create the rampaging mob of amorous women chasing Paddy, the team gave him one isolated action shot of actress Kelly Hicks that he exported into After Effects so he could rotoscope it using the Mask tool. Then he multiplied her image into a whole gaggle of running girls and placed the composite directly back on the Premiere Pro timeline.

In another scene, where Paddy is trying to escape the effects of that "lobens-whatever-it-is" potion, Mastromonaco brought four moving images simultaneously onto the screen.

"It was all done in real time, right on the timeline," Mastromonaco said. "In fact, once I had found the shots, it took less than a minute to resize them, add motion and pop them into the piece."

He was even able to use Photoshop to manipulate the green color of the leprechaun's costume and insert his image as an alpha key.

"The integration of all these applications within Premiere Pro is what made it possible to post this project in the time we had available," Mastromonaco said. "Except for the fact that the on-screen keyframes for adjusting audio levels are a bit small and sensitive when making fine adjustments, I found that Premier Pro answered all our needs."

GATHERING STEAM

Another editor, Scott Bryant, has been using Premiere Pro to bring HD post capabilities to Steam, his boutique production and design facility in Santa Monica, Calif. For less than $30,000, he has put together a high-definition editing and effects system on which he recently cut a prestigious "curtain raiser" video to be used for opening personal appearances by Intel's CEO Craig R. Barrett.

"We actually have two high-definition systems running Premiere Pro at Steam," Bryant said, "but for this project, I used an HD [pro] nonlinear edit system from BOXX Technologies with the Bluefish444 HD|Fury board so I could work with uncompressed HD."

Basically, the project was to be an epic celebration of Intel chip technology along the lines of "2001: A Space Odyssey," with the sun rising above a silicon disk and the Intel applications appearing inside hundreds of monolithlike blocks containing images illustrating their international communication capability.

Bryant actually did most of the work in After Effects, but it was the integration of the Premiere Pro workflow that enabled him to complete a complex project with as many levels of approval as this one required in just seven days.

"On the first day, I put together a quick composite of the concept for my client's review in Photoshop using still images," he said.

"By the next evening, I had used the real-time capabilities of Premiere Pro to create a moving animatic from those elements to demonstrate the way the sequence would flow. This became the blueprint for the composer to begin timing the music and within two days I had a rough version the client could approve. Then I started creating clips of the moving video that would ultimately appear inside some of the individual blocks."

Bryant inserted the six channels of the 5.1 surround sound music tracks onto his Premiere Pro timeline, and he delivered the project on schedule.

"For the way I work, the suite of applications that integrate with Premiere Pro provides the most functional editing approach I've found," Bryant said. "By having access to all that software power on one platform, a relatively small production facility like Steam is able to compete with larger, much more capital-intensive post houses." ■

"By having access to all that software power on one platform, a relatively small production facility like Steam is able to compete with larger, much more capital-intensive post houses."

—Scott Bryant, Steam

Jay Ankeney is a free-lance editor and post production consultant based in Los Angeles. Write him at 220 39th St. Manhattan Beach, CA, 90266, or at JayAnkeney@aol.com.

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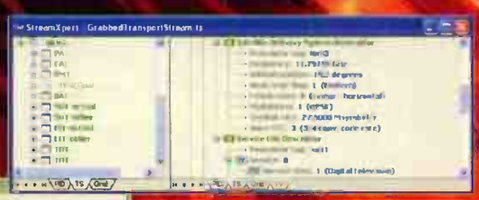

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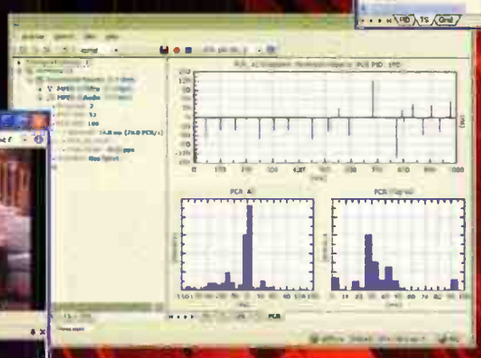

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Photo: Steve Jordan

NET SOUP

Frank Beacham

Flag Rebellion: Build Your Own Recorder

In the beginning, the selling points of digital television were clear and simple—big, beautiful pictures; rich, opulent sound; and an endless well of programs that could be watched on-demand at any time of the day or night.

Yes, it might be expensive, but who could argue that DTV wouldn't be a giant leap ahead in the television-viewing experience?

As with so many things in life, reality is starting to nibble at the dream. Ordinary viewers are discovering that DTV is no free lunch. Yet for many—especially home theater enthusiasts—that's OK. Free TV was always a bit of a myth anyway.

However, a big DTV "gotcha"—a snake now quietly hidden in the grass—won't raise its head until next summer. When it does, expect a big bang from viewers who will rightfully feel deceived and ripped off by the world's largest media companies.

ANACONDAS, IN TVs SOON

The acronym for this big snake is DRM—Digital Rights Management. It takes many forms, but in the world of terrestrial television broadcasting it will come as a "flag" that can determine what a viewer can and cannot freely do with a television program.

For the first time, DRM allows program creators to set the viewing rules. For example, program producers can insert the "flag" in a broadcast and have it limit viewers' rights to record and play that program back in an unrestricted way on their own equipment. The simple act of time-shifted recording—long the legal right of the viewer—will require permission.

Thanks to the FCC, the flag will be raised in DTV broadcasts beginning in July 2005. When devices detect the flag, they have to "protect" (i.e., lock up in DRM jail) the programming. At that point, the power will shift from the viewer to the content owner.

By next summer, it will be illegal to manufacture or import DTV receivers unless they include DRM technology mandated by the FCC. This means that DRM will be a standard feature on all future televisions, TiVos, and computers built to decode DTV content.

As policy, this can all be made to sound reasonable when smothered in language about preventing illegal copying and theft of intellectual property. The problem is that the media companies are making a wholesale power grab to deny television rights that legitimate viewers have long held and enjoyed; not to mention these restrictive measures will do nothing to halt serious content pirates.

One would think these content owners had learned a lesson from the arrogance of the major record labels, which have turned a generation of potential customers into angry enemies that despise their very existence.

Television viewers, who will be made to feel like criminals by these tactics, will have every right and reason to rebel against the broadcast industry when the flag is raised.

Remember, if some of the same media companies had their way back in the mid-1970s, there would have been no VCR. The Betamax and VHS recorders became popular only after a federal court prevented the studios from blocking sales to the public.

As usual, this reversal of viewer rights is happening without the knowledge of the general public. Just as with the attempted media ownership rule change last year, our government's policy-makers would rather have us find out about such matters after they have been etched in legal stone.

Fortunately, advocates for TV viewers are now sounding warnings about these onerous FCC policy changes. Just as they went to court to successfully block the ownership rules, a wake-up call is going out over DRM's effect on viewer rights in the era of over-the-air DTV.

One of the top advocacy groups for TV viewers is the Electronic Freedom Foundation (EFF), a San Francisco-based nonprofit organization of lawyers and volunteers whose goal is to protect the digital rights of ordinary citizens during the wave of change from analog to digital technology.

The EFF has attacked the broadcast flag initiative as a "holdup" by large media companies who have "threatened" to derail the DTV transition by withholding "high-value content" from over-the-air DTV, unless the FCC imposed "content protection" (yes, DRM) on all future televisions and related devices."

The good news is a public campaign has begun to tell viewers how they can protect their rights. The name of the EFF's initiative has reverberations of the 1960's—it's called the Television Liberation Digital Front. The Web site is: *www.eff.org/broadcastflag/*.

BUY IT NOW

The key message is this: Viewers have until July 2005 to buy, build and sell fully-capable, nonflag-compliant HDTV receivers. Any receivers built now will remain functional under a flag regime. No new equipment will be needed in the foreseeable future.

It should also be noted that any devices made this year can be re-sold in the future. (One can imagine eBay fortunes being made on stockpiled devices for years to come.)

While a homebrew solution won't help with cable or satellite TV programming (which has its own unique DRM), it will allow over-the-air viewers to retain their freedom to make digital recordings and copies of network TV programs.

The EFF campaign seeks to preserve the right to time- and space-shift material that the VCR has long provided.

"We want to keep the fair-use rights that let us excerpt clips from press conferences or make our own 'Daily Show' from the evening news. That's why we're encouraging people to buy HDTV tuner cards now and build multifunction receivers and recorders around them," the EFF said.

Do-it-yourself enthusiasts need to get a DTV tuner card that ignores the broadcast flag. One source is *www.pcHDTV.com*, a Web site that offers an HD-capable (ATSC) tuner card with Linux drivers for less than $200.

The MythTV project (*www.mythtv.org*) built a personal video recorder platform that gives a GNU/Linux PC features like TiVo's live-TV pause and "season pass" recording.

Admittedly, these are solutions for geeks. However, there are expected to be a growing number of alternatives for Windows and Macintosh computers in the coming year. The EFF is seeking engineering volunteers to help make these complex products accessible to more people without technical skills.

It is sad that DTV has come to this, but the time has long passed when commercial television had anything to do with serving the public interest. ■

Frank Beacham is a New York City-based writer and media producer. Write to him in care of ***TV Technology****.*

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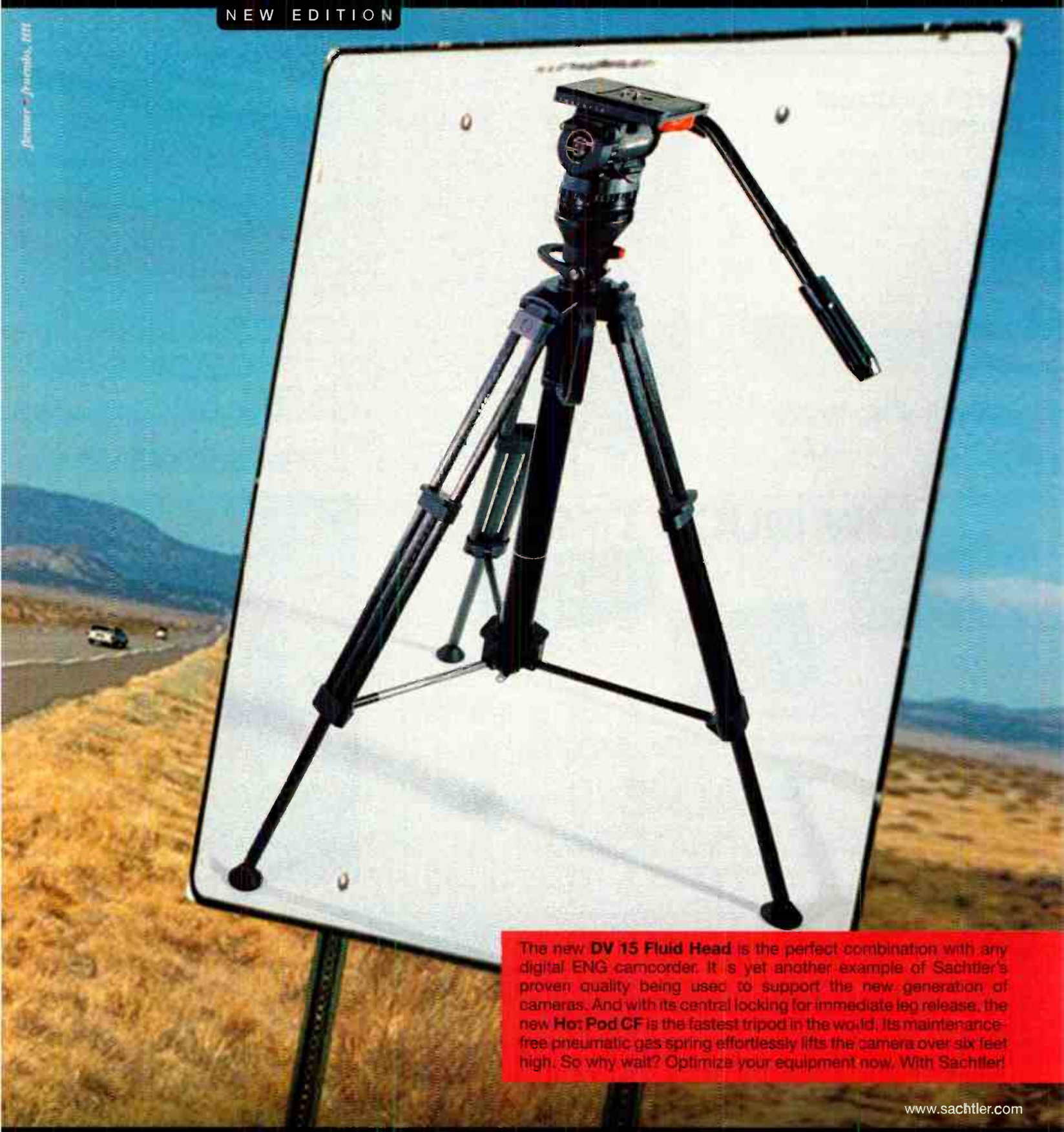

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INSIDE BROADBAND **Will Workman**

WiMax Must Choose Its Own Broadband Path

While it's been generating quite a static hum in recent years, WiMax, the new broadband wireless standard designed to work over wide areas, now appears to have a few 800-pound gorillas in its court that may allow it to leapfrog broadband competitors in specific markets.

