APRIL 2009

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NAB PRODUCT PREVIEW

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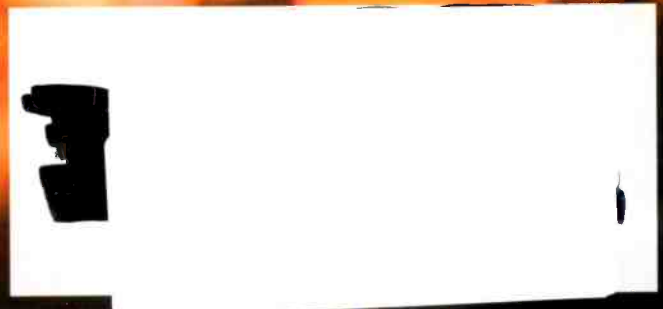

ALSO INSIDE:

COMPRESSION SEMINAR
Quantization and transform coding explained

UGC AND LOCAL MEDIA
Need help with user-generated content?

APPLIED TECHNOLOGY
Kayenne production switcher

A PENTON MEDIA PUBLICATION

in a field of its own

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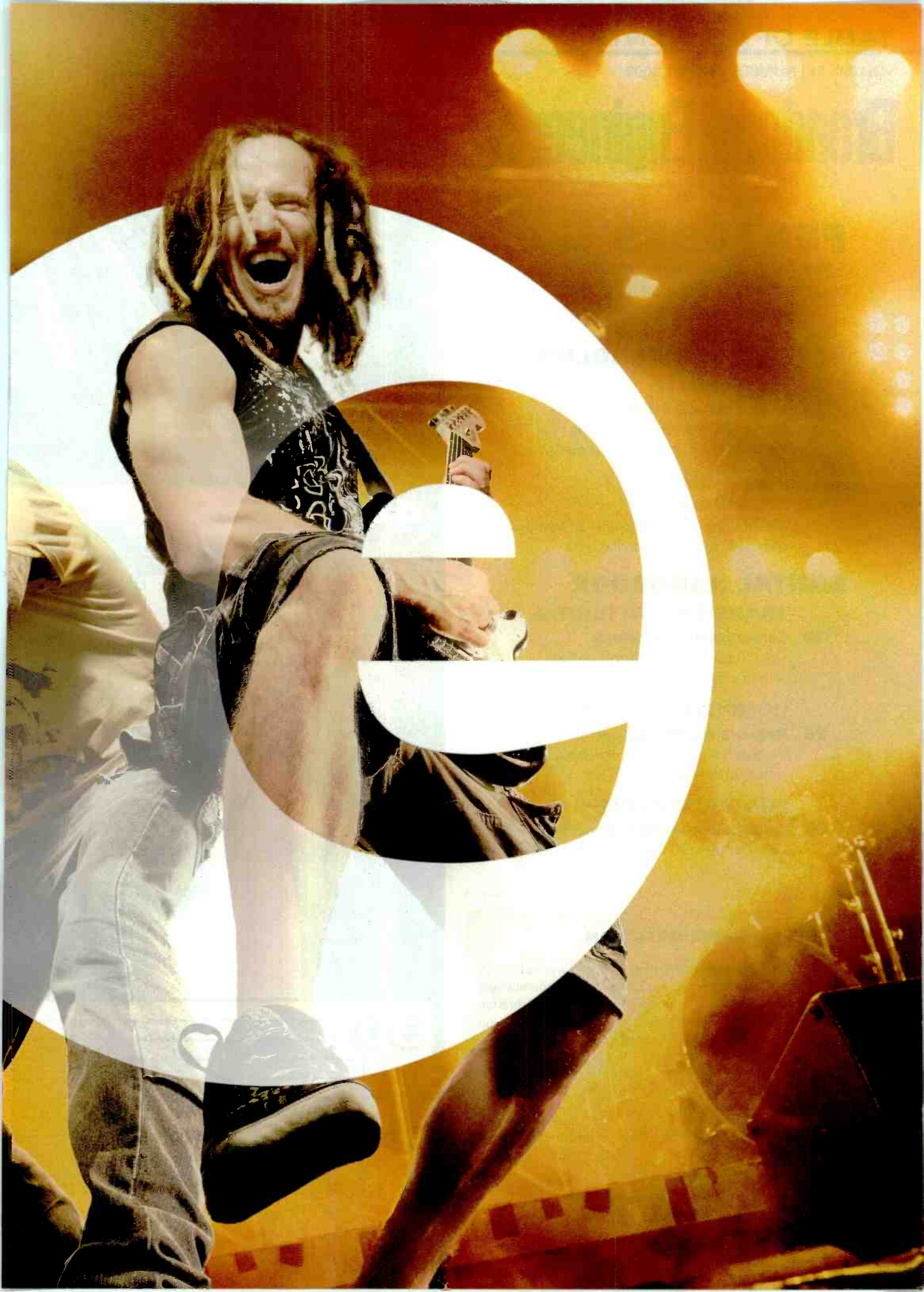

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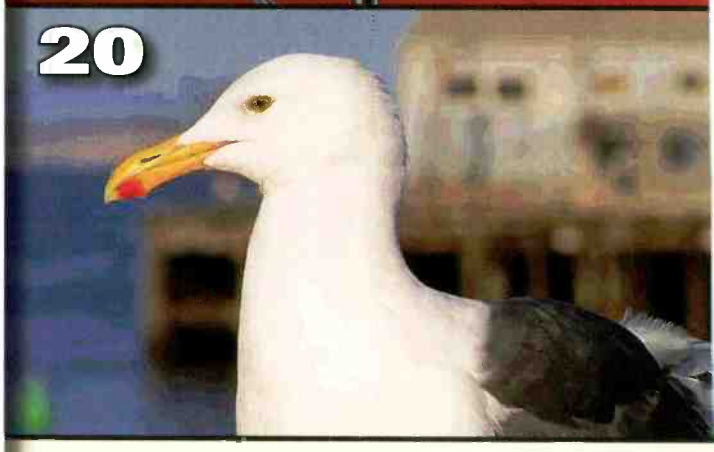
APRIL FREEZEFRAME QUESTION

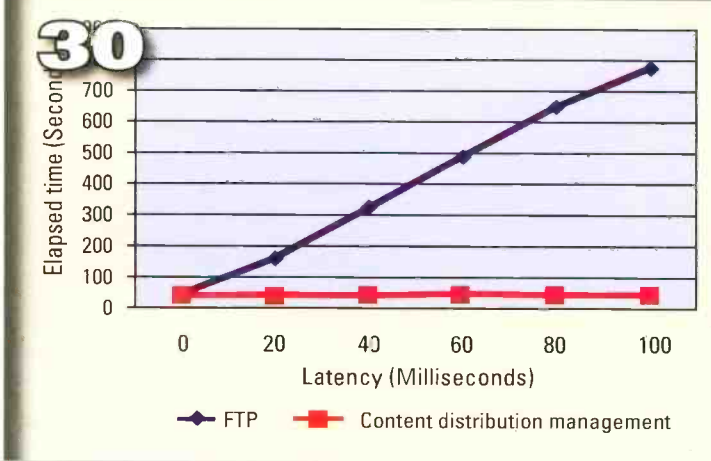
Configuring today's broadcast equipment often requires setting up networks. Part of that task involves creating subnets, or partitioning networks into smaller segments. These subnets are created through subnet masks, which indicate what bits in the IP address can be used to represent the subnet portion of an IP address.

Create the subnet mask required for a router-to-router link shown below for two host addresses in a class B network.

Answer on page 8.

ON THE COVER:
Thomson Grass Valley's new Kayenne switcher offers broadcasters 1.5 to 4.5 M/E and will be shown for the first time at NAB 2009.





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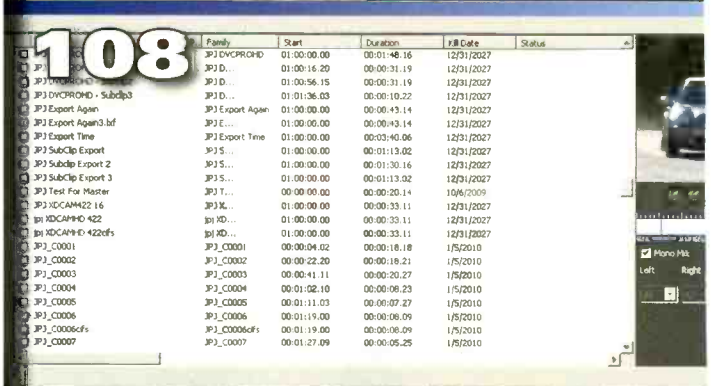

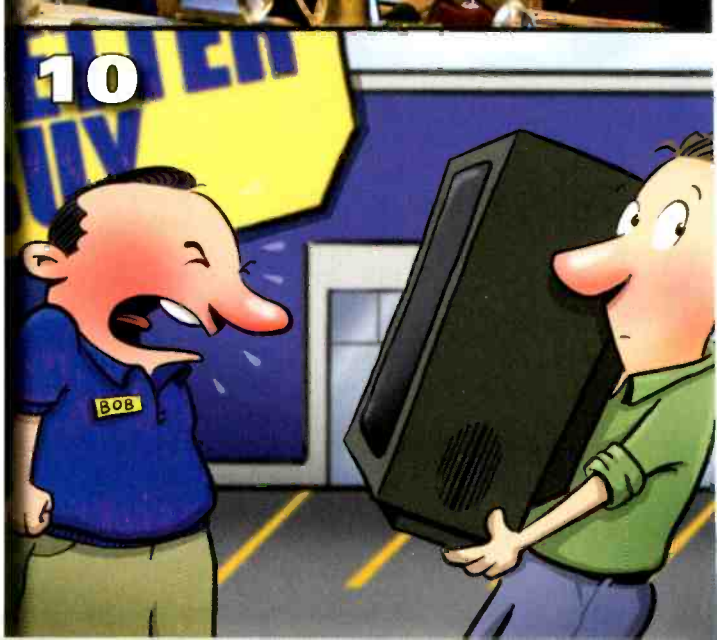

APRIL FREEZEFRAME ANSWER

Like an IP network address, a subnet mask is a 32-bit binary number. The bits of the subnet mask are arranged in a pattern that reveals the subnet ID of the IP address to which the mask is associated. Using a table, see that 14 host bits are required for this class B network. Therefore, we'll need three octets, plus the six most significant bit positions from the fourth octet to create the mask. The decimal equivalent for the six MSB positions is 128+64+32+8+4 = 252. The subnet mask is therefore 255.255.255.252.

Question and answer adapted from "Networking," Second Edition, by Jeffrey S. Beasley, printed by Pearson-Prentice-Hall. Available from your favorite bookstore.

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It's not easy being green

It's been amazing to see the speed with which Al Gore and his minions have been able to convince most of world that the planet's death is just around the corner if we don't "go green."

I'm not opposed to recycling, but I believe it should remain optional and easy to do. Unfortunately, my belief ran into reality when I met the recycle nazi at my local Big Box store.

The company is offering a $10 "gift certificate" if you bring in an old television or CRT. What I hadn't noticed was the fine print, which requires the consumer to *buy* that gift certificate.

Needless to say, my misunderstanding collided with Bob, the operations manager, who threatened to have me arrested for depositing "toxic waste" on his property. That's when I took the opportunity to remind him that technically, TV sets weren't classified as "toxic waste," but rather "hazardous waste." There is a difference. That's when Bob's head exploded. Fortunately, the management literally dragged Bob off to another part of the store, so I could continue talking with the other staff.

The outcome was fine. I took my two TV sets home and examined the note on the Best Buy Web site. Yep, at the bottom, there is a note that you must *buy* the gift certificate. My mistake was believing an article on CNET that said nothing about having to buy the gift certificate. That article claimed Best Buy was *exchanging* the gift cards for the old televisions. I mistakenly thought the company was acting in the planet's interest and using the gift cards as an advertising gimmick. Silly me!

OK, I misunderstood, and after verifying the rules, which are not obvious, I simply took the TV sets to another Best Buy store. Those employees were polite, and I purchased two "gift cards." Trust me, though, I won't use those gift cards to buy any TV sets from Best Buy.

Recycling is one of those things that you're either really into or not at all, and this is where Penn and Teller come in. They produced a program analyzing the costs and benefits of recycling. Ultimately, their research showed that much of the benefit claimed by recycling fanatics is untrue, or, as Penn says, "BS."

There is a way in which advocates on both sides of this issue can win. That's when manufacturers agree to take back old products when new ones are purchased. I know that Thomson Grass Valley has such a policy where if, for instance, you buy a new GV switcher, the company will take back your old GV switcher at no charge and have it properly recycled.

It's this kind of cooperation between buyer and seller we need in both professional and consumer spaces. People will take steps to help maintain our planet's environment when recycling is easy and doesn't cost anything.

So, whether it's a TV set or a production switcher, consider the benefits of recycling. You'll feel good about it when you're done. However, don't expect today's process to be easy or free. It seems there's a "gotcha" everywhere you go. Murphy is always waiting in the wings, no matter your good intensions.

Fortunately, experience says that 95 percent of the bad things you think might happen, never happen. That means if you focus on the 5 percent of things that could happen, you'll be better prepared. Best of all, you probably won't have to deal with Bob.

Brad Dick

EDITORIAL DIRECTOR
Send comments to: editor@broadcastengineering.com

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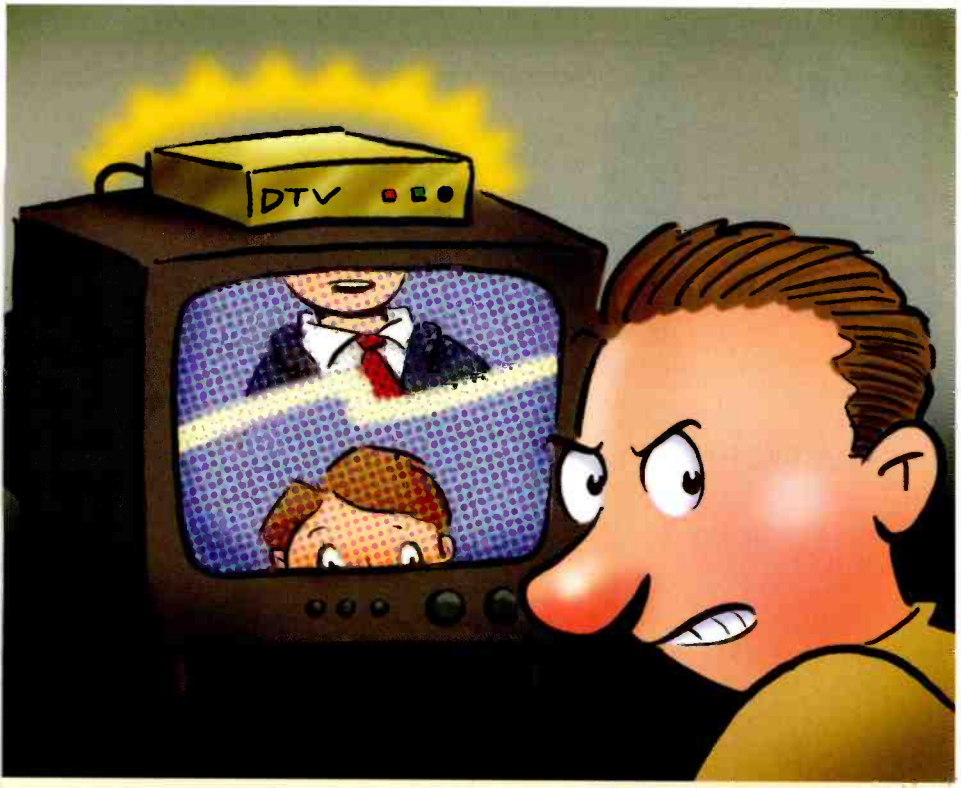

Wasteful spending

Dear editor:

I just pulled the February issue from my mailbox and read your editorial, "The $650 million DTV converter box." Here's my reaction: Yes! Yes! Yes! Yes! Yes!

Thank you, Brad, for shedding some light on a tiny corner of this gargantuan catastrophe and for speaking out against it. What a mess! This is definitely a case where the cure is worse than the disease. I just hope we can survive it. And I'm not talking about the recession/depression; I'm talking about the recovery plan.

Thanks for not being afraid to contradict big brother. I wish we could place clones of you throughout the media.

Jeff Perry
A new fan of Brad Dick

HD over triax

Dear editor:

I am currently writing a final year dissertation for Television Production (BSc Hons) on outside broadcast, and one section of the project covers signal feeds from video through to audio. Below is an excerpt from the "High definition over triax" article that was written by Robert P. Seidel of CBS and published in your August 2003 issue:

"Connecting the cameras to the OB truck is achieved through the use of a triax cable, or fiber-optic cable is sometimes used for a high-definition feed. Triax cable is composed of two insulated copper wires, which the data signals from the camera are sent along to the CCU and additionally power is also sent to the camera. Although high-definition signals can be sent along a triax wire, there are several issues that arise due to the fact that it was not originally designed to carry the high-bandwidth signal of a HD feed. However, the earlier need for a cable that would support super slo mo filming sent from a standard-definition cable that used a large amount of data means that HD feeds are just about able to fit into a triax cable's limit. Some problems have been posed by this which were brought to light when CBS tested sending HD signals over triax in 2002. The issues reported included nonsymmetrical overshoots on rising and falling edges, excessive ringing following transitions and unequal color component delays on the order of 25ns."

I would be grateful if you could explain the following terms: "nonasymmetrical overshoots on rising and falling edges" and "excessive ringing." I understand the color component delays to an extent as the red part of the signal showing at the top of the screen in the tests due to the delay of information. However, I am not fully sure about what the other two phrases mean and would not want to assume their definition. Thank you for your time, and I await your reply.

James Rice
University of Central Lancashire
England

Robert P. Seidel responds:

Thank you for your interest in my article. The term "nonsymmetrical overshoots on rising and falling edges" means that the transition from peak black to peak white is not producing a square wave function, which softens the sharpness of the image's edge. The undershoot from peak white to peak black is not the same shape as the overshoot, which means the transmission system is not linear.

"Excessive ringing" means that after a transition from, say, white to black, the black video just after the transition will vary in amplitude. In other words, it will not be black, but rather varying shades of black. This has the effect of reducing the sharpness of the image.

Good luck with your dissertation!

Test Your Knowledge!

See the Freezeframe question of the month on page 6.

However you dress it up, the question's the same: "How are you going to save my newsroom time and money?"

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UGC and local media

Set up user-generated content on your Web site to open up new revenue streams.

BY TIMUR YARNALL

With the explosion in user-generated content (UGC) over the past few years, it's hard to believe that YouTube is just four years old. Remember that hardly any coverage of Hurricane Katrina came in from user-generated video. The coverage consisted of cable and TV personalities and their crews. That has all changed with shocking speed in the past two years and, coupled with the economic recession that has punished traditional media, it's never been more critical for local broadcasters to have a strong UGC strategy and implementation that leads to new revenue streams. From a system architecture perspective, the workflow for working with UGC is not much different than working with station-generated content on your Web site. The overall workflow in Figure 1 on page 16 tends to apply to both content processes.

How to set up UGC

The key baseline requirements in each area of the workflow are:

• *Capture.* Rather than capturing video content from a station broadcast in one format, any UGC solution must be capable of ingesting content (or rather, having content uploaded to it by users) from a variety of devices (users' computers, mobile devices, handheld cameras) and in a variety of formats (MPEG, JPEG, QuickTime, Flash, WMV, etc.).