Heavyweight tech giant Intel recently announced plans to release chips for WiMax elements such as relay stations and towers in the coming months, and to add WiMax support to its notebook PC processors by 2006.

Around the same time, the FCC approved the WiMax (short for Worldwide Interoperability for Microwave Access) standard, also known as IEEE 802.16. This follows announcements from FCC Chairman Michael Powell that the agency will look into freeing up broadcast TV spectrum for wireless use, signaling a competitive landscape more amenable to startups.

ROUTER BE GONE

WiMax, using a variety of network elements to relay and boost its signals, from small residential towers to three-foot antennas mounted on homes, conjures a vision of a wireless future of ubiquitous signals and no clunky router/modem combos.

But before we rush out to buy and travel with the latest wireless gizmos, there are significant handicaps facing WiMax in other key areas.

First, there are still standards conflicts, typical in emerging technologies, that will affect market deployment. The term WiMax actually applies to two standards, 802.16REVd—more of a fixed wireless—and 802.16e, which can, to some extent, be mobile, with a future 802.20 mobile standard on the horizon. Network providers will have to choose between the two existing standards, depending on which market segment they wish to target.

MORE, BETTER, FASTER

Second, in broadband access, WiMax faces a market that's matured over the last few years. Most users—according to In-Stat/MDR, 28.6 million out of a total 29.3 million—already plug in via DSL and cable modems. Getting them to switch won't be easy, particularly when the established players are taking some significant steps to lower prices and improve service. Cable operator Cox Communications, for example, last month ramped up its download speeds for basic broadband access from 3 to 4 Mbps (at $39.95 when bundled with cable TV service); and for its discount access plan (at $24.95 per month), doubled its upstream/downstream rate to 256 Kbps. Cable players have had to respond to slumping subscriber growth rates as DSL providers boost speeds and cut pricing. SBC Communications now offers a low-cost service at 1.5 Mbps for $26.95 per month.

In one significant venue—voice services—WiMax does have some economic force on its side: It can be significantly cheaper to operate on a cost-per-line basis. With savings up to 40 percent over that of a fixed line, according to research firm Meta Group, WiMax would also generate lower capital expenses, reduced customer churn and improved service differentiation. That could grant telecommunications providers a critical competitive boost over fixed, copper-wire competitors.

This particular forecast, though preliminary, couldn't come at a better time. The FCC, with the support of the Bush Administration, is getting rid of the 1996 Telecommunications Act's unbundling clause requiring regional Bells to sell network access to rivals. The move is designed to allow the Bells to make their investments in next-generation networks without having to share them.

WiMax faces a market that's matured over the last few years.

If that sounds like two-way competition is working, guess again; significant rural areas and even some smaller urban markets still lack a choice in broadband offerings. Plus there's some evidence, at least, that the two dominant technologies are stifling any third-party efforts.

In the most egregious example, SBC, which recently acquired a $500 million stake in EchoStar to jointly market voice, video and data services, announced in the wake of the FCC's unbundling actions that it will do an about-face and revive its original strategy to invest in fiber-to-the-home to deliver "integrated video, data and voice services."

So where will the FCC help, instead of hinder, competition?

The agency has already introduced a Rural Action Plan designed to allow flexible wireless spectrum licensing for operators in rural areas that have long lacked broadband service other than costly satellite-delivered access.

That has some analysts forecasting WiMax may have to follow the footsteps that satellite dish service providers took more than a decade ago.

If you recall ancient history, DirecTV and, later, EchoStar's Dish network made inroads in rural settings before plunging into more heavily populated areas to take on cable in its home turf.

The benefits wrought for consumers were enormous. Cable operators in the last decade invested approximately $80 billion in plant upgrades to offer a competing digital network platform, paving the way for digital video recorders, HDTV, VoIP and other advanced digital services.

As we monitor WiMax and the FCC's effectiveness in supporting a "Third Way," there are sobering updates on Broadband Power Line (BPL) services, noted earlier this year in this space. Some early ventures have hit significant stumbling blocks, belying Powell's faith in it as "the great broadband hope."

At least two small-scale U.S. trials have been shelved because of interference and topographical issues that have proved too costly to address, and several major international trials have slumped as well.

With a presidential election looming, the FCC can't afford to be distracted from its primary mission—supporting the successful rollout of technologies that serve American consumers. WiMax appears destined to succeed, and let's hope that's not in spite of our governmental representatives.■

Will Workman is a former senior editor of Cable World magazine and editor of MediaView, a monthly newsletter for the Asian cable industry. You can reach Will at willworkman@hotmail.com.

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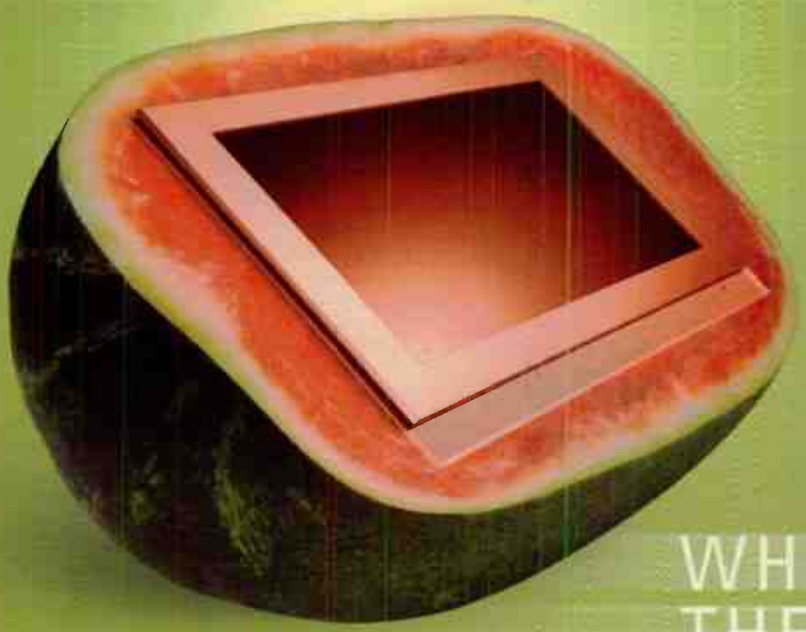

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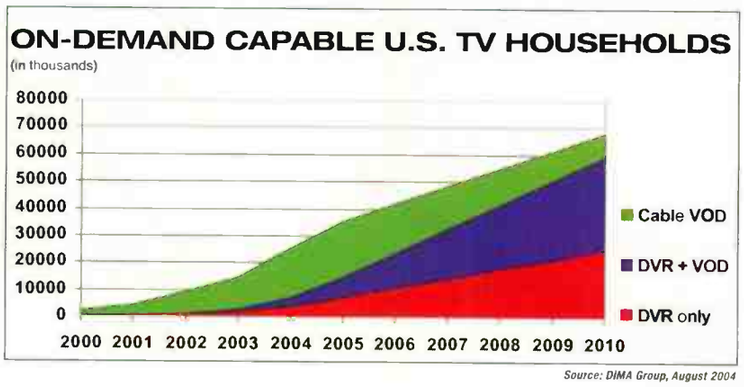
TUNING IN | Gary Arlen

DVR: $6 Billion Ad Skip or False Alarm?

By the end of next year, if current trends continue, digital video recorder (DVR) users will be fast-forwarding through $6.6 billion worth of TV commercials. That's well above this year's $2.4 billion "skipping" rate.

The bigger bite reflects the expectation that the long-hyped DVR growth curve will climb substantially—possibly crossing the 10-percent U.S. household penetration level by the end of 2005.

On the other hand, while many new DVR owners expect that commercial skipping will become their favorite DVR feature, most of them quickly revert to typical viewing behavior. According to a private study by ABC and ESPN this summer, when new DVR users incorporate the device into their TV routines, they continue to watch commercials. The ABC/ESPN research also confirmed that placement of a commercial within an advertising pod—especially the first spot—may be the most critical factor in the emerging on-demand video environment.



Source: DIMA Group, August 2004

These seemingly contradictory views about how commercials fit into the DVR world are part of a much larger introspection now beginning about the role of the set-top devices vis-à-vis cable's video-on-demand services. The potential to waste several billion dollars of skipped commercials is part of the gamble advertisers now take when they spend $42 billion annually for broadcast TV and $16 billion for cable channels.

VOD and DVRs provide new tools for, respectively, viewers "choice" and "control" over their TV experience. Although headlines and online chat groups fret about the future of DVR pioneer TiVo and about Comcast's true commitment to VOD, in reality these facilities continue to rollout at a predictable rate.

WHAT CONSUMERS WANT

"Predictable" here means a realistic, measured installation pace that fits consumer appetites—not the explosive overnight boom that the wishful thinkers predicted amid the hype when the products were introduced.

As it turned out, TiVo's original success, such as it was, came from its alliance with DirecTV, creating an all-digital viewing and storage experience.

The satellite television company surely benefited from TiVo. Among the values: TiVo-equipped customers churn at 0.5 percent annually, compared with overall DirecTV churn of 1.5 percent.

With the transfer of DirecTV into News Corp. hands, TiVo's connection is being severed, but the DVR presence may grow. NDS, News Corp.'s technology arm, has long been developing DVR technology, which will go into future DirecTV receivers.

More significantly, NDS has been working on customized advertising features for its DVR products—raising the opportunity for skip-deter-

rence in future digital receivers.

Meanwhile, the DVR message is finally sinking in at cable TV MSOs. The cable companies postponed their DVR introductions, despite cajoling from their main suppliers, Motorola and Scientific-Atlanta, both of which have offered set-top boxes with built-in DVRs for several years.

S-A has achieved modest penetration, thanks to scattered installations by its biggest customer, Time Warner.

Now MSOs are ready to make the DVR plunge.

"Despite a three-year head start, satellite TV providers will lose their DVR edge over cable companies by 2006," according to Parks Associates, a Dallas research firm. The company forecasts that more than half of all deployed DVRs will come from cable MSOs by the end of 2006. Taking a conservative position, Parks predicts that about 16 million integrated cable/DVR STBs will be in place before 2008.

No matter when the DVR adoption level hits the hockey-stick upturn, the fundamental issue for cable and satellite providers as well as for terrestrial broadcasters centers on how viewers use DVRs for commercials. This situation is particularly crucial for MSOs (especially Comcast, Time-Warner, Cox and Cablevision Systems) and Rupert Murdoch's News Corp., all of which own sizable stakes in advertising-supported program networks. They have to be cautious about enabling viewers to bypass advertising.

The DiMA Group (which takes its acronym from Digital Marketing and Advertising: *www.dimagroup.com*) has been interpreting this impact as part of its mission to develop processes through which networks, advertisers and equipment suppliers can handle the new DVR and VOD challenges. DiMA's estimate of the $6.6 billion skipped commercials in 2005 is part of its larger analysis of the on-demand environment.

INSTANT GRATIFICATION

By aggregating and evaluating research from multiple sources, DiMA foresees a future in which most on-demand homes have both set-top DVRs and cable-delivered VOD—an arrangement that may further complicate the ad market. DiMA expects that VOD, which has been slow to take off but is now enjoying a significant bump, may flatten toward the end of this decade. That is, fewer homes will use only VOD and not a DVR (see chart on p. 50).

With so much rhetoric and venom swirling around the DVR-advertising conundrum, it is stunning that so little attention is focused on the new ad skills that will be needed to present information in the combined VOD/DVR environment. DiMA's blunt evaluation paves the way to a positive understanding of the new world and of evolving opportunities, such as "Ads on Demand," a little-discussed ancillary of the VOD juggernaut.

Despite the conflicting forecasts about how consumers will use their DVR and VOD options, one message comes through distinctly. The potentially wasted $6.6 billion for skipped commercials next year is merely a threat to the way that TV has worked in the past. It's the price for learning how TV will operate in the future. Wise programmers, advertisers and media owners should be absorbing these lessons as they calculate how to maneuver through the emerging, inevitable on-demand environment. ■

Gary Arlen is president of Arlen Communications Inc., a Bethesda, Md., research firm that has tracked the convergence, emergence and divergence of media technology since the days of two-inch videotape. He can be reached at Garlen@columnist.com.

USER REPORT

Panasonic Takes the Lead With NASCAR

by Steve Cohen
President, and
Chris Bierlein
Director of Photography
Manhattan Place

NEW YORK

Manhattan Place Entertainment specializes in field production, as well as handling pre- and post production.

For the past four years, with both of us behind the cameras, we have shot all the tease and opening elements for Fox Sports' coverage of NASCAR. This past season, shooting 24p with Panasonic's SDX900 DVCPRO and the AJ-HDC27 VariCam HD camcorders helped us take our look to a new level.

Fox Sports' production values are very high, and the bar has been raised every year. This past year, we shot 68 drivers over the course of four days prior to the Daytona 500. Not only did we create the entire look, we had to get every setup in the can during that abbreviated schedule—this material was re-purposed over the course of NASCAR's 18 weeks of broadcast.

We built four sets in a large airplane hangar opposite the Daytona International Speedway. Essentially, the two shoot days with the drivers were madness. Drivers showed up continually between 8 a.m. and 7 p.m., and for 15 minutes we had to get them through all four sets and get as much material as possible.

Until this year, we shot all the moving images in Digital Betacam, 16mm and Betacam SP. Before this year's shoot, we made a co-purchase of the SDX900, which allows us to achieve a film look on a video budget. With Fox Sports stipulating "the best look there is," we contemplated involving the VariCam, and Abel Cine Tech supplied the camera to use for the shoot.

We purchased the SDX900 after Chris shot a music video using the camera with Zeiss DigiPrime lenses. We were so immediately taken with the quality of the image, especially relative to the cost of the camera, that we moved ahead and purchased one. Both of us feel that working with the SDX900 was the first time we actually got excited about shooting video.

Chris Bierlein of Manhattan Place uses a Panasonic AJ-HDC27 VariCam camcorder to shoot a NASCAR promotional video featuring driver Dale Earnhardt, Jr.

ANOTHER LEVEL

The AJ-HDC27 VariCam is even better—you feel like you're in a different stratosphere. It's unbelievably sensitive and sees so much more. The way the VariCam holds up during playback is mind-boggling—what you see on the monitor is what you get. Since we were mixing formats on the NASCAR assignment, there was plenty of room for different cameras. The SDX900 was an obvious choice since we were so impressed with the camcorder to begin with.

In the HD realm, the VariCam was an intelligent choice as well. We find it intuitive and user-friendly, making it easy to adjust the image on the fly. The SDI output was a bonus as it reduced the amount of cabling we needed.

We used the two 24p cameras interchangeably. The SDX900 (at 24p) enabled us to get a much more film-like image from our "Throne" set as well as a different look on the "Garage" set. Steve constantly moved back and forth between these sets with the SDX900, and we also used the VariCam on the Garage set for another look.

DYNAMIC RANGE

VariCam's extended dynamic range allowed us to see more detail in the dark areas of the set and also gave Gary a finer image than the other video cameras provided. Of course, the additional resolution was a huge bonus as well. Finally, the film-like appearance of the 24p image was exactly the look we'd been after for a long time.

We shot only a portion of the job in film because of the cost. With these two Panasonic cameras, we were able to significantly improve the quality of the video image and effectively eliminate the unappealing look of interlaced video.

We were convinced that the 24p footage was going to exceed Fox Sports' expectations—as it did. Not only is Fox Sports one of our key clients, it's one of the most demanding in terms of aesthetics and technology.

The feedback we received from our Fox Sports producer on this shoot, after seeing the 24p on the monitor, was, "Wow—this is amazing—it's great. And it looks like film. You were right." ■

Steve Cohen is president and Chris Bierlein is the director of photography for Manhattan Place. Contact Steve at 212-682-2000 and Chris at chrisbierlein@earthlink.net.

For more information, contact Panasonic at 201-348-7000 or visit www.panasonic.com/broadcast.

BUYERS BRIEF

The SK-3300P from **Hitachi** is a high-definition EFP camera that now has native capability for both 1080i and 720p formats. The camera can also optionally output 480i and 575i standard-definition serial digital interface (SDI) formats.

Hitachi's SK-3300 camera series employs low-power digital processors (DSP) and 12-bit analog-to-digital converters. The camera head weighs 10.3 pounds, including its viewfinder, and its CCU fits in 2 RU. The camera's power consumption, including an ENG-style viewfinder, is 45 W. The SK-3300P can be configured in either a studio or field camera.

Also from Hitachi is its new Z-2500, a low-cost, standard-definition camera that targets educational, institutional and broadcast applications. A high-density digital processor streamlines the Z-2500's electronics to provide high image quality and low noise.

Hitachi Z-2500

The Z-2500 features 12-bit analog-to-digital converters, 900 TV-line resolution, 65 dB signal-to-noise, 2/3-inch CCDs, f11 sensitivity, automatic flesh-tone detail correction and a power consumption of only 9.8 W.

For more information, contact Hitachi Denshi America at 516-682-4429 or visit *www.hdal.com*.

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AMP2-E8HDA	2	2		4 (B or U)	8 (B)	4 AES	1 (reclocked, selected source)	2 (B)	8 (B)
AMP2-E8MDA	2	2**	2**	4 (B or U)	8 (B)	4 AES	1 (reclocked, selected source)	2 (B)	8 (B)
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E MON-1/HD	1 (B or U)***	1		1 (B or U)***			1 (reclocked)	2 (B)	
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USER REPORT

Canon Captures 'Sunrise Earth'

by David Conover
Producer
Compass Light Productions

CAMDEN, MAINE

Storytelling by visually sharing scenes of the sea and the outdoors is the mission at Compass Light Productions. As a creator of non-fiction programming for the last 15 years, often in the marine environment, I've always been interested in "big picture" stories—ones that happen over time and with more subtlety than much of the topical content currently on TV.

The Canon HJ8x5.5 KLL-SC lens was critical to the success of "Sunrise Earth," an intriguing new wrinkle in HD natural history programming that will air on Discovery's HD Theater Channel on October 15. The storyline of this series is very simple: We begin in the dark and end in the light, visiting a gorgeous new location every morning (25 total), recording the dawn in HD and stopping about an hour later.

David Conover adjusts the Canon HJ8x5.5 KII-SC cine lens to get the shot during production of "Sunrise Earth."

Working with just two cameras, the scenes slowly unfold with minimal edits and a rich ambient 5.1 surround sound track without music, narration or commercials. The overall effect, as we like to say, allows you to be the naturalist in your own home.

To capture the full magic of our sunrise habitats, Bexel and Liquid Pictures supplied our DPs—D.J. Roller, Doug Bertran, Nick Caloyianis and me—with Canon HJ8x5.5 KLL-SC lenses for our all-important master shot. This brand-new cine lens was extremely crisp and precise, delivering large, vivid images that really show the potential of HD.

We started shooting the sun when it is very low in the sky, before it reaches the fierce light intensity that would be a challenge for any lens. The Canon lens exhibited a remarkably low amount of flare; for the first five minutes before the sun hits the horizon, and the five minutes after, the Canon HJ8x5.5 fully captured the brilliant concentration of the broad range of oranges, reds and yellows that are present.

ERGONOMIC AND PORTABLE

We took our Canon lens and cameras to a wide variety of stunning but challenging settings, and its ergonomics and total portability made it an exceptional production tool. Whether we were shooting in Florida's Everglades National Park, California's Point Reyes National Seashore or Cadillac Mountain in Maine's Acadia National Park, I was constantly impressed with the feel of the lens. It fit perfectly in my hand, making functions such as switching the iris control from automatic to manual work like second nature.

Portability was also crucial because we needed something that could be easily supported. The Canon HJ8x5.5, part of a family of Canon Cine lenses that also includes an 11x wide lens, a 21x tele lens and six prime lenses, didn't require an external support structure and it did not stress the camera body.

Shooting "Sunrise Earth" turned out to be quite different from a lot of other productions, where you shoot several shots to build each sequence. Here, one shot can last a long time, up to two minutes. It is your entire sequence, so that one shot has to be extremely crisp.

With the Canon HJ8x5.5 capturing our sunrise master shot, this production delivers a new window into the outdoors and the best of what HD offers viewers today. ■

David Conover is a producer for Compass Light Productions and can be reached at dconover@compasslight.com. *The opinions expressed above are the author's alone.*

For more information, contact Canon at 201-816-2900 or visit www.canonbroadcast.com.

BUYERS BRIEFS

The new XL2 DV camcorder from **Canon USA** is an update on the company's popular XL1. Featuring improved imaging CCDs with 680,000 pixels, the XL2 can shoot natively in either the 4:3 or 16:9 aspect ratios. Many of the camera's operating parameters can be adjusted to achieve a range of "looks," from cinema-like to video.

The Canon XL2 sports a new 20x fluorite lens that features low chromatic distortion and improved low-light performance. Like the XL1, the XL2 is compatible with a variety of accessories and lenses.

For more information, contact Canon USA at 800-652-2666 or visit *www.canondv.com*.

The **PAG** L95 Time Battery uses lithium-ion chemistry to provide 14.8 V at 6.5 A-h, for a total capacity of 95 W-h. One PAG L95 will power both a camera and a 35-W camera light.

The L95 Time Battery is available in two models: one for use with Anton/Bauer battery mounts and one for use with PAG's PAGlok mount and accessories. Adapters for Sony's V-mount are also available. The L95 incorporates PAG's power and time display, which provides an accurate prediction of equipment run-time, expressed in hours and minutes.

Also in PAG's Time Battery family is the NMH100. Using nickel-metal hydride chemistry, the NMH100 provides a capacity of 100 W-h, enough to simultaneously power HD camcorders and a camera light. This battery also has PAG's power and time display to provide a run-time prediction that can also be displayed in the camera's viewfinder.

For more information, contact PAG USA at 818-760-8285 or visit *www.pagusa.com*.

USER REPORT

KRCG Saves Time With FireStore

by Jim Malone
Director of Engineering
KCRG

JEFFERSON CITY, MO.

KRCG is the local CBS affiliate and the station has been serving the heart of Missouri for more than 48 years with news, sports, weather and entertainment.

The technology has come a long way since the days of black and white TV—we now offer programming in digital and high definition. Like many other broadcasters, we look for technology that meets the demands of fast-breaking news without breaking the bank, and are willing to consider new technology if it gets the job done.

The Focus Enhancements FS-3 is a prime example of a technology that could revolutionize the way stations produce news. We purchased the FS-3 for commercial production and are currently evaluating a migration to a tapeless newsroom. The FS-3, with its direct-to-edit technology, is one possible solution we examined.

Our production department uses the FS-3 on a regular basis, docked to a Sony DSR-390 camera. We like being able to record and transfer files from the FS-3 into Pinnacle Liquid Chrome and Liquid Edition edit stations. Tape is now the backup format and the FS-3 has become the primary recording device for field shoots.

Granted, tape is a great: It's inexpensive, provides an excellent archival medium and is very dependable.

Jim Malone loads a hard drive in one of KRCG's FS-3 modules.

However, as the workflow becomes digital and most of the production and editing is done on computer, tape creates a bottleneck.

FIELD SHOOTING

The FS-3 is ideal for shooting in the field. It is rugged, yet has a compact chassis and adds just two pounds to the weight of the camcorder. The FS-3 also is shock-resistant and provides up to 10 seconds of electronic shock cache and a file error correction utility that gives me confidence that no footage will be lost in the field.

Another feature that guarantees our camera operators never miss a shot is the FS-3's retro cache record, giving us up to 10 seconds of video buffering in FS-3's cache memory. Once we start recording, we have up to 10 seconds of retro video added to the beginning of any clip and subsequently miss far fewer shots.

We have spent countless hours transferring analog tape to digital before we can begin editing. With constant deadlines, the FS-3 has significantly streamlined production by saving us several hours a week in capture time.

We have been very pleased with the FS-3. At its price point, the FireStore is definitely a contender for our field recorders should we implement a tapeless newsroom. It helps that Focus Enhancements offers a quality tapeless solution thousands of dollars less than the bigger, better-known vendors.

For me, the FS-3's ease of use and elimination of capturing, file transfer and file conversion was worth price of admission. KRCG viewers depend on us to offer them quality broadcasting, and by significantly streamlining our workflow, the FireStore FS-3 enables us to do just that. ■

Jim Malone is the director of engineering at KRCG and can be reached at jmalone@krcg.com. *The opinions expressed above are the author's alone.*

For more information, contact Focus Enhancements at 408-866-8300 or visit www.focusinfo.com.

BUYERS BRIEFS

Schneider Optic's new line of two-element diopters are lenses that permit extremely close focusing with zoom or prime lenses. Attached to the primary lens, these diopters get the camera much closer to the subject to achieve a larger-size image.

Schneider's Series 9 Achromat Diopters feature a hard anti-reflective (AR) coating that reduces light loss and flare, while maintaining proper color, contrast and overall image quality. The lenses can be stacked for even greater magnification and are available individually or in sets of three, in strengths of +1, +2, +3.

For more information, contact Schneider Optics at 818-766-3715 or visit *www.schneideroptics.com*.

If you need a REALLY big zoom lens, you may want to look at the **Panavision** 300x HD. In addition to a continuous 300x zoom ratio, this lens provides continuous focusing through zoom, instantaneous optical breathing control at short focal lengths and low distortion over all the zoom and focus ranges. The 300x lens provides high image quality in a variety of shooting scenarios—particularly high-definition—and the lens features closed-loop internal optical stabilization system to reduce vibration-induced image shake.

For more information, contact Panavision at 818-516-1000 or visit *www.panavision.com*.

Zeiss DigiPrime HD-capable lenses are available in the U.S. through **Band Pro Film & Digital**. The Zeiss DigiPrimes comprise a set of lenses from a focal length of 5mm (T1.9) to 70mm (T1.6). Each DigiPrime lens features the same barrel diameter as well as similar balance and center of gravity, making it easy to switch lenses without readjusting the pan/tilt head. Focus and iris gears are uniformly positioned to permit quick swapping of matteboxes and lens motors.

For more information, contact Band Pro Film & Digital at 818-841-9655 or visit *www.bandpro.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.