• *Review.* While station-generated content typically doesn't need to be screened for pornography, copyright infringement or obscenity, it's vital that your UGC solution provide a mechanism for any uploaded content to be screened both prior to and after publishing. It's also important that station staff and the user community on your Web site can report and reject objectionable content. (There are some technology-based solutions that provide for a high degree of screening, but none are yet at the level where human review is not required.)

• *Edit.* This consists of the ability to trim down any submissions to only the pertinent content. For the purposes of protecting against copyright infringement or payment of royalty fees, this must also include the ability to strip out any music associated with a video submission if it's not clear that the music was independently created. While YouTube may have millions of dollars to fight royalty lawsuits, my guess is that most who are reading this article do not.

It's never been more critical for local broadcasters to have a strong UGC strategy.

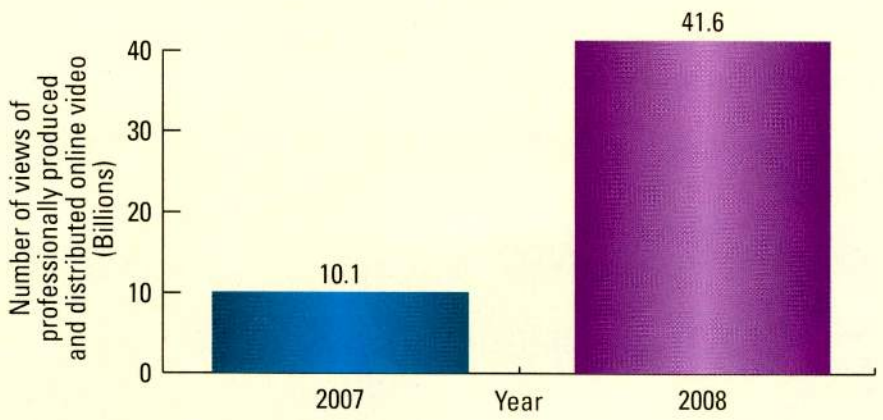
• *Encode.* Once content has been approved and has been edited, it should be encoded into your preferred streaming format. I strongly recommend Flash-based video streaming as it has by far the highest usage, though a minority of UGC solutions have adopted Microsoft's Silverlight. Note that some solutions may take the encoding step just after the capture/ingest stage. This is a perfectly valid setup, but leads to higher use of system resources and bandwidth.

• *Publish (generate revenue).* With the UGC encoded and ready to publish to your site, appropriate ads should be included with the content during the publishing process. Monetization of UGC is by no means a mature process, but generally the same advertising

FRAME GRAB *A look at the issues driving today's technology*

Professionally produced online video contines to grow

In 2008, consumers viewed 41.6 billion pro online videos.



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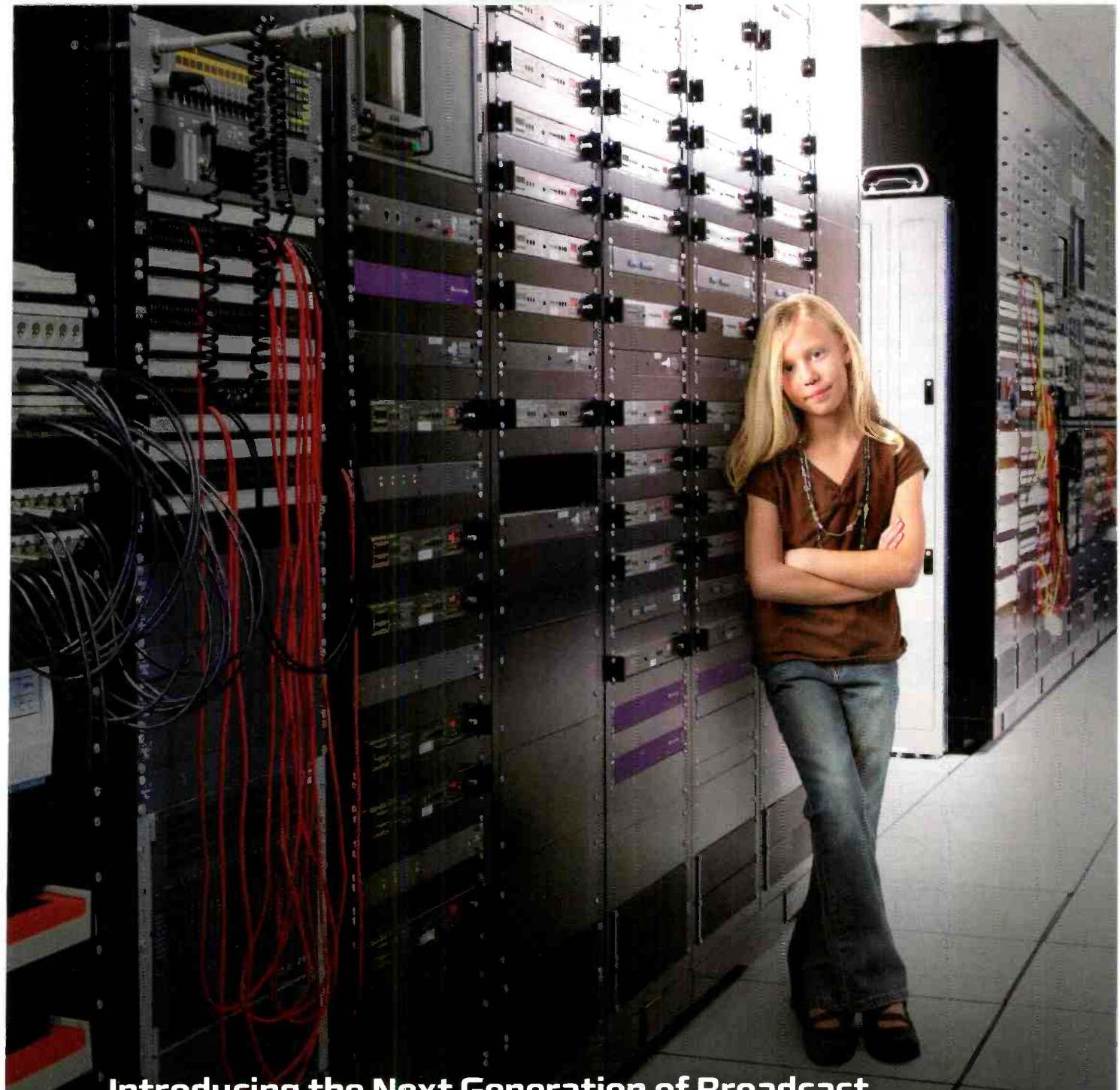
www.accustreamresearch.com



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Ready or not, the future of broadcast is here. That means delivering high-quality multichannel content to TVs, computers, mobile phones, and more. This demands a flexible, highly efficient codec, one that also promises exceptional reliability and compatibility. Enter Dolby® Pulse, the ideal HE AAC solution for bandwidth-critical services like next-generation HDTV, IPTV, cable, and satellite. It combines the advanced bit-rate efficiencies of HE AAC with support for Dolby metadata. Look for its implementation throughout the broadcast chain, from hardware and OEM products to licensed encoder and decoder solutions. When every bit counts, Dolby Pulse delivers.

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formats you'd use on your station Web site and on your mobile solution are appropriate here. These ad formats generally fall into three main categories: contextual ads (such as Google's AdSense), display/banner ads and in-stream video ads (such as preroll or overlay ads).

• *Archive (and potential syndication).* The importance of storing both your station-generated Web content and user-generated content in perpetuity can't be overstated; it's absolutely essential in terms of driving increased traffic, user engagement and revenue to your site. Creating a premium local video archive of the best professionally generated and user-generated video for your market should be the goal — something like a local version of YouTube. Virtually all of the primary UGC solution providers will enable you to store your published video in perpetuity at no additional storage cost, and services such as Amazon's S3 offer "storage in the cloud" at rates as low as 16 cents per GB. The creation of this long-term archive, and the possibility to syndicate this content out to multiple sources on an ad revenue share or license-fee basis, is often referred to as long-tail monetization.

YouNews UGC widget with text link sponsorship for SEO purposes

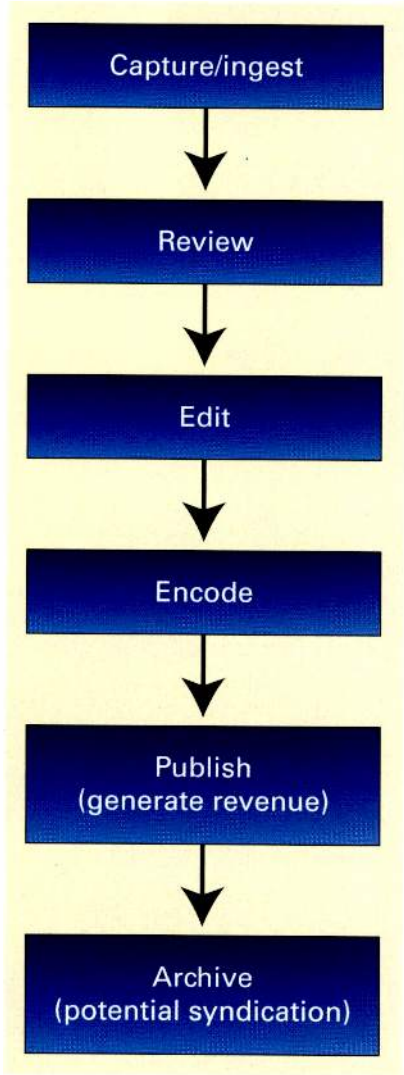

Figure 1. Workflow for working with user-generated content

Revenue/monetization strategies for UGC

Think local when determining how to generate revenue from a UGC channel on your site. Local CPMs are far outpacing national CPMs, and local advertisers will place a value on your brand and editorial direction that a national buyer never will. In some cases, local CPMs have outpaced national CPMs by 10X.