BATTERIES

MANUFACTURER	MODEL	CHEMISTRY	TYPE OF MOUNT	VOLTAGE AND CAPACITY	WEIGHT AND SIZE	RECOMMENDED CHARGER	TEMP. RANGE	SPECIAL FEATURES	PRICE
Anton/Bauer 973-427-4949 *www.antonbauer.com*	HyTRON 120	NiMH	Snap-on	14.4 V, 120 W-h;	5.3x4.5x3.75 inches; 5.5 pounds	Any Anton/Bauer InterActive or Titan charger	-20C to +60C	Real-time display; 175 W max. power draw; three year warranty; can provide extended runtimes of up to five hours on DVC camcorders	Call for quote
Frezzi Energy Systems 800-345-1030 *www.frezzi.com*	BP-14MHEG	NiMH	3-button Anton/Bauer or Sony V-mount	14.4 V, 9 AH; 130 W	5.5x4.4x3.1 inches; 5.5 pounds	Frezzi M-series	-10C to +40C	Rebuildable; energy gauge showing percentage of capacity remaining; rugged rubberized aluminum casing	$595
IDX Technology 310-891-2800 *www.idx.tv*	Endura E-80	Li-Ion	IDX V-mount	14.4 V, 5.7 A; 82 Ah	3.4x5.6x1.97 inches; 1.62 pounds	Endura VL-2Plus; Endura VL-4; Endura VL-4S	-20C to +50C	Two batteries stack together. Five LED load-capacity status display; Dig. Data Protocol; supports digi-view and new digital battery management system	$495
PAG 818-760-8265 *www.pagusa.com*	9360 PAG L95 Time Battery	NiMH	Sony V-mount compatible	14.8V: 6.5Ah: 95 W-h	5.1x3.4x2 1.67 pounds	Sony charger or PAG All-Chemistry charger	+10C to +40C	Pushbutton power and time display; high/low charge facility can be set by user	Call for quote
Sony 201-930-7866 *www.sony.com/professional*	BPM100	NiMH	Sony	14.4 V, 98 W-h	Size N/A; 1,540g	Sony BCM50	N/A	Original equipment for many Sony cameras and VCRs; built-in LED capacity indicator	$630

USER REPORT

XDCAM Swiftly Changes NECN

by Greg Roehr
Chief Engineer
New England Cable News (NECN)

NEWTON, MASS.

Producing two weekly one-hour feature programs often creates a hectic shooting schedule for the videographer assigned to both programs.

In our case, the job has been made easier with Sony's XDCAM disk-based camcorder for electronic field production. New England Cable News (NECN) currently uses one XDCAM PDW-510 camcorder to shoot each program and the unit rarely gets any downtime.

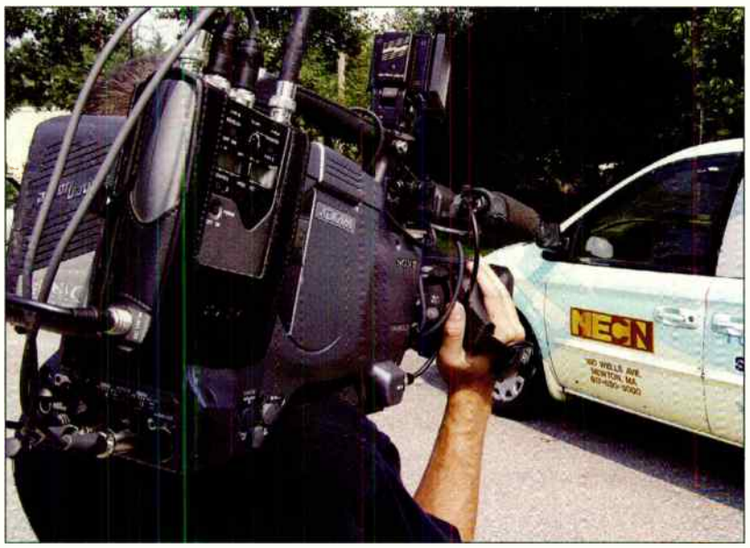
The two television programs—a restaurant review show and a home-improvement show—both air over the weekend, so each Monday a new production cycle begins. There may be a couple of shows in the can at any given time, so the crew is usually shooting a few weeks ahead of time.

The videographer is assigned to go to a specific restaurant to shoot interiors and exteriors, then shoot individual prepared dishes—a task that requires some controlled lighting. He additionally may shoot interviews with chefs or work with the show's hosts or other talent, in which case there is a certain amount of microphone work that has to be done.

He may end up going to three or four restaurants one day, then visit two or three homes the next day; so he's running all day with the XDCAM camcorder.

MORE EFFICIENT

The PDW-510 has enabled NECN's videographers to work more efficiently on a set or in the field. Videographers and producers can immediately view what was just shot by looking at thumbnails on the camcorder's LCD screen and start to assemble storyboards before the "footage" gets back to the studio.



NECN uses Sony XDCAM camcorders to speed turnaround on ENG shoots.

With the PDW-510, crews don't need a separate monitor just to play back tapes. They can look at shots they just took, in color, on the camcorder's LCD screen. That's a big help in reviewing how a certain pan went or if it was timed correctly.

The camcorder's head also includes several features that are beneficial in EFP applications. It's now much easier to go to the negative gain setting, which can eliminate the need to flip the filter wheel to an ND filter in a bright light situation. If the videographer is moving from an interior to an exterior environment, just being able to quickly flick a switch is also a lot less visually distracting.

The post-production process certainly has improved its timeline using XDCAM disks. When the disk arrives back at the station, it can be reviewed much more quickly and efficiently than videotape.

We're also impressed with how the XDCAM cartridge reduces the risk of damage from dust, shock and x-rays, compared to videotape. Another benefit to the disk-based system is its reusability: up to 10,000 erase/read/write cycles.

As far as actual acquisition in the field, the techniques and the shooting style aren't really much different; that's a real-time process that you just can't get around. But the XDCAM system now offers us new production and editing capabilities that have improved our EFP workflow. ■

Greg Roehr is the chief engineer for New England Cable News and can be reached at groehr@necn.com. *The opinions expressed above are the author's alone.*

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

BUYERS BRIEF

The NAB II system from **Jadoo Power** includes a camera-mounted fuel-cell power module and the devices to recharge it. The power converter attaches to your camera and fuel cartridges then slip into a port in the power converter, yielding up to three times the runtime of standard camera batteries. The power converter retains enough power capacity so that an empty fuel cartridge can be swapped with a full one, without shutting off the video equipment. The fuel cartridge and power converter together weigh 6.7 pounds.

NAB II fuel cartridges are refilled with industrial grade hydrogen using the Jadoo Refill Station, which can simultaneously refill four fuel cartridges in less than one hour. Up to four Refill Stations can be run from a single bottle of hydrogen.

For more information, contact Jadoo Power at 916-608-9044 or visit *www.jadoopower.com*.

USER REPORT

Grass Valley Viper Shoots 'The 4400'

by Tom Burstyn, CSC
Director of Photography
"The 4400"

VANCOUVER, B.C.

"The 4400," a new USA Network original series drama shot with two Grass Valley Viper FilmStream digital cinematography cameras from Thomson, tells the story of 4,400 people previously considered missing until they suddenly return all at once. The show's two-hour premiere on July 11, 2004, reached 7.4 million viewers in five million households, according to the network, making it the highest-rated and most-watched premiere on basic cable.

We shot the two-hour pilot and then five subsequent episodes of the new TV series earlier this year in Vancouver. I had seen a demonstration of the Viper FilmStream camera at a French Cinematographers Society gathering in Montreal and was literally blown away.

All the issues of image clarity and color reproduction that have plagued video were non-existent when shot with the Viper. Looking at 35mm/Viper comparisons, the differences were so small that in my mind it would not have made sense to shoot "The 4400" with any other digital camera. I have shot a number of projects with other HD video cameras, but Thomson's Viper is clearly a cut above the rest.

The pictures we captured for "The 4400" series are just beautiful and really help tell the "film noire" story of these people that are transported back to earth after a long absence, yet who possess some type of power.

MUCH LESS EXPENSIVE

On the set, we found that shooting with the Viper was much less expensive than shooting on film, and we saved a surprising amount on film processing and transfer costs. Renting Viper cameras cost about the same price as a 35mm

The Grass Valley Viper FilmStream camera outputs raw HD images. The producers of "The 4400" found the camera saved substantially on film costs.

camera package, but a $200 tape equals about $7,000 in film stock and processing costs, so the overall savings is significant. We recorded to Sony SRW-5000 digital recorders (HDCAM SR) because that seemed to be our best option to handle raw 4:4:4 RGB data coming from the Viper.

Some of the specs of the Viper FilmStream camera help explain how it can compete with film cameras in terms of image quality. Each of its three CCD sensors has a resolution of 9.2-million pixels and can shoot native at either a 16:9 or 2.37:1 aspect ratio. The camera supports 1080p at 23.98, 24, 25 and 29.97 Hz frame rates; 1080i at 50 and 59.94 Hz frame rates; and 720p at 23.98, 24, 25, 29.97, 50 and 59.94 Hz frame rates.

The Viper also works with a variety of accessories that let me tailor the camera for my preferences. These include extension viewfinder tubes, matte boxes, filters and a selection of Steadicam mounts.

Ultimately, it was about the image quality and the camera captured images in the way we needed for this production. The Viper gave us more data to work with in post, which was very convenient and saved us time and money as well.

UNDER BUDGET

The producers seemed very happy with the results and how we brought the project in under budget. Video post production was completed at Rainmaker in Vancouver, and most of the effects were created at Northwest Imaging, also in Vancouver.

I also found that using the Viper saved us time during production because I was able to light the sets much faster. The Viper's sensitivity was more than able to do the job we needed, as many of our scenes were shot in low light to set a mood.

It's not that the Viper requires more or less light to create nice pictures—I found that it allowed me to be more creative; I was lighting more by my eye than I ever had before. In fact, I never brought my light meter with me to the set for the entire production. That's a first for me.

The other benefit of using the Viper is that because it's so small, it was easy to move around the set. Even our exterior shots benefited from its compact body and relative light weight. We could put it in tight corners or wherever we needed to use it and didn't have to worry about a film magazine getting in the way; otherwise, we treated the Viper just like a 35mm camera, using it for car shots, night exteriors and other unique scenes.

We also used the Viper on a Steadicam mount for 360-degree shots. There were a few issues with power and managing the cables on the set, but we decided to make it work and we figured out ways around the challenges. We're glad we did because the results speak for themselves.

PUSHING THE CAMERA

I think we pushed the camera to its limits—we did a lot of low-light photography and the Viper performed beautifully. There's no speed adjustment on the camera, which caused a bit of a problem. For "The 4400," we limited our slow-motion effects to 60i fps and then used a film camera for some of the higher-speed effects, which were minimal.

I have more than 30 years in feature film production, but I was really impressed with the Viper and would definitely use it again. I think it will be a matter of months, not years, before HD video images will be accepted by the film community and more people will begin using the Viper for their projects. ■

Tom Burstyn, CSC, was the director of photography for "The 4400," which was produced by Viacom in association with American Zoetrope and Renegade 83. He can be reached at verb8m@ihug.co.nz. *The opinions expressed above are the author's alone.*

For more information, contact Thomson Grass Valley at 908-508-0991 or visit www.thomsongrassvalley.com.

USER REPORT

Ikegami Answers Call for CRM

by John Quarquesso, Jr.
Broadcast Manager
Coral Ridge Ministries Media

FT. LAUDERDALE, FLA.

Sixteen years seems like a long time to work at the same facility by today's standards but working with the great staff of professionals at Coral Ridge Ministries Media has made it easy.

CRM is the media outreach of the Rev. D. James Kennedy, Ph.D., pastor of the Coral Ridge Presbyterian Church. We produce the nationally syndicated TV program "The Coral Ridge Hour," award-winning documentaries and the radio program "Truths that Transform." We also provide production services for other ministries, organizations and national news networks.

In 2003 and 2004, members of the National Religious Broadcasters Association voted "The Coral Ridge Hour" and "Truths that Transform" the television and radio programs of the year—an unusual honor for a single ministry. On a given week, our production needs can range from taping stand-ups in our Ft. Lauderdale studio, to a multicamera production in San Francisco for an NFL Super Bowl breakfast.

The work we do can help change lives and has a tremendous impact on people. The quality of our work communicates how we feel about our message and we strive to make our programs of the highest production value. Work this important deserves the best tools, thus we have always chosen to purchase broadcast-quality equipment such as Ikegami cameras.

"The Coral Ridge Hour" is one of the more complex religious programs on TV. It involves not only a multicamera recording of the worship services of the Coral Ridge Presbyterian Church but also EFP production nationwide, mixed with elements recorded in our studio.

CRM videographer Paul Barber lines up a shot with executive producer Debra Revitzer in the "Historic Chapel," using an Ikegami HL-59W camera and Panasonic AJ-D90 DVCPR050 recorder.

Ikegami's HL portable cameras fit our needs perfectly and we currently own two each of the HL-55, HL-57, HL-59W and HL-60 camera. You can see our migration strategy to wide-format production from the list of cameras we have purchased through the years. The compatibility of Ikegami's accessories among different models gives us maximum flexibility with minimum cost.

upconvert nicely to HD from 50 Mbps DVCPRO50. This intermediate format step will allow us to transition smoothly to HD, getting the most value out of our media library and our cameras.

Coral Ridge Ministries has been sharing God's word through top-quality ministry programming for more than 26 years. Clearly the change we will see in the next 25 years will be amaz-

Our tests show that 16:9 pictures from Ikegami camcorders will upconvert nicely to HD from DVCPRO50.

The new challenge we all face in the industry is the transition to HDTV. This poses special problems for program producers like us, as the sermons for our programs are drawn from a library of material rather than aired sequentially as they are preached.

Although this provides for more effective programming by letting us choose the sermon most appropriate for the moment, it also means that we need to have a number of worship services "in the can" before we can offer a season in a new format.

Legacy 4:3 standard-definition material must also be incorporated. Our plan calls for us to transition to 16:9 SD for at least a season before the transition to HD.

This fall, we will begin acquiring worship services in 16:9 SD. Our tests show that 16:9 pictures from Ikegami HL-59 and HL-60 camcorders will

ing, including advances in media asset management, content delivery and post production. Our Web offerings are growing and DVDs are everywhere.

However, it all starts with the pictures. New HD cameras are certainly in our future, but we are prepared today to start that move with the equipment we have.

Ikegami cameras have been our choice for more than a quarter century. Flexibility, value and most importantly, quality, are the reasons we will continue to choose Ikegami.■

John Quarquesso, Jr., is the broadcast manager for Coral Ridge Ministries Media and and can be reached at 954-334-3792. The opinions expressed above are the author's alone.

For more information, contact Ikegami at 800-368-9171 or visit www.ikegami.com.

PRODUCTS & SERVICES SHOWCASE

BUYERS BRIEFS

The Red Eye from **Collinscraft Canada** is a non-zoom-through wide-angle adapter available in 0.5x and 0.7x versions. Using the 0.5x Red Eye increases the field of view by 50 percent and the 0.7x Red Eye increases the field of view by 30 percent, allowing more of a scene to be visible.

The Red Eye screws onto the end of the standard camera lens and adds about 3.5 ounces of weight. Focus is accomplished by using the lens' back-focus adjustment. All Red Eye wide-angle adapters feature a multilayer anti-reflective coating to improve light transmission through the lens to nearly 100 percent.

For more information, contact Collinscraft Canada at 403-815-9844 or visit *www.collinscraft.com*.

Tiffen has a broad line of lens adapters and filters for ENG and EFP work, including polarizers, colored filters, image softeners and neutral-density filters. For example, the company's Warm Soft/FX filter will maintain overall clarity in an image while softening facial imperfections. The filter also has a color tint that warms the image, producing a flattering skin tone. A variety of other filters are available for different visual effects.

The company offers a variety of other products for field production, including carrying cases and its famous Steadicam line or camera stabilizers.

For more information, contact Tiffen at 631-273-2500 or visit *www.tiffen.com*.

PRODUCTS & SERVICES SHOWCASE

USER REPORT

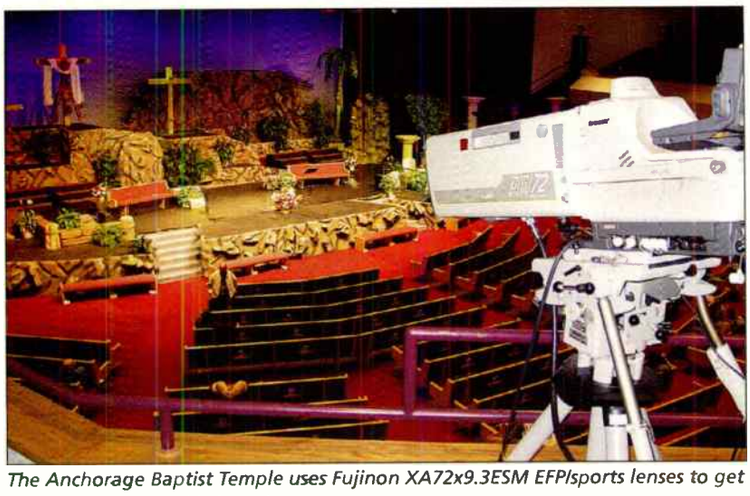
Fujinon Answers Prayers in Alaska

by Jeff Dowd
Senior Editor/Technical Liason
Syntax Productions

ANCHORAGE, ALASKA

Anchorage Baptist Temple, Alaska's largest Baptist ministry, has been a staple of the Anchorage community since it began services in 1951. The church has grown into a religious broadcasting leader since launching its owned-and-operated KFCT Christian Television, which reaches half the state's population.

KFCT's success led Anchorage Baptist Temple to forge a relationship with local ABC affiliate KIMO, which broadcasts a one-hour, live-to-tape, delayed broadcast of the temple's services every Sunday. The feed is sent via satellite to the Juneau and Fairbanks regions, plus other small villages throughout Alaska.



The Anchorage Baptist Temple uses Fujinon XA72x9.3ESM EFP/sports lenses to get closeups for its weekly broadcasts.

To better serve the church's growing congregation and television audience, Anchorage Baptist Temple recently began upgrading its video equipment to increase its production quality and output. This process included upgrades to cameras and lenses.

We chose a complement of Fujinon lenses, including its HA22x7.8BERM ENG-style zoom lens. We also have Fujinon XA72x9.3 ESM telephoto HD lenses in studio configuration, to complement the temple's Sony HD cameras. The HA22x7.8BERM lens accommodates both SD and HD cameras.

The temple downconverts HD signals to SD for broadcast. Although capable of acquiring widescreen 16:9 aspect ratio shots, the Fujinon lenses are used for 4:3 productions.

My day job is senior editor at Syntax Productions, a post house based in Anchorage. As a volunteer technical liaison to Anchorage Baptist Temple, I assisted in the recent upgrade.

One of my equipment recommendations was for Fujinon lenses. The image quality produced by the company lenses has never been less than excellent and in our experience, the HA22x7.8BERM is no different.

As far as our decision to purchase HD cameras and HD ENG-Style lenses, we wanted to be ready for HD and not have to go back and re-purchase equipment. The cameras and lenses were an obvious start with our transition to HD production and broadcast. We expect to use the lenses for a long time, so buying the HD lenses now is a good investment.

The role of the HA22x7.8BERM is to capture closeups among our 3,000 member audience that visually convey the overall feeling of the congregation. The ability to go from an extreme close up of stage action to spinning around to the back of the auditorium was important, and is easily achieved through this lens.

The lenses had to have the length to shoot front to back and stay sharp. We didn't want to be required to use 2x extenders to get tight shots, as my experience is that extenders lose too much light and the pictures get soft.

However, I've been blown away the few times that we have used the extenders on the HA22x7.8BERM. There is no boosting of the gain on the cameras, and all edges were sharp.

We've had the lenses for several months and they never fail. Someone makes a comment every Sunday about how wonderful the lenses are and how the shots we capture are spectacular. Images shot by the cameras are projected on two large video screens on either side of the altar inside the temple's auditorium and on TV monitors in an adjacent room for the congregation's overflow.

Our camera operators are volunteers who use the gear once a week for an hour, so user-friendliness was another strong consideration in our lens selection. The HA22x7.8 BERM lens is easy to use.

Our camera operators have gone from being very limited in their shot selection to getting tight shots and other pictures that weren't possible with our old gear. This has created a lot of buzz in the congregation and considerably strengthens our television presence.

Our camera operators are volunteers, so user-friendliness was another strong consideration in our lens selection.

RELIABLE CUSTOMER SERVICE

Another important factor in selecting these lenses was customer service. Our remote location has led to issues in the past. With the closest repair shop more than 1,500 miles away, we knew we needed reliable gear and strong service should problems arise.

Fujinon lenses have a history of reliability, but more importantly the company has provided us with unparalleled customer service in the past. Thus far, the HA22.x7.8BERM lens is working extremely well without the slightest of problems.

Our goal as a church is to get the Christian message out to everyone. Our improved broadcasts with higher production value ensure we do just that.

The increased excitement we feel from church members is palpable and has kicked our services up to an entirely new level. We're confident that Fujinon's HA22x7.8BERM ENG lens is a big reason for our success. ■

Jeff Dowd is a senior editor with Syntax Productions and a volunteer with the Anchorage Baptist Temple. He can be reached at jeffd@ktuu.com. *The opinions expressed above are the author's alone.*

For more information, contact Fujinon at 973-633-5600 or visit www.fujinon.com.

USER REPORT

Angenieux Improves Image for Sure Shot

by Dennis Kunce
President
Sure Shot Transmissions

NEW MIDDLETOWN, OHIO

Sure Shot Transmissions was established in 1987 with one transportable uplink unit and the goal of providing quality support to the broadcast and video production communities. We currently operate seven Ku and two C-band transportable trucks, all of which travel across the U.S. and Canada for a range of clients.

The latest addition to Sure Shot Transmissions' mobile arsenal is our new flagship vehicle, the Kelsey Marie. She's a big girl to say the least, weighing in at more than 38,000 pounds.

Inside, Kelsey Marie sports an impressive array of video and transmission gear that includes a Grass Valley SDI switcher, a Chyron Duet LEX graphics system, a Soundcraft audio console, assorted digital video and audio disk recorders, Miteq VM-100R digital upconverters and modulators, Tandberg Television Voyager E-5740 digital encoders, Sony DXC-D35W and DXC-D50W cameras, and Thales Angenieux's 62x9.5 OB sports lenses.

We literally spent hundreds of hours evaluating the equipment necessary to provide the performance and capability we wanted. When it came to selecting lenses, we reviewed the options available and chose Thales Angenieux's 62x9.5 OB sports lenses.

The 62x9.5 OB sports lens features a focal length of 9.5 to 589mm—19 to 1178mm with 2x extender. The lens incorporates Thales Angenieux's Assisted Internal Focus (AIF) mechanism to deliver fast zoom, precise focus and return-frame operation. With AIF, the optics do not rotate when focusing, which reduces the visibility of any lens aberrations, especially dust that might be visible on the outermost lens element.

Dennis Kunce uses Angenieux 62x9.5 OB sports lenses with Sure Shot Transmission's new Kelsey Marie production truck.

READY FOR THE ROAD

The 2/3-inch format lens is water-resistant and offers a road-ready design with handles to facilitate ease of transportation. Additional features of the 62x9.5 AIF OB lens include single cable control, 16:9 compatibility, minimal ramping on zooms, low power consumption and fine optics with the low levels of chromatism.

Specs are important but dealing with a company for the purchase of equipment this expensive requires a certain level of comfort and confidence. A long-term commitment is necessary when buying lenses that will be used for a dozen or more years, through changes in camera technology.

Thales Angenieux immediately demonstrated that it was interested in our business and willing to answer all our questions. The company was also aggressive in assuring our after-the-purchase service needs would be fulfilled, which was an important selection criterion for us. We needed to feel comfortable that our lens supplier was going to be there for us after the sale and we did not get that warm and fuzzy feeling from the other companies we researched.

Our staff was also impressed that Thales Angenieux delivered our new 62x9.5 OB sports lenses on time and went out of its way to accommodate our needs. The company's sales force is knowledgeable and a pleasure to work with.

The lenses mated to our cameras with no trouble and produced clear, distortion-free images from the beginning. Durability on the road was one of our concerns and these Thales Angenieux have shown that they are up to the rigors of daily use in active mobile production vehicle.

IN ACTION

We have been using the lenses for numerous baseball games on behalf of Major League Baseball (MLB) and Japan's national network NHK. Sure Shot Transmissions supplied split feeds for the MLB with supplemental camera feeds for NHK's broadcast, using cameras equipped with Thales Angenieux lenses.

We also deployed the Kelsey Marie to produce and supply feeds for the College World Series Baseball broadcast on ESPN and NASCAR racing on Turner Broadcast.

Our Thales Angenieux 62x9.5 OB sports lenses have been well received by our customers and there have been no problems with the lenses to date. They have worked up to our high expectations right out of the box from day one. ■

Dennis Kunce is the president of Sure Shot Transmissions and can be reached at dkunce@sureshotsat.com.

For more information, contact Thales Angenieux at 973-812-3858 or visit www.angenieux.com.

USER REPORT

IDX Lightens Load for 'The Travel Café'

by Chuck Henry
Producer/Talent
The Travel Café

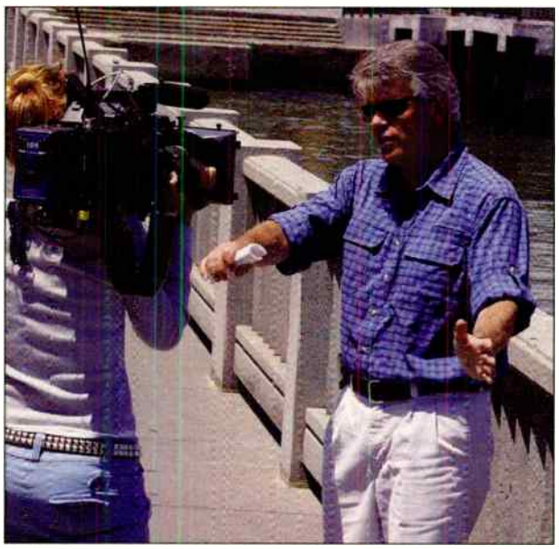
LOS ANGELES

"The Travel Café" shoots exclusively on location in 1080i HD. For us, extremes are the norm—remote Pacific islands to the Middle East, Norway to China.