I strongly believe in selling what we refer to internally as "flat-fee sponsorships on a capped-impression basis." This means that your team should sell UGC (and Web site) inventory on a flat sponsorship basis, but with a firm limit of how many ad impressions that sponsor will get. For example, you might charge a local sponsor $15,000 per month for the following:

• Exclusive sponsorship of one of your UGC channels. Let's say, for example, you're running a Cutest Pets contest that month, and the advertiser is the exclusive local sponsor of that channel online.

• A 300 x 250 display ad above the fold on all Cutest Pets pages — up to 1 million impressions.

• A simple text link on Cutest Pets pages that links out to the sponsor's business Web site. This is helpful for the sponsor's Search Engine Optimization (SEO) rankings.

• A 15-second preroll ad on all Cutest Pets videos that are submitted — up to 100,000 impressions.

• An optional on-air visual banner or short mention in any on-air spots that promote the contest.

• If the impression levels listed above are met, the station will traffic national ads as backfill for the added impressions. Note: This is critical, as if you don't put this impression cap in place and a Cutest Pet video goes viral, you may end up having a huge video bandwidth bill on your hands with no additional revenue. Having the impression cap and right to run backfill in place protects the station and allows you to generate more revenue.

If you do the math on this sponsorship package, the sponsor is paying $10 cost per thousand (CPM) on the combination of the display ad and text ad, and $50 CPM on the video pre-roll ad. These CPM levels are healthy enough that, as you continue to promote your site and grow traffic through a combination of UGC and station-generated content, you'll have a strong business and outlook for years to come. BE

Timur Yarnall is the founder of Broadcast Interactive Media.

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Product Launch
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Time: 11:00 a.m.
Location: NAB, Las Vegas, USA
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New DTV rules

The FCC has limited pre-June 12 terminations and requires new outreach efforts.

BY ANNE GOODWIN CRUMP

In the wake of Congress' decision to postpone the mandatory DTV transition until June 12, the FCC in March issued a third report and order on reconsideration (third R&O) adopting new rules to govern the extended DTV transition.

While some of the rule changes were necessary simply to assure that the commission's rules reflect the new national transition date, others appear to arise from the commission's continuing concern about the public's readiness for the transition and its desire to discourage early transition.

Transition rule changes

Among the changes imposed by the third R&O were the following:

- Stations that have not yet terminated analog operation were required to file a legally binding notice no later than March 17 advising the commission of the specific date and time that the station intends to cease analog operations. A viewer contact number and choice of whether to participate in the analog "nightlight" program also were required.
- No station would be permitted to shut down analog operation prior to April 16, except noncommercial stations certifying financial hardship.
- Stations that have not already terminated analog service were required to file an updated Form 387 (DTV Transition Status Report) by April 16.
- The analog "nightlight" program has been extended to July 12 (i.e., 30 days after the national transition date), and any station that chose to participate must do so for at least two weeks.

Consumer education rule changes

Some of the new education measures adopted by the commission include:

- Stations that made the transition early, unless they are participating in phased transition, were allowed to discontinue consumer education announcements.
- Option 1 stations are required to continue broadcasting educational announcements at the same level that they were immediately prior to the formerly scheduled transition date.
- Option 2 stations will need to air a 60-day rather than 100-day countdown to the date that the particular station will make the transition.
- All stations must add to their current consumer education announcements information concerning: antennas and, if applicable, possible VHF/UHF change issues; the need periodically to use the rescan function on receivers or converter boxes; and the location and operating hours of walk-in DTV help centers in the market area, the FCC Call Center telephone number and TTY number, and the number the station has designated for receiving consumer calls. The new material must run at least once a day, must air in primetime at least three times a week, and must be at least 15 seconds long.
- Stations that will lose at least 2 percent of their analog Grade B population, whether or not offset by population gains elsewhere, must air service loss PSAs to describe the general area that will lose service, with these PSAs in addition to other efforts.
- Major network affiliates proposing early termination were required either to certify that 90 percent of their service area population would continue to receive analog service until June 12 or engage in substantial additional on-air and market outreach activities. These requirements appear to have succeeded in their goal of discouraging early transition, as only 31 top-four network affiliates will switch early. BE

Option 2 stations need to air a 60-day rather than 100-day countdown to the date.

Anne Goodwin Crump is senior counsel at Fletcher, Heald & Hildreth.

? Send questions and comments to: harry.martin@penton.com

Dateline

- June 1 is the deadline for TV stations in Michigan and Ohio to file their biennial ownership reports.
- June 1 is the deadline for TV stations and Class A stations in the following states and territories to place their 2009 EEO public file reports in their public files and post them on their Web sites: Arizona, Idaho, Maryland, Michigan, Nevada, New Mexico, Ohio, Utah, Virginia, Washington, D.C., West Virginia and Wyoming. LPTV stations originating programming in these states, which are not required to have public files, must post these reports on their Web sites and keep them in their station records.
- Also on June 1, TV stations (except Class A stations) in Michigan and Ohio, with five or more full-time employees, must electronically file an EEO midterm report using FCC Form 397.

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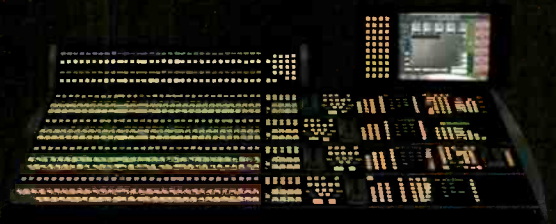

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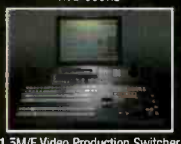
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Compression technology

Quantization and transform coding help to assuage artifacts in video.

BY ALDO CUGNINI

Earlier in this column, we looked at various artifacts introduced in the compression process, such as mosquito noise, contouring and blockiness, including basis functions. This month, we'll examine some aspects of quantization in more detail, and look at other artifacts as well.

Block coding, transforms and quantization

Quantization is the process by which continuous analog functions can be represented by a fixed-precision digital system. Typically, video is quantized to 8 bits or 10 bits per each red, green and blue pixel, and audio is quantized to 16 bits per sample per channel. Using fewer bits results in a coarser quantization and increases the visibility (or audibility) of the resulting error, called quantization noise. Figure 1 on page 22 shows an image where each pixel is quantized to 4 bits.

Quantization is carried out in various places in a typical video system, as shown in Figure 2 on page 22. Most video compression systems use transform coding, where blocks of pixels are converted into the frequency representation of the pixels. The most well-known of these transforms is the discrete cosine transform (DCT). Numerically, the DCT is an arrangement of multiplications and additions of the values of all the pixels within a (typically, eight-by-eight) block. Carrying out the DCT results in a new array of values called transform coefficients, and by employing the inverse process at the decoder, the original block of pixels can be reconstructed.

The choice of where to perform the largest quantization will have a huge effect on the perception of artifacts. While the 4-bit linear quantization of pixels would cause noticeable contouring in an image, carrying out the same level of quantization on the transform coefficients would have a much smaller effect on the image. (See Figure 3 on page 22.) This is because the quantization error of the DCT coefficients will spread the quantization noise over the entire block, avoiding the contouring problem. Of course, at a certain level of quantization, a large enough error in the DC coefficient — which represents the average intensity of the entire block — will cause the edges of the block to mismatch the surrounding blocks, causing "blocking" artifacts in the image.

However, good encoders will attempt to minimize these mismatches by taking neighboring blocks into consideration and avoiding large discontinuities. Blockiness also results from motion compensation, often causing output blocks to be reconstructed from other parts of the picture, with different detail; although the motion vectors are chosen so as to minimize the absolute error, local differences will always occur at the block boundaries.

In MPEG-4/AVC, a deblocking filter is employed in both the encoder and decoder to decrease blockiness. The filter can be disabled, if desired, because it comes at the expense of additional computational processing in both the encoder and decoder. (In theory, a simplified, noncompliant system could thus be deployed, if it were guaranteed that the transmission would never enable this filter.) The filter is within the encoder prediction loop, so, when used properly, it removes the hard edge of a quantized block while not affecting picture details. The threshold of the deblocking can be adjusted in the encoder, and this setting has different effects depending on video content; some studies suggest that the choice of

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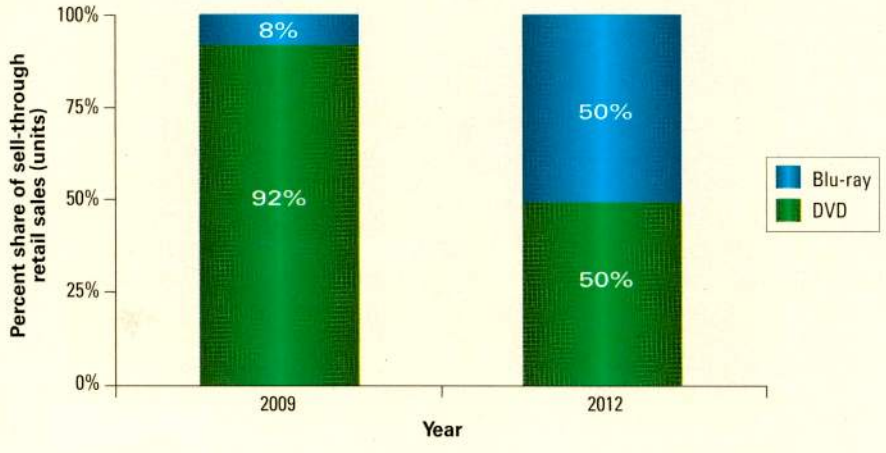