Until we found IDX, the weight and runtime of our batteries was always a problem. Not anymore—these IDX Endura batteries are incredible. We now carry twice the power at half the weight and there's no going back.

Our Panasonic Broadcast sales representative introduced us to the IDX Endura system. At the time, we were having problems with low run times from the batteries we used on our DVCPRO HD camcorder.

Our only solution was to just keep adding more batteries to our travel package. Since we shoot exclusively on location, adding batteries means more weight, particularly with heavy Ni-Cad batteries.



Chuck Henry shoots on the road with power supplied by IDX Li-Ion batteries.

As any location producer knows, added weight means higher shipping costs. Once the gear is on-site, we then have to lug all those batteries in the heat and humidity endemic to many places we visit.

I contacted IDX and ultimately bought eight E-80 batteries, a multiformat quick charger (which we also use as a 220 V AC power supply for the camera) and a quad fast charger. Instantly the battery package weight was sliced in half!

Because we didn't know how the Endura system would perform, we opted for a V-mount adapter plate, keeping our old camera plate "just in case." As it turns out we never took that V-mount plate off the camera.

Our first shoot was in Hong Kong and we immediately noticed a difference. Instead of plowing though eight batteries a day, we were using four to five; for us that's a huge improvement.

Charge time was also significantly reduced. Although we brought eight E-80s, we never unwrapped the other three. The camera operator was happy—less weight on her shoulder—and with its innovative stacking system there was no need to stop and change a battery.

I'm happy with our reduced fees for excess baggage. When you can double your run time and reduce your weight, that's an improvement that pleases the whole crew.

Now, we have only one problem: Unloading all those old "bricks" we were lugging around. ■

Chuck Henry is the producer and on-camera talent for "The Travel Café," and can be reached at news4chuck@aol.com.

For more information, contact IDX at 310-891-2800 or visit www.idx.tv.

USER REPORT

JVC Brings Speed, Quality to KCSG

by Joshua Aikens
Director of Operations
KCSG

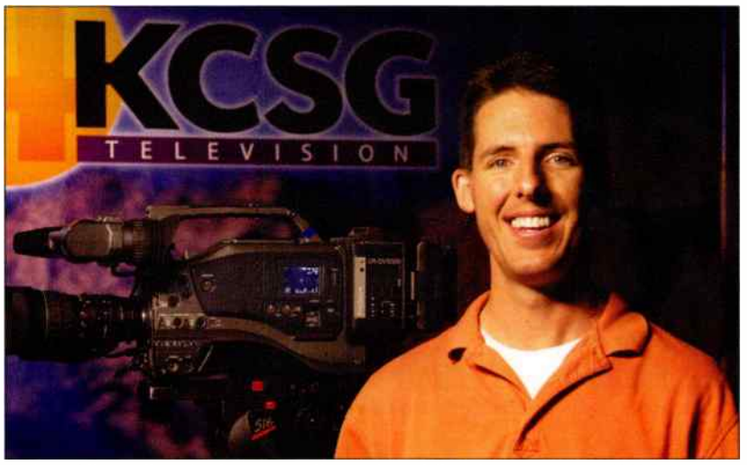
ST. GEORGE, UTAH

With bureaus in St. George and Cedar City, locally-owned KCSG provides newscasts tailored for Southern Utah, airing live each weekday at 6 p.m. and 10 p.m. The station has been broadcasting local news for less than two years.

In the beginning, our news team consisted of two reporters and a single camera operator generating news footage for KCSG's five-minute news cut-ins, broadcast on the half hour during the evening. Since we basically had one person doing all the fieldwork, we required a camera with great video quality, the ability to handle different lighting situations and audio capture; and for a small operation such as KCSG, cost was also a factor.

When the station first began broadcasting, we used JVC cameras. We particularly liked the GY-DV500, so when we looked for ENG cameras, we obviously looked at JVC first—especially the GY-DV5000, which came coupled with the DR-DV5000 FireStore disk recorder from Focus Enhancements.

Several years earlier, I learned about the FireStore desktop disk recording module and dreamed of the day when we could record to FireWire drives directly in the field. After reading about the DR-DV5000 solution available through JVC, I realized these companies shared the same dream.



Joshua Aikens likes the image quality and workflow improvements KCSG gets from JVC GY-DV5000 camcorders and Focus Enhancements' DR-DV5000 drives.

JOINT FUNCTIONALITY

The joint functionality between the drives and the camera was what we needed to streamline our newsgathering. We went to NAB, saw the camera/recorder combination and decided it was ideal for our needs. We then purchased four cameras to replace the GY-DV500 and bought four DR-DV5000 drives.

To date, the combined JVC/Focus Enhancements technologies have been extremely successful. We send our reporters into the field with our GY-DV5000/DR-DV5000 camera kit to shoot footage to hard drive; when the reporters come back to the station, they mount the drives directly to a Mac, edit in Final Cut Pro and output to QuickTime. The hard drive is erased and the process starts again, although we make it a practice to roll

JVC, PAGE 67

USER REPORT

Anton/Bauer Powers Wexler

by Bob Wigley
Purchasing Manager
Wexler Video

LOS ANGELES

There is a new "reality" about unscripted production that goes beyond the cast, location and crew. The reality is that the equipment—cameras, monitors, lighting, editing, storage—has to operate in the most adverse production conditions imaginable.

This is not to say that reality productions are all expeditions to Kilimanjaro. But the production of shows such as "Fear Factor," "Survivor," "Road Rules" and "Outback Jack" create many unforeseen challenges, not only for the crews but for the equipment as well.

If you are going on location, power is not something you gamble with. We use Anton/Bauer as a power source for almost everything when we're out on production with our clients, including decks, surveillance cameras and even smaller lighting equipment. Our inventory of more than 200 cameras and accessories are all sent equipped with Anton/Bauer power supplies.

The company's batteries hold up well in any condition and we find that most of Anton/Bauer Ni-Cd products survive at least five years of continuous field use, which I find quite impressive. Although the company's products come with a three-year warranty, we seldom have reason to call its service department.

NEEDING BATTERIES

A large reality show will use well over a million dollars of equipment on location at any one time—most of which requires batteries. With that much equipment and crew, the "reality" is that the batteries have to be rugged, reliable and dependable in all conditions.

Our inventory of Anton/Bauer ranges from the ProPack 14 to the HyTron 120, the latter of which powers all our HD equipment. The company has a variety of batteries and power supply products, which is great for us because we use batteries with a wide range of gear.

The battery for a miniDV is not necessarily the battery for an HD camera or an HMI light. We can fit the right Anton/Bauer battery to the right equipment for the shoot and be confident that everything works together.

The reality of "Reality" is that reliability, consistent performance and durability are the most important factors for equipment rental. For us, Anton/Bauer passes that test. n

Bob Wigley is the purchasing manager for Wexler Video and can be reached at 818-846-9381. The opinions expressed above are the author's alone.

For more information, contact Anton/Bauer at 800-422-3473 or visit www.antonbauer.com.

USER REPORT

Frezzi Recharges WMAR

by Tom Webster
Maintenance Engineer
WMAR

BALTIMORE

As a maintenance engineer for 18 years at ABC affiliate WMAR in Baltimore, my primary responsibilities are small format tape maintenance, repair and direct support to more than a dozen photojournalists.

I'm fortunate to have formed solid relationships with them over the years and a feeling of mutual trust and respect has developed. Through personnel changes, broken gear, blizzards, format evolutions and occasionally having to do more with less, we are keeping it all running, day-by-day.

Recognizing each individual videographer's desire to gear up in a manner that best suits his or her style, we've always given the shooters their choice for battery power. Some went with the NP style "pancake" batteries for their light weight, while others preferred bricks for their longer life.

For a time, we re-celled generic bricks. However, two challenges became obvious: The evolution of camera power taps and on-camera mini lights created increasing power demands, along with the use of one and sometimes two wireless mic receivers. It was also clear that our generic cases were not holding up to rigorous use.

After considering our options, we chose Frezzolini batteries. We liked the variety of power choices and packaging, the versatility of charger options and the general physical durability and lifecycle of the company's batteries. The easy-to-grip coating on the battery case is also a good feature.

We originally chose the M1100 charger for its capability to charge all our battery configurations. We maintain a M2100 in the shop for its battery rescue and analyze functions, which have been proven very valuable. The power supply option has come in handy at times, also.

LET THERE BE LIGHT

In addition to Frezzi batteries and chargers, we've also had great performance from the company's intensity-controlled mini-fill lights. Now standard in the field for us, mini-fills make a quick on-the-fly interview a reality.

Though vulnerable to impact as a result of being mounted high on the camera, Frezzi's mini-fill lights are rugged and continue to perform in spite of the abuse they take. I've seen more than one come in distorted from impact but still working.

Frezzolini hasn't slacked in after-sales service and occasional phone support, either. I'd recommend it for your battery power and on-camera lighting needs.■

Tom Webster is a maintenance engineer with WMAR and can be reached at 410-377-2222. The opinions expressed above are the author's alone.

For more information, contact Frezzi at 973-427-1160 or visit www.frezzi.com.

Tom Webster fits up one of the WMAR's ENG rigs with a Frezzi battery and charger.

JVC

CONTINUED FROM PAGE 66

tape for backup archives.

Using the GY-DV5000/DR-DV5000 setup has been a daily routine for KCSG. We use the FireWire drives to capture field content as well as voiceovers for news packages—since we have the content immediately available on the computer, we don't have to do any capturing.

Our reporters have attracted some attention with their camera kits and people often ask, "What's that thing hanging off the back of your camera?" We explain that we work without tape; we're a tapeless entity.

Recently, a KCSG reporter used the GY-DV5000/DR-DV5000 camera kit to report on a fire in Enterprise, Utah, a consequence of the terrible drought we're experiencing in the West. Since it's part of our coverage area, the reporter and photographer made the hour-long trip on August 2, 2004, shot fire footage of helicopters scooping water out of reservoirs and interviewed fire officials. The team left Enterprise two hours before news time with an hour to drive.

As the reporter drove, the photographer sat with a laptop and edited the content. When they arrived at the station, the reporter was able to export the final footage to the hard drive, which he brought in and plugged into a Mac for playback.

Prior to using our JVC GY-DV5000 cameras and Focus Enhancements DR-DV5000 hard disk recorders, we could not cover a story that quickly or expeditiously.

In addition to the time savings we get from the hard drive camera setup, the image quality of the JVC GY-DV5000 is always impressive. The camcorder works well in bright light and shadows, it's lightweight compared to many ENG camcorders and stuffed with features that are easy to use in the heat of news coverage.

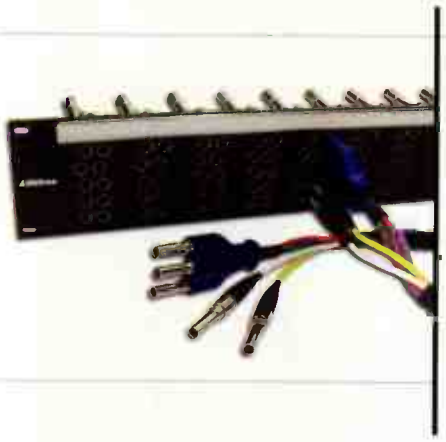
We are very satisfied with what JVC and Focus have delivered to our small-market station. ■

Joshua Aikens is the director of operations for KCSG and can be reached at joshua.aikens@kcsg.com. *The opinions expressed above are the author's alone.*

For more information, contact JVC professional products at 973-317-5000 or visit www.jvc.com/pro.

MARKETPLACE

Highlighting the latest products available to professionals in the video industry.



PATCHCORD

Bittree's five-wire component patchcord features a "chevron" design for fail-safe RGB connections, and color-coded cables for sync connections. The patchcord's design eliminates the need for separate patchcords.

The five-wire RGBHV component patchcord can be used with a Bittree patchbay at conference centers, conference rooms and command centers. The patchcord is available in both WECO and Mini-WECO format. The patchcord works well in the Mini-WECO format and can be used with the 2x10 RGBS signals. The electrodes are nickel-plated.

Bittree also now makes a four-wire video component patchcord for RGBS signals to complement its three-wire RGB patchcord. Both the five-wire and four-wire patchcords come in 24-, 36-, 48-, 60- and 72-inch lengths.

For more information, contact Bittree at 800-500-8142 or visit *www.bittree.com*.

HDTV UPCONVERTER

Leitch's HUC-3901 modular HDTV upconverter (from SDI) in the NEO series supports 1080i and 720p outputs, offers quick selection from preset common aspect ratios or output aspect ratio and picture position and will remap one group of embedded audio with matching delay into the output HDTV signal.

The HUC-3901 can be used with other NEO HDTV products such as HDTV frame sync, multiplexers, demultiplexers, distribution amplifiers, branding products and switching products. The upconverter is integrated into Leitch's Command Control System (CCS), which provides IP-based, real-time monitoring and control. CCS hardware control panels and software applications tie all major Leitch products together under a common control and monitoring infrastructure. The upconverter generates a timing signal that allows audio synchronizers to automatically track the throughput delay of the upconverter.