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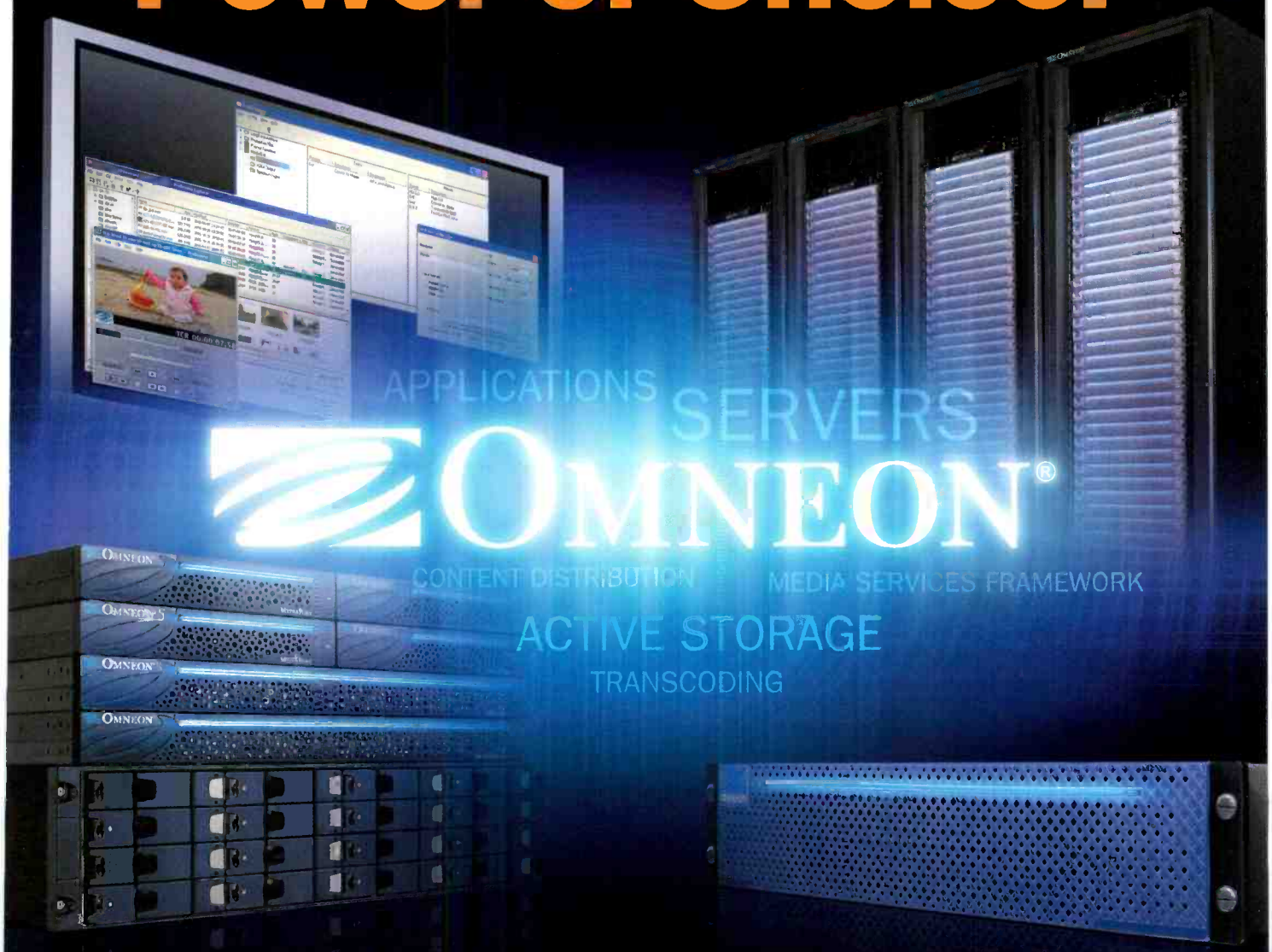

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Figure 1. Image with 4-bit/pixel quantization

filter parameter is less important with video containing high motion.

Motion artifacts, dirty windows and frozen faces

Another unsightly artifact is the so-called "dirty window" effect, where granules of noise appear to remain stationary, while real objects move beneath them, as if seen through a dirty window. In this case, the encoder may not be allocating enough bits to code the residual (prediction) error in the P (predictive) and B (bidirectionally predictive) pictures, so the error will persist in the decoded image until the next I (intra) reference frame is encountered. "Wavy noise" is a similar artifact that is often seen during slow pans across highly detailed objects, such as people in a crowd. Here, the coarsely quantized high-frequency DCT coefficients cause reconstruction errors to move spatially as details shift within the blocks.

An accurate rendition of moving images requires a sufficient bit allocation for both residual data and motion vectors (the elements used to predict the static and moving areas of an image, respectively). If motion vectors are well coded, but not the residuals, we would expect to see objects moving properly, but perhaps with more quantization noise, especially around edges. However, if not enough bits are allocated to motion vectors, and the residuals can't make up for the deficiency, then a "frozen face" artifact could occur, where parts of an object (such as a face) start to move, but the coded image fails to keep up with the motion, making certain parts of the

Figure 3. Previous image with 4-bit/transform-coefficient quantization

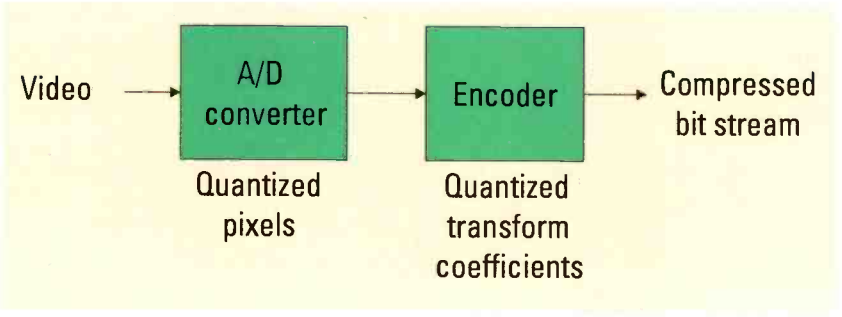
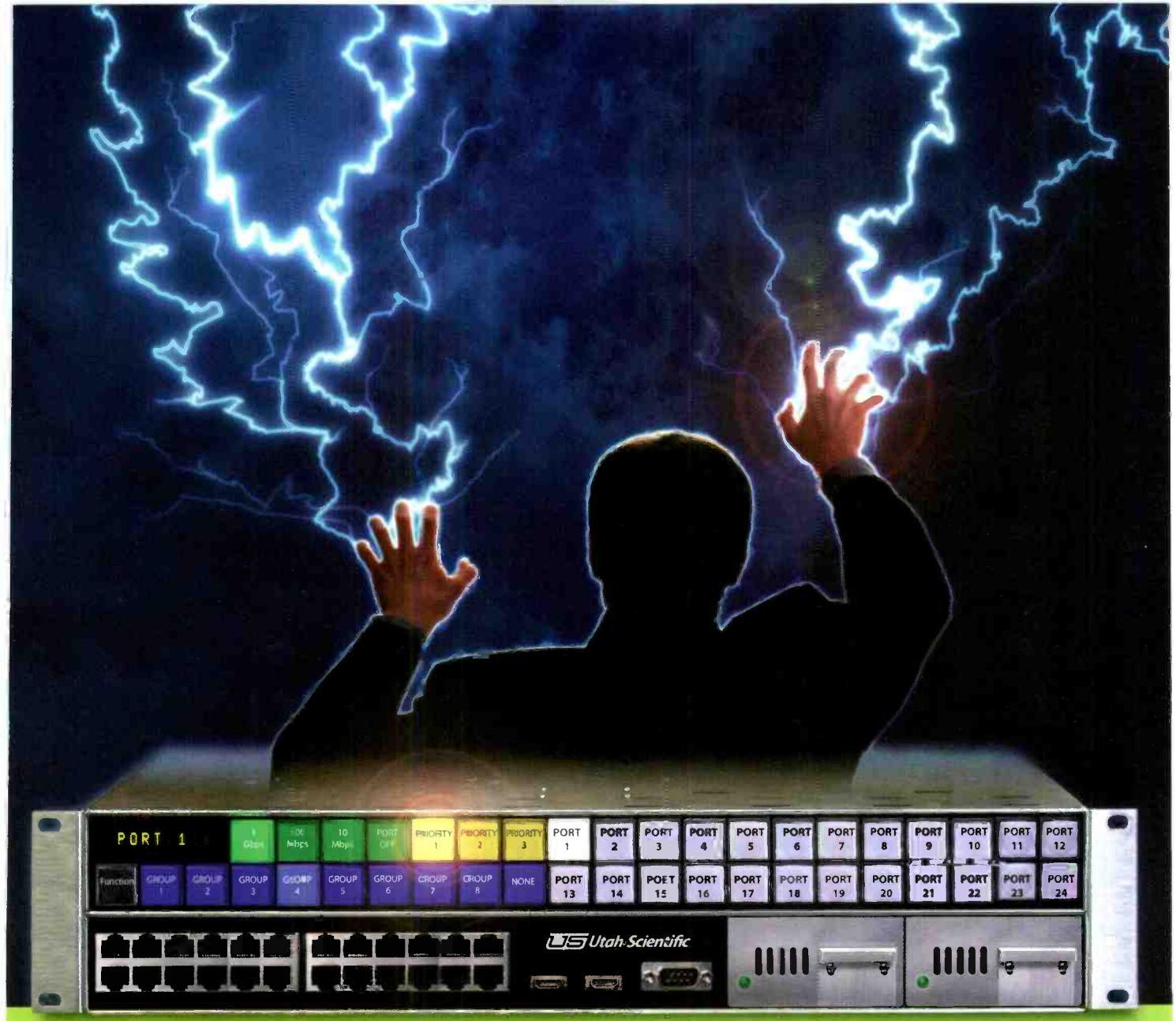


Figure 2. Quantization at various encoding stages

object appear "stuck" at a previous position. Again, this should correct itself at the next I picture. In the limiting case, if the encoder sets the threshold very high for the "skip macroblock" instruction (i.e., no MV and no residual are transmitted), or there are simply not enough bits to code the macroblock, then the frozen face artifact can occur when the local object motion is small enough that it does not exceed



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the threshold of the bit allocation budget. We should note that all of these artifacts are exacerbated when the group of pictures — the number of pictures between I frames — is large, because the errors will persist for a long time.

Transcoding

It is often necessary to convert video from one compression system to another, to convert bit rate or resolution within the same compression system, or both. For instance, when broadcast transmissions are carried on cable and satellite systems, the service operator may be taking a pre-encoded feed from the broadcaster. Rather than decode and encode, a higher-quality conversion can be achieved using transcoding. When transcoding an MPEG-2 stream to an MPEG-4 stream, the processor can use the motion vectors already derived in the MPEG-2 encoding as a starting point for generating the new motion vectors. To achieve higher efficiency, the new output processor can additionally use the enhanced toolkit offered by that compression scheme. Care needs to be taken when either of the compression systems runs at a low bit rate, because artifacts in the upstream video may become worsened by the subsequent transcoding.

Repurposing content from fixed broadcast to mobile receivers will also often require transcoding and bit rate reduction, so similar considerations apply — but viewing on small screens can render many artifacts less visible. An alternative to parallel coding or transcoding content is to code content in a scalable fashion, so simply dropping portions of the coded stream can yield versions of different qualities or resolutions. While possibly streamlining the production process, this approach works best when the same codec type (e.g., MPEG-4) is used for both decoders. However, when transmission systems multiplex different codec types, simple hierarchical coding is not possible.

Of course, archiving multiple versions of compressed video has storage implications; an alternative is to store only one compressed version and to play out the necessary compressed version(s) with transcoding done in real time. This will require a lot of faith that the end product can be transmitted without any intervening production inspection. However, the sophistication and quality of transcoders may already be at that point — a needed factor given the explosion of various forms of content distribution. BE

Aldo Cugnini is a consultant in the digital television industry.

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Network addressing

Use this template to start designing your own network.

BY BRAD GILMER

Network addressing is fundamental to all networked professional video facilities, so it is important to have a solid understanding of how it works. There are two distinct environments — the local area network (LAN) and the wide area network (WAN).

Understanding LAN

By definition, the LAN environment is a private network. Internet Engineering Task Force (IETF) RFC 1918 establishes guidelines that should be followed when assigning addresses in private networks. RFC 1918 describes three categories of hosts or computers connected to a network.

Category 1 hosts talk to other computers on the LAN. They do not need to access the Internet for any reason. These devices need IP addresses that are unambiguous within their organization, but they do not need to worry about these IP addresses being duplicated in another organization. An example of hosts in this category are the scanners and cash registers in a supermarket. These devices talk to each other, but there is no reason for them to be visible outside the store.

Category 2 hosts may need access to a limited set of outside services such as e-mail, the Web and FTP. As with Category 1 hosts, these hosts need unambiguous LAN addresses, but the addresses may be duplicated inside another organization. These hosts include the average desktop computer or workstation in your facility.

Category 3 hosts need network layer access outside the organization, and they need globally unambiguous IP addresses. When you think of these hosts, think of FTP servers, Web servers, firewall routers and other computers that need direct WAN access.

When it comes to Category 1 and Category 2 hosts, they should be assigned private IP addresses from Figure 1 based upon the recommendations in RFC 1918. The fundamental concept established in RFC 1918 is that hosts in these ranges are not uniquely identified on the Internet. In fact, a single IP address in this range will be in use by hundreds, perhaps hundreds of thousands, of computers at the same time. For this reason, RFC 1918 says that private IP addresses are not routable on the Internet. Packets containing these addresses will be dropped at the first WAN router.

Private IP addresses exist because public IP address space is limited; there are only 4,294,967,296 or 2^{32} unique IP addresses available (using IPv4 addressing). There is no reason to assign a globally unique IP address to a supermarket scanner when it never needs to talk to another computer outside the store.

A private network template

In many cases, you will be working with private networks that have already been designed. But what if you are given the task of setting up a private network from scratch? I offer the following as a template to start your network design. Let's assume that you are designing a network with the following requirements:

10.0.0.0 to 10.255.255.255
172.16.0.0 to 172.31.255.255
192.168.0.0 to 192.168.255.255

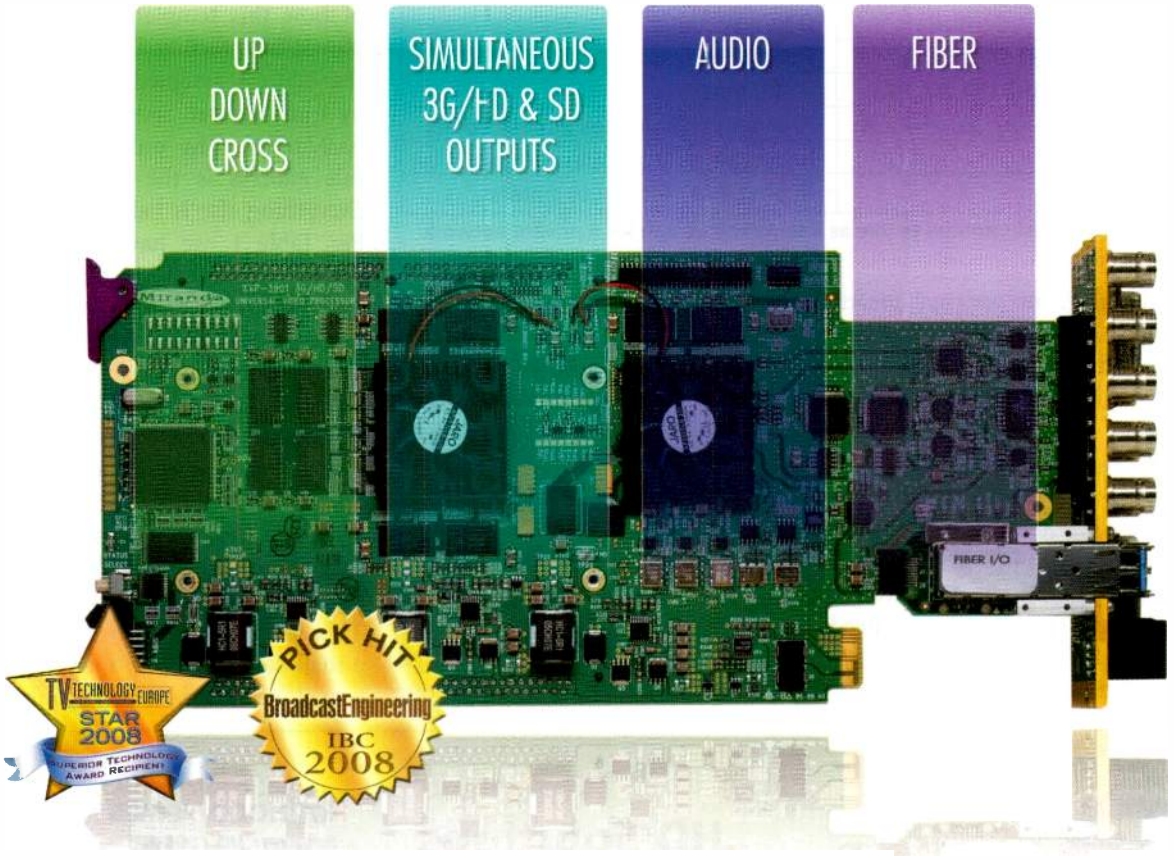
Figure 1. Assign private IP addresses from the range listed in this table in accordance with IETF RFC 1918.

- allow controlled access to the Internet for desktops on the private network for FTP, e-mail and Web;
- support a mix of FTP servers, Web servers and other devices that need to be exposed to the Internet;
- allow LAN hosts to access print servers, photocopier servers and other high-quality imaging devices but do not expose these to the Internet;
- support LAN file and database servers for use within the organization;
- support visiting clients who may have laptops, which they need to connect to the network to access LAN and Internet services via DHCP; and
- provide wireless connectivity via wireless access points.

With this as a starting point, it's time to make a few decisions. First, choose a network address from the 192.168.0.0 through 192.168.255.255 range. For this example, we'll choose 192.168.254.0. IP addresses can be assigned randomly anywhere in the address range from 192.168.254.0 through 192.168.254.255. However, two addresses are reserved. 192.168.254.0 is not available because it refers to the network itself. 192.168.254.255 is unavailable because the highest host address on any network is reserved as a broadcast address. Protocols use this address when they need to send broadcast messages to all hosts on the LAN.

Because computers on this network will be able to access the Internet, we need to pick an address for our firewall/router/gateway. This all-in-one device sits between the LAN and the WAN, allowing LAN devices to access the Internet. Let's put it at 192.168.254.1.

In my February article, I mentioned that the last two addresses on a network — .254 and .255 — were reserved. This is not true. The .255 address is reserved for broadcast traffic as described above. Some network designers put gateway devices at .254, so I try to avoid this address in a network that I did not design myself. But an address ending in .254 is perfectly



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192.168.254.1	Gateway router
192.168.254.2-192.168.254.32	Fixed IP addresses
192.168.254.33-192.168.254.223	DHCP pool
192.168.254.224-192.168.254.254	Print servers/wireless access points
192.168.254.255	Reserved — broadcast address
255.255.255.0	Subnet mask for all computers

Table 1. Address assignments to use as a template design for a private network

valid. However, my personal preference is to put my gateway device at the first valid address on the network.