For more information, contact Leitch at 757-548-2300 or visit *www2.leitch.com/*.

TRIAX ADAPTER

Telemetrics' Hybrid/Fiber/Triax (HFT) adapters provide a highly efficient means for deploying HDTV cameras in large venues using existing single strand fiber with triax cable. The HFT-BS and HFT-CA adapters eliminate the cost associated with running bulky and expensive SMPTE 311M hybrid cable between HDTV cameras and their CCUs. The adapters convert SMPTE hybrid electrical and fiber optic interfaces into a standard single mode fiber optics interface.

The new adapters eliminate much of the SMPTE 311M hybrid cable between the camera and CCU resulting in significant savings. The ability to supply remote power to the camera also provides an additional benefit for cameras placed in obscure locations.

For more information, contact Telemetrics at 201-848-9818 or visit *www.telemetricsinc.com*.

PROJECTOR

Panasonic's new PT-L785U, high-brightness XGA LCD portable projector delivers pictures, text and graphics for computer and video programs for many small-to-mid size venues such as conference rooms and church halls.

The PT-L785U offers 3200 lumens of brightness, a 500:1 contrast ratio and image displays in 16.7 million colors. The projector uses a progressive cinema scan (3/2 pull down) circuitry, a 3D Digital Comb Filter and Dynamic Sharpness Control for crisp pictures.

The 12.8-pound projector has a motor-driven zoom/focus lens, one-touch auto setup and horizontal and vertical digital keystone correction. The HDTV-ready projector synchronizes to display 1080i, 720p, 480p, and 480i video and supports NTSC, PAL and SECAM.

The PT-L785U comes with an RJ-45 connector for 10Base-T/100 Base-TX LAN connection. Users can operate the PT-L785 remotely when it is connected to a wired LAN and has an assigned IP address.

For more information, contact Panasonic at 800-528-8601 or visit *www.panasonic.com*.

ROUTER SYSTEM

PESA Switching System's Cheetah digital routing switcher handles SDI and HDTV and has both copper and fiber input and output modules. Cheetah is available in four standard sizes—64x64, 128x128, 256x256 and 512x512. Each frame allows for redundant power, redundant control and two outputs per bus.

The Cheetah HD/multi-rate card set handles digital signals from 3 Mbps to 1.5 Gbps bit rates and reclocks at 144, 177, 270, 360 Mbps and 1.5 Gbps. PESA also offers an SDI-only version of the Cheetah. Input and output modules can be populated in increments of 16 and the modules provide up to 100m of equalization for HD and up to 300M for SDI.

An analog version of the Cheetah is also available in all standard and flexi-frame sizes. This version has single or dual outputs, 50 MHz bandwidth, and it can pass AES/EBU 75 Ohm audio. Optional plug-on output conversion cards allow HD to SDI to analog all within the same frame.

For more information, contact PESA at 256-726-9200 or visit *www.pesa.com*.

OPTICAL INFRASTRUCTURE

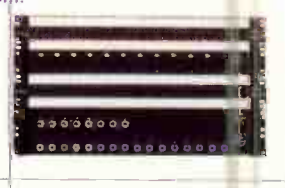
Telecast's Mamba line is comprised of optical distribution products developed for the production environment. This infrastructure can be implemented in mobile production units—such as truck-to-truck, fixed facilities—such as control room to studio, and in a stadium or campus.

Part of the family of products is the low profile video and audio patchbays that use Mini-WECO and Bantam jacks. Interframe cables are smaller and lighter.

MAMBA also includes optical media converters for HD/SDI, AES-EBU and analog audio. Fiber cables are single mode type with ST and MTP connectors.

Using this infrastructure, three or four fiber cables can join two mobile units together.

For more information, contact Telecast at 508-754-4858 or visit *www.telecast-fiber.com*.



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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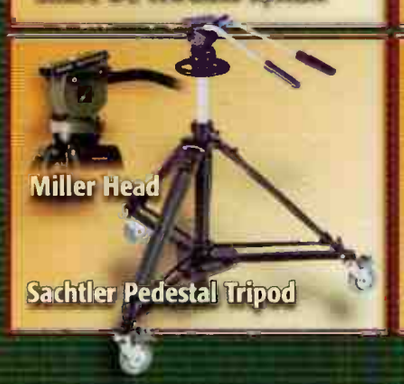
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Want to Sell

Bogner B16UO antenna on TV chnls 28 & 29, vgc, return loss tested good, $7000; Scala SL-8 on TV chnl 66, vgc, return loss tested good, $400; 8' grid dish w/mount, $300; 10' solid dish w/mount, $400. A Martin, 218-765-4321.

AUDIO PRODUCTION

Want to Sell

Mackie CR1604 VLZ, $950; Sony MXP-390, $1250; Sony MXP-290, $750; Tannoy CPA-5 compact loudspeakers (30 pairs), $175/pair; Sony WRR862, WRT822, WRT847, new, $2750; Otari DTR 90 DAT, $2500; Lexicon 312 3-chnl amp, THX rated, $1150; Lexicon 212 2-chnl amp, THX rated, $650; Tascam DA-88 8-trk w/sync card, $1250; Sony PCM-7040 DAT, $3995; Bag End 18" subwoofer, $550; Digidesign 888, $500; Bittree & ADC audio & video patch panels from $350; Mid Atlantic 45RU racks from $350; Emcor Series 10 40RU racks from $350. 818-788-4700 or www.tvprogear.com.

Symetrix 628 digital processor, xlnt cond, $475/BO; Valley People "dyna-mite", $125; Shure FP-42 audio mixer, xlnt cond, $325/BO; Orban 622A 1-chnl EQ, xlnt cond, $125/BO; Sony MPX-2900 21x4 audio mixer, gd cond, $900/BO; Neumann KMR-81i shotgun mic, EA-82 Elastic Suspension, SG-82mt swivel mount, Rycote WK-81 windshield, Rycote SFT-18-MHF softie, new in box, never used, $1500; Shure EZG/18SE cardioid condenser 18" gooseneck microphone side exit cable, new in box, never used, $100/ea; Lexicon MPX-1 multi processor FX, like new, in box, $475. 203-322-3000.

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Sony BVW-400a, $5500. 818-788-4700 or www.tvprogear.com.

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COMPANIES WANTED

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LanCODE DV Protocol converter, converts RS-422 or RS-232 to LANC cntrl for video editing purposes, $350. G Parr, 805-681-0415 x.22 or Gparr@glendon.org.

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Panasonic AJD-650 DVCPro VCR
Panasonic AJ-D90 DVCPro50 VCR
Panasonic AJD-950 DVC Pro VCR
Panasonic AJYAC940P
Panasonic DCR 85 Laptop Editor
Panasonic SV-3800 DAT
Panasonic TR-990C 9" B/W Mon
Panasonic WJ-220R & 225 Switcher
Par 64 Theater Lights
Peavy MM740 Media Matrix Mainf
Peavy MM-8830 Digital Interfac
Pesa Bobcat 16x2 Routing Swr
Pesa SWAT Plus
Pinnacle Alladin DVE
Prime Image TBC
Pro/4 Model 1000 RP Cam Mount
Quested VS2205 Speaker
Rack Mount Keyboard Shelf
Ramsa WR-133 8-ch Mixer
Roarke Data 2-drive Chassis
Roarke RORK-021-02 146gb Array
RTS-all types of user stations
Sachtler Airpeds & Dollies
Sachtler OB-2000 M Tripod
Sachtler Video 25 tripod
Sadie Disk Editor
Scientific Atlanta 8840 & 96040
Scientific Atlanta D9225 Sat R
Scientific Atlanta Powervue
Seagate 180gb LVD Drives-10
Sennheiser EW-100 Wireless
Sierra 8x2 Video Router
Sierra Designs 6 min DDR
Sierra Digilinx
Sierra Video 3001
Sierra Video 4 X 4 A/V Router
Sigma 12x1 Switch VSS-12
Sigma CSG-465 Sync Generator
Sigma SAG-100 Safe Area Gen.
Sigma SSV-210 10x1 Switcher
Sigma VDA-100 Video D/A
Snell & Wilcox MDD-500 Composi
Snell&Wilcox Magic Dave 8 in SDI
Solutions 34RU Equipment Rack
Sony 505 Composite input board
Sony AC-500 Power Supply
Sony BC-1WD Battery Charger
Sony BKPF-101CA A/D Board
Sony BKPF-L752 Audio D/A Brd
Sony BRR 50 TBC Remote
Sony BVH-2500 1" VTR
Sony BVM 1315 Color Monitor
Sony BVM 20F1U Monitor
Sony BVR-55 TBC Remote
Sony BVR-58 Color Cor. Remotes
Sony BVU 900 & 920 3/4" Player
Sony BVU 950 & 950P 3/4" VCR
Sony BVW 10 & 15 Betacam
Sony BVW 400A Camcorder
Sony BVW 50 &50P Betacam VCR
Sony BVW 60 & 65 Betacam Player
Sony BVW 70 & 75 Betacam VTR
Sony BVX-10 Color Corrector
Sony CA-513 Camera Adapter SVH
Sony CCZA-25 Camera Cable
Sony CU-G780 Mic Capsule
Sony DSR-60 DVCam Player
Sony DVS-M1000C Digital Switch
Sony DVS-V1201 12x1 Dig Swr
Sony DVW 500 Digital Betacam
Sony DVW A500 Digital Beta VCR
Sony DXC-3000 Camera
Sony DXC-325 & 775 Camera
Sony DXC-930p graphics camera
Sony DXC-950 Color Camera
Sony DXF-501 & 701Viewfinder
Sony DXF-701WS Viewfinder
Sony ECM 66B Lav Mikes
Sony HDW 500 Hi Def VTR
Sony LMD-440 Quad LCD Monitor
Sony MPU-F100 TBC/Frame Sync
Sony Multi-Core Camera Cable
Sony MXP 290 & 390 Mixers
Sony On-Camera Microphone
Sony PCM2500 Dat
Sony PFV-D50 Digital Video
Sony PVM 2030 & 2530 Monitors
Sony PVM-135 13" B/W Monitor
Sony PVV1 Beta Recorder
Sony PVW 2600 Betacam Player
Sony PVW 2800 Betacam VCR
Sony RM-930 Remote Control Uni
Sony RMD-1700 Remote Ctrl Pan
Sony UVR 60 Remote TBC
Sony UVW 1600 Betacam Player
Sony UVW 1800 Betacam SP VCR
Sony VA 500 Playback Adaptor
Sony VO 9800 & 9850 3/4"
Sony VP 7020 3/4" Player
Sony WRR862B30/32
Sony WRT 847 B 30/32 UHF Tran
Sony WRT-822 B 30/32 UHF Trans
SoundSwitch 8 Channel Mixer
Sprocket Digital PB540 Router
Stewart Power Amp PA-200
Sure M267 Professional Mic Mxr
Symetrix SX202 Dual Mic PreAmp
Tannoy Speakers
Tascam DA40
Tektronics PDR-100 Profile Ser
Tektronix 1240 Lgc Analyzer
Tektronix 151 SignalScout
Tektronix 1710B Waveform
Tektronix 1720 & 1730 Wfm/Vector
Tektronix 1740 & 1750 Wfm/Vector
Tektronix 1760A
Tektronix 300 & 300a comp wfm
Tektronix ECO 170 A Change/O
Tektronix SDA601 Analyzer
Tektronix SPG-271 PAL
Tektronix SPG-422 Signal Gen.
Tektronix TPG-625 Pattern Gen
Tektronix TSG 170A
Tektronix TSG-300
Tektronix TSG-371 PAL Componen
Tektronix WVR-500
Tektronix 764 Audio Scope
Telecom Research T/C Generators
Telemetrics TM-9250 Triax Adap
Toshiba TMP-100U Vid Wall Proc
Truevision Madras Video Transc
Truevision VIDI/O PAL Enc/Dec
Urei Time Align Speakers
Utah Scientific AVS-1 A/V Router
Utah Scientific CSP-1602/4 Pnl
Vegas 4.0 Keyboard
Vicon V6033-BPT Pan Head
Videonics PS-1000 Title Gen.
Videotek SDI TVM-821D
Videotek Times 6 Master Phase
Videotek TSM-50/VSM60
Vinten HD-1 Tripod
Wholer Amp 1-A Audio Monitor
Yamaha *8 & 16-channel Mixers
Yamaha Rev 7 Digital Reverb
Zaxcom Cameo SV Mixer

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MONITORS

Want to Sell

Sony BVM-1910, xlnt cond, $675/BO; Sony PVM1944Q, xlnt cond, $250/BO. 203-322-3000.

Sony BVM20F1U only $3000 optional cntrl panel & SDI card available; Sony PVM-20M4U, $1750; Ikegami TM14-17R, $750; Ikegami TM14-16R, $650; Ikegami TM20-17RA SDI, $1950. 818-788-4700 or www.tvprogear.com.

SIGNAL PROCESSING

Want to Sell

Leitch Mix-7001 multi-function digital frame, $500; Leitch FR-683 w/4 Video DA; Leitch FR-6804-1 w/10 VSE-6801 serial DAs, $3750; PDA-680's, $300; GVG 8501 video DA's, $100; GVG 8551 audio DA's, $85; GVG 9520 Master Sync, $850; GVG 9560 SPG PAL, $2000; GVG 3256A SPG, $700; GVG 3258 SC/H Phase meter, $600; Truevision Madras transcoder, $1200; Sony BVX-10 component color corrector w/remote, $700; Dubner 20K, $2500; Telcom Research T6010 time code reader, $150; N-Vision 4000 w/PS & DA4061 time code delay, $1750; Evertz Edit Code Master 3700, $195; Evertz ECM 4010, $150; Cipher Digital 1200 time code reader, $150; Gray Engineering DTR 170B SMPTE data rcvr, $1250; Gray Engineering DTR313D SMPTE data xmtr/rcvr, $2000. 818-788-4700 or www.tvprogear.com.

Sigma BTS-414 b/b timing, $100; Sigma VDA-100A, $175; Lenco PCE-466 color encoder, $75; ADC audio patch bay, $100; ADC video patch bay, $100; Tektronix 1410 sync gen, $125; Sigma System 500 video & audio DAs, $75; Evertz Edit Code Master Model 3700, $125; Sony BVT-800 TBC, xlnt cond, $350; Sony IF-500 multiple interface box, xlnt cond, $250. 203-322-3000.

SWITCHERS

Want to Sell

Miranda Digipath 16x16 DV router w/remote panel, $4900; GVG Ten X, $800; Kramer 5x4 A/V switchers, $425; Grass 110 composite, $2750; Grass 200 composite switchers, $4500; Adrienne Electronics VS-1VAA video stereo audio switcher, $300; Sigma Electronics Series SLX 16x1 video router, $500; Utah Scientific AVS-1, call for price. 818-788-4700 or www.tvprogear.com.

TAX DEDUCTIBLE EQUIPMENT

Ampex VPR 2B one-inch VTR in console w/TBC, removed from service in working cond, also spare Ampex 2 VTR w/TBC for parts, this equip free to non-profit org, pick up in Birmingham, AL. Dan, 205-823-0088.

Do you have old but usable TV equipment? Would you consider donating it to VTTV Student Television? Your donations are tax deductible & help up-and-coming TV production students, if interested please contact vttv_donations@vt.edu or check out our website at http://www.vttv.vt.edu.

TEST EQUIPMENT

Want to Sell

Tektronix 1760, $3000; Tektronix 1750 wfm/vector component, $2250; Tektronix 1745A, $3000; Tektronix 1740A wfm/vector component, $2500; Tektronix 1735 PAL waveform monitor, $1200; Tektronix 1720 & 1730 combo w/case, $1750; Tektronix 764 digital audio monitor, $3000; Tektronix 300a wfm component & composite, $1500; Tektronix oscilloscopes 2445A, $1050; Leader 5850C & 5860C wfm/vc, $2250; Videotek TSM-60 & VSM-60, $700; Magni signal gen, $500; Rod-L M25 ground continuity tester, $595; HP 1650A Logic Analyzer, $700; HP 1650B Logic Analyzer, $750; GVG 9505A source sync gen, $395; GVG9510A reference sync gen, $395; Tektronix WVR-500, $1500. 818-788-4700 or www.tvprogear.com.

Tektronix rack mount for (2) 1720, 1730 or any other 1700 Series waveform or vector monitors, like new, $100; Tektronix 149A NTSC test signal gen, $400. A Martin, 218-765-4321.

Videotek TVM-720, component, composite, waveform & vectorscope, xlnt cond, $1000/BO. 203-322-3000.

TRANSMITTERS/ EXCITERS

TEST & MEASUREMENT

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

TUBES

Want to Sell

4CX250BC used tube in gd cond, made 100% powr when last used, was kept as stand by spare, $85; 4CX250BR, new tube, $120; Thomson TH331 used, 100% power when taken out of service, $900; 9017 good used tube w/new fingerstock kit, tube in gd cond & made 100% power when last used, was kept as standby spare, $1200. A Martin, 218-765-4321.

VTRs/VCRs/RECORDING MEDIA

Want to Sell

Sony BVW-65, gd cond,$1975/BO; Sony BVW-70, xlnt cond, $5500/BO; Panasonic AG-1980 S-VHS desktop editor, like new, in box, $875/BO; Sony BVR-50 TBC, remote, xlnt cond, $375/ea. 203-322-3000.

Sony DSR-20 DVCAM/DV VTR, perfect cond, $1700; JVC BR-S 422 dockable S-VHS deck, incl batt box & handle, hardly used, new cond, operating manual S/N 17911777, $500. G Parr, 805-681-0415 x.22 or gparr@tvnetwork.org.

HELP WANTED

A Broadcast Maintenance Engineer is needed in Salt Lake City, Ut. Applicant must be proficient in Autocad, computers and networking technologies, analog and digital video tape recorders, digital audio/video systems, microwave, satellite, and TV transmitter systems. Applicant must have good verbal and written communications skills and work well in fast paced stressful environments. Requires five years experience broadcasting. SBE certification is preferred. Please submit resume to: Ronda K. Porter, KUTV Human Resources, 299 South Main, Suite 150, Salt Lake City, UT 84111. Fax to 801-973-3173, Email: porterr@kutv2.com No phone calls please.

ADVERTISERS INDEX

While every care is taken to ensure that these listings are accurate and complete TV Technology does not accept responsibility for omissions or errors.

ADVERTISING SALES REPRESENTATIVES

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pdacruz@imaspub.com

U.S. SOUTH EAST AND MID-ATLANTIC:
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PRODUCT SHOWCASE CLASSIFIED ADVERTISING:
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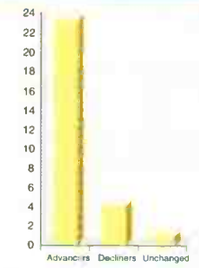
wwg@imaschina.com

TV TECH STOCK INDEX

WIN-LOSE RATIO



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

TOP ADVANCERS BROADCAST STOCKS
(Aug 6 – Aug 20)

Gray	+16.42%
ACME	+12.30%

TOP DECLINERS BROADCAST STOCKS
(Aug 6 – Aug 20)

Granite	-26.87%
Paxson	-8.37%

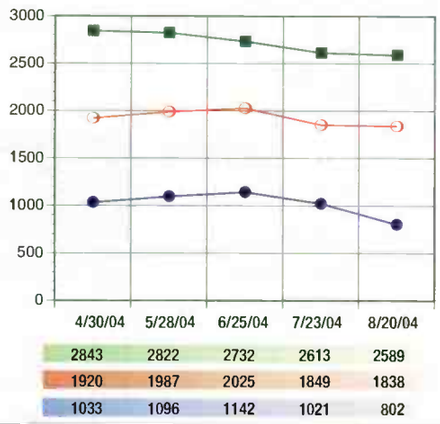
TOP ADVANCERS TV STOCKS
(Aug 6 – Aug 20)

SeaChange	+ 24.03%
Pinnacle	+20.62%

TOP DECLINERS TV STOCKS
(Aug 6 – Aug 20)

Leitch	-17.62%

TV TECH TREND



2843	2822	2732	2613	2589
1920	1987	2025	1849	1838
1033	1096	1142	1021	802

TV Tech STOCKS as of August 20

Company Name	52-Week Range	Aug. 6	Aug. 20	% Change
Avid	38.43 - 59.77	42.8	44.33	3.57%
Ciprico	3.15 - 7.21	3.33	3.33	0.00%
Harmonic	3.50 - 13.75	5.66	5.89	4.06%
Harris	31.90 - 51.19	45.67	46.71	2.28%
Leitch	N/A	7.32	6.03	-17.62%
LSI Logic	4.46 - 12.90	4.71	5.01	6.37%
Pinnacle	4.99 - 13.20	3.25	3.92	20.62%
S-A	3.25 - 38.59	26.83	28.6	6.60%
SeaChange	9.44 - 21.88	13.98	17.34	24.03%
Tektronix	22.06 - 35.00	27.94	30.04	7.52%

Broadcast STOCKS as of August 20

Company Name	52-Week Range	Aug. 6	Aug. 20	% Change
Acme	5.85 - 10.21	6.1	6.85	12.30%
Belo	18.00 - 29.90	21.55	22.89	6.22%
Emmis	18.00 - 28.65	19.69	19.96	1.37%
Entravision	6.85 - 11.67	8.08	8.28	2.48%
Fisher	44.40 - 52.50	46.75	50	6.95%
Granite	0.43 - 3.01	0.67	0.49	-26.87%
Gray	10.55 - 16.22	11.51	13.4	16.42%
Hearst Argyle	22.42 - 29.25	23.54	24.03	2.08%
Nexstar	7.75 - 14.50	8.51	8.53	0.24%
Lin TV	18.00 - 27.49	19.15	20.11	5.01%
Paxson	2.15 - 6.07	2.63	2.41	-8.37%
Sinclair	7.76 - 15.43	8.15	8.16	0.12%
Liberty	39.60 - 51.79	41.4	40.71	-1.67%
Univision	28.38 - 40.05	34.16	34.65	1.43%
Young	9.29 - 25.14	9.7	10.5	8.25%
Tribune	41.54 - 53.00	40.95	41.93	2.39%
Meredith	45.85 - 55.94	50.4	50.65	0.50%
EW Scripps	84.30 - 109.30	101.32	102.57	1.23%

COMPANY FOCUS

SeaChange Rides VOD Wave

MAYNARD, MASS.

SeaChange had another record quarter, attributed in part to continued growth in VOD sales and deployments.

The company's estimated revenues for Q2 2005, ending July 31, 2004, were on target at $43 million, an 18 percent increase over the same period last year. Revenues for the first six months of fiscal '05 increased to $84.6 million, up from $71.1 million last year.

Net income was $3.3 million, or 12 cents a share, up from $942,000, or 4 cents a share from Q2 2004.

VOD systems revenues for Q2 were $25.2 million, up 43 percent from the same time last year. Total systems revenues for the quarter were $32.4 million.

These figures included $3.4 million in advertising systems revenue and $3.8 million from broadcast systems. Service revenues were $10.6 million.

"This quarter, Seachange again achieved a new company record for revenues and earnings," said SeaChange COE Bill Styslinger. "We shipped 178,000 video streams to our customers this quarter and have shipped a total of over 1.2 million streams. Beyond our North American cable customers, we have gainned additional cable and telecommunications customers that are initiating video-on-demand services around the world."

According to Styslinger, the storage systems provider has won nearly 100 percent of VOD deployments in Europe and all VOD deployments in Asia.

Domestic customers include Comcast, Cablevision and Cox. Sales to Comcast represented more than 10 percent of the revenue for the quarter.

Operating expenses were $14.2 million, up from $13.5 million during the same period last year.

Earnings before interest, taxes, depreciation and amortization was $7.2 million, up from $3.9 million last year, which increased the company's cash and marketable securities balance by $7.6 million from the prior quarter in the fiscal year to a record $131.6 million at the end of the quarter.

In the future, Styslinger said he expected to see more high-definition interest in the United States and more VOD deployments domestically and in Asia.

Lauren Evoy Davis

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Avoid the high costs associated with unexpected on-air "wardrobe malfunctions," explicit language, or colorful gestures... learn from the valuable two-second lesson that set off an intense media blitz that changed the broadcast industry.

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Features

- Up to 10 seconds delay standard
- Up to 30 seconds additional delay available
- 10-bit video processing
- Primary and auxiliary/alternate video inputs
- 24-bit audio processing
- AES/EBU digital or analog audio
- 4 auxiliary/alternate audio inputs
- Audio and video can be switched together or independently
- Fits in standard 2U-high rack space

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The Bridge Router can hold all the electronics you'll need for a small console: I/O cards, mix engines, and DSP processors. Naturally it can also have automatic fail-over DSP and CPU cards to keep you on-air. You can expand the system with a simple cage-to-cage interconnect.

It's not just a Digital Console, It's an ENTIRE Audio Infrastructure

You Can Start with a simple AES router with analog and digital inputs and outputs. From there you can add logic I/O cards and scheduling software; you can link multiple master bridge cages together to achieve thousands and thousands of I/O ports; you can create a custom system that includes multiple smaller remote satellite cages— with everything interconnected via CAT5 or fiberoptic links.

But That's Just the Beginning: you can also add mix engine cards, interface to your automation system; you can choose from two different WHEATSTONE series control surfaces (D-9 or D-5.1), each specially configured for production room, on-air or remote truck applications. We also provide a full complement of Ethernet protocol remote router control panels, as well as a complete family of plug-in modules that interface the routing system to existing Wheatstone digital and analog standalone consoles.

The D-9 is Compact yet Powerful:
It can route, generate and monitor 5.1 surround signals and produce simultaneous 5.1 and stereo master signals for your dual broadcast chain. The console also provides extensive, rapid communication paths throughout your entire Bridge system. Motorized faders and control setting storage and recall make show-to-show transitions fast, easy and accurate.

Wheatstone Knows Live Audio. The D-5.1 is loaded with MXMs, foldbacks, and clear easy-to-read displays. You'll have all the power you need when the news breaks! Its intuitive layout helps your operators work error-free, and it can handle and generate all the 5.1 content and simultaneous stereo capability any large or medium market station could need.

Wheatstone the digital audio leaders

600 Industrial Drive, New Bern, North Carolina, USA 28562
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