This leaves the addresses from 192.168.254.2 through 192.168.254.254 inclusive available for other computers. While we could just start at .2 and begin assigning addresses at random, I prefer a little more organization to my network addressing schemes. Given that we need to support both assigned IP addresses and DHCP automatically assigned addresses, I like to put the pool of fixed addresses low in the network and use them for servers and other devices that need hard-assigned addresses on the LAN. Let's use 192.168.254.1 through 192.168.254.32 for this purpose. Then establish a DHCP pool from 192.168.254.33 through 192.168.254.223. Finally, assign print devices and wireless access points to fixed IP addresses in the range from 192.168.254.224 through 192.168.254.254. Table 1 shows our final network assignments.

Figure 2 shows a concrete example of how this template could be deployed in a facility. In this example, the address assigned to the facility by our Internet Service Provider is 63.224.5.91. The only device using this address is the firewall router. Everything else is behind the router. Per Table 1, we have assigned the firewall router a LAN IP address of 192.168.254.1. Several servers require fixed IP addresses on our WAN. These include two Web servers, an e-mail server and an FTP server. We have grouped these servers together and left space for additional growth. For example, 192.168.254.2 was assigned to the first e-mail server. We have left a gap and added two Web servers at 192.168.254.11 and .12. This leaves room after the existing e-mail server address for additional e-mail servers as the organization

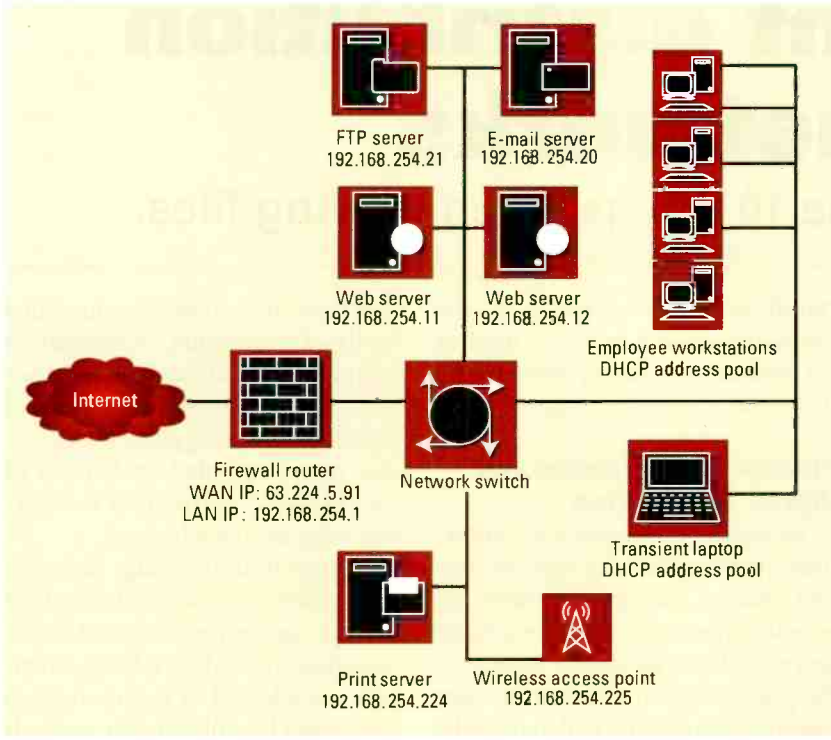

Figure 2. An example of how the addressing template can be used in a facility

grows. The next statically assigned IP address is assigned to our FTP server at 192.168.254.21.

In this network, all client computers and transient computers get their IP addresses using DHCP. They will be automatically assigned addresses in the range from 192.168.254.33 to .233. Finally, we have one print server and one wireless access point, which have been assigned to the static address range starting at 192.168.254.224.

This is only a template, and there are many different ways to set up your network. The important point is to have organization, and to avoid public and prohibited IP addresses. BE

Brad Gilmer is president of Gilmer & Associates, executive director of the Video Services Forum and executive director of the Advanced Media Workflow Association.

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Content distribution networks

Consider these 10 things when moving files.

BY TOM OHANIAN

The media and entertainment industry is in the midst of an enormous transition. Business models are constantly being evaluated, and new services are being offered. Large media conglomerates are implementing media 360 programs, where content is made available on multiple distribution venues (e.g. terrestrial TV, satellite, broadband, mobile, etc.) and devices. IPTV initiatives are well underway, and the worldwide movement for being connected via broadband is progressing rapidly.

Because of these new business initiatives, there is an explosion of digital content, file formats, content transformation, platform-specific packaging and the incessant need to get content to so many places in ever-decreasing amounts of time.

File-based workflows and digital distribution

To address these new and continually-changing business models, content creators and manufacturers are adopting file-based workflows. Content must be in the proper format, in the proper location, and with proper essence and metadata so that it can be appropriately consumed, regardless of the listening/viewing device being employed. In practice, the media and entertainment industry is well underway in its transition to digital file-based acquisition, manipulation (editing, etc.) and distribution strategies. An ever-increasing amount of digital files are being generated, packaged and distributed, and much of this electronic distribution is occurring using the open Internet.

Because time is a huge factor in being able to generate and distribute files, file transfer protocols and file acceleration methods are being examined and adopted. It is important to understand how file transfer methods operate and what functionality to be mindful of when researching methods to move files within a digital media distribution strategy.

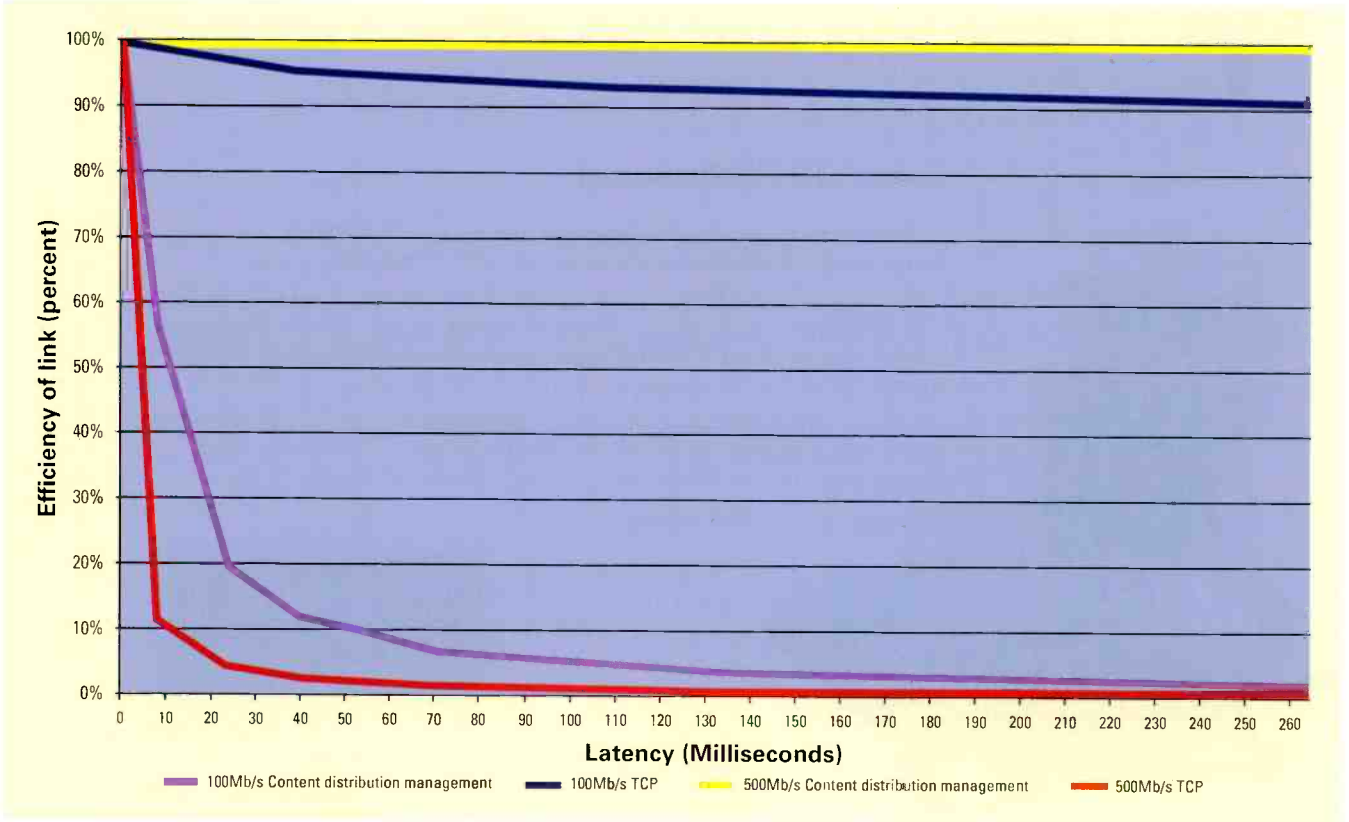

Figure 1. Comparison of bandwidth efficiency of content distribution network vs. TCP for a 40GB payload

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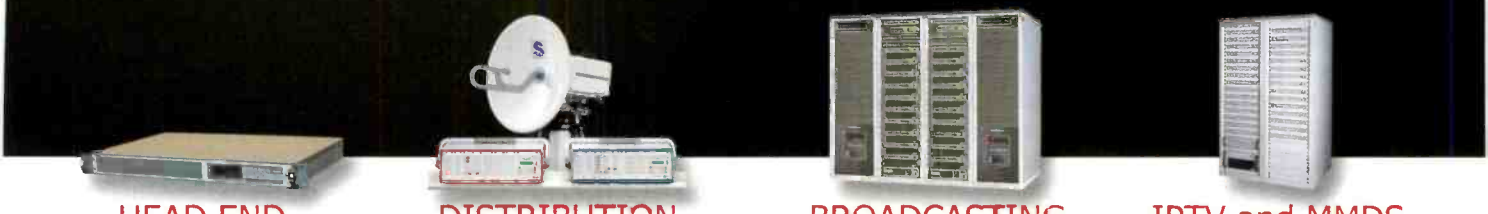

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Moving files?

Digital files, especially large digital media files like HD ones, need to move in the most efficient way possible. WAN optimization technology can help, but file acceleration alone does not solve the problem. There are many other components that should be considered.

Files must be secure, the integrity of the data has to be maintained, assets must be tracked and verified that they were sent and received, and a variety of integration points with editing, transcoding and playout systems must be supported.

With all these moving parts to think about when developing a digital media distribution strategy, the following checklist should be considered before moving forward:

• *File acceleration techniques.* There are two fundamental approaches to WAN acceleration. One technique is to minimize data via compression, and the other is to minimize round-trip delays that are caused by network latency. (See Figure 1 on page 30 and Figure 2.) With compression, users will see improvements when network capacity is relatively small. Even so, network latency is the main issue for large pipes. Further, digital media files typically do not benefit from additional data compression techniques.

There are generic data compression techniques and data-specific techniques. On the generic compression side, Huffman encoding is typically used for text files. Run-length encoding is used for data exhibiting consistent patterns. Network comparisons, or differential transfers, is another method that can reduce the amount of data needing to be sent because it first checks to see what already exists on the target side.

• *Industry standard client connectivity.* By using standard methods of connecting clients to clients, clients to server, and server to server, the benefits of IT commodity extend beyond the distribution system. Other systems and applications are able to use a standard, common interface.

• *Data confidentiality and data integrity.* Data confidentiality refers to the securing of content so that it is not at risk of being pirated or "snooped" in transit. This differs from data integrity, which refers to the verification that the actual data that is sent is identical to the data received. This is especially important for corporate governance requirements.

• *Authentication of users.* The presence of a certificate authority and proper implementation is a means of exchanging public/private key strings to ensure that senders and receivers are bona fide members of the intended distribution network.

• *Access control — specific directories, firewall ports.* Transmission control protocol (TCP) is the connection-oriented protocol built on top of Internet Protocol (IP). Each TCP stream is identified by a source and destination IP address/port pair. Firewalls filter IP traffic using port information, among other things. The firewall must interpret the FTP protocol, determine which TCP ports are being used and dynamically alter the firewall rules. Many organizations employ FTP servers in order to facilitate business-to-business transactions. There are certainly a number of issues with this — among them, the inability to resume from where a file transfer was interrupted as well as the issues related to scaling the operation to large numbers of users. Low-end firewalls and filtering routers are not designed to implement adequate controls on FTP traffic. With respect to the protocol methodology in highly latent networks, round-trip delays are often introduced, causing transfer times to increase.

Large media conglomerates are implementing media 360 programs, where content is made available on multiple distribution venues and devices.

• *Automation of basic tasks, batch processing.* Once files are being moved as efficiently as possible, it is necessary to interface and interoperate with other applications that represent the desired workflow. Files often have to be modified in some way during the creative process. Changes may involve both the essence and the metadata. File types often have to be changed, file names often have to be normalized, and individuals and groups need to be notified that new content has arrived and is available.

• *Centralized management vs. federated transfer model.* There is a fundamental difference between the two, and the choice of whether to use one or the other must be addressed prior to deciding what file transfer protocols should be implemented. In a centrally-managed model, the precise amount of bandwidth for any file transfer can be set and deterministically adjusted on the fly without affecting other transfers — forming a business-based policy prioritization. In addition, centrally

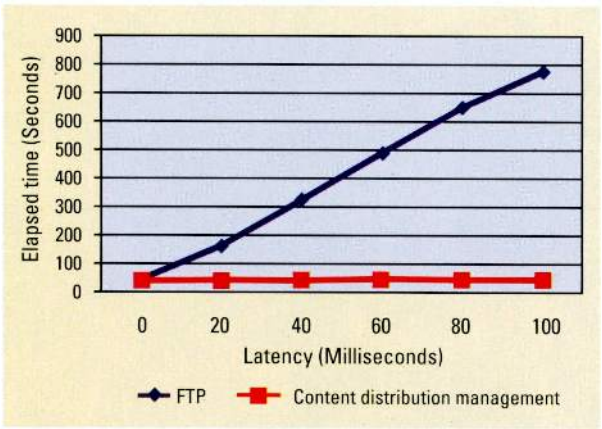

Figure 2. FTP vs. content distribution network on 100Mb/s network

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• *Auditing access logs and download patterns.* It may seem simple, but the ability to audit user access, control different levels of access and analyze download patterns may not always be available. However, these features are strongly suggested because they create a controlled environment that can be monitored and tracked clearly.

• *Cross-platform support.* There also exists a requirement to support multiple platforms and operating systems. For example, it is common to run a content creation application on Macintosh OS X, submit that content to a compositing application running on Linux, and then submit the final content to a transcoding application running on a Windows platform. These multiple platforms require that the distribution system software support multiple operating systems and platforms.

There are two fundamental approaches to WAN acceleration. One is to minimize data via compression, and the other is to minimize round-trip delays caused by latency.

• *End-to-end security.* By implementing a secure system from source to target and creating a secure network, the actual payload of the data being sent is secured in-transit. Additionally, media encryption can be introduced to encrypt the actual data bits. Through the use of a certificate authority, all data movement can be tracked as data is moved, and a "certified delivery" receipt can be generated and used for electronic affidavits of all content movement.

Conclusion

To address the needs of the media and entertainment industry, a comprehensive study of all ingest, manipulation and distribution requirements of an organization must first be undertaken. The above 10 points can be boiled down to four pillars: automate, secure, manage and accelerate. By following and addressing all the items in this checklist, files can be moved securely and more efficiently, reducing costs associated with moving digital media. This increases control over the movement of files and enhances collaborative creation of content. BE

Tom Ohanian is chief strategy officer for Signiant.

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White shading

Proper white shading is critical to ensuring high-quality images.

BY JON HAMMARSTROM

The conversion of light into electrical signals involves many processes that can affect image quality. Correct camera alignment helps minimize the impact of these variables. This article examines white shading — a vital function that is often overlooked in camera setup, or even worse, performed by an unqualified operator using less than adequate equipment.

Every camera operator should at least be familiar with basic white shading techniques. For example, overall brightness must be even across the whole image. To be sure, for studio cameras with fixed lenses and shooting in the same controlled environment, white shading will likely need to be checked less frequently than a digital filmmaker on-location changing lenses frequently. Still, these measurements should be done in a controlled environment on a regular basis.

Electronic error compensation

White shading is defined as the process of electronically compensating for errors in brightness or color, primarily generated by the optical system of the camera. A frequent problem is that the center of the image may appear brighter than the edges. This type of aberration is caused by differences within the camera's optical system components and is more commonly found within older lenses. Differences may also occur when changing from one filter to another.

The basic tools required for white shading are an HD waveform monitor and an even light source such as the diffuser panel of the DSC Ambi Illuminator. For optimum signal accuracy, it is better to use an HD-SDI output from the camera, but the process can be performed in SD.

White shading measurement

The Ambi Diffuser has a vertically adjustable light source. For maximum precision, measure the light output from the device with a luminance spot meter. Aim the meter at the center of each rectangle, and record luminance and color temperature values in each quadrant. Adjust as required until the light output in each quadrant is as even as possible.

The gain on the camera should be set to 0dB. Also, ensure that the knee and other camera gamma controls are set to off. Position the camera in front of the Ambi Diffuser panel, and zoom in to overshoot in order to use the center of the panel. Ensure the camera lens is set to manual iris mode and the zebra setting is adjusted to 95 percent. The lens aperture of the camera should be adjusted to between f4 and f5.6.

Once the setup is complete, perform a white balance of the camera, and use the light meter and waveform monitor to check that the white balance has been properly performed. The color temperature readout after white balancing should show 3200K, and it may be necessary to adjust the camera's red and blue gain settings. Slightly defocus the lens to further soften any diffusion error. In the shading menu of the camera, adjust the vertical and horizontal saw to 50. The vertical and horizontal pars should be set to zero as a baseline.

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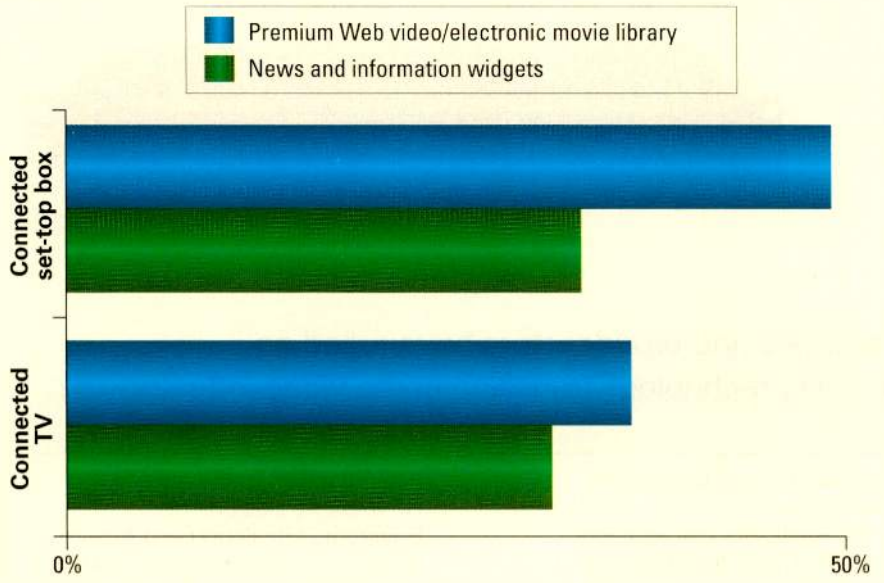

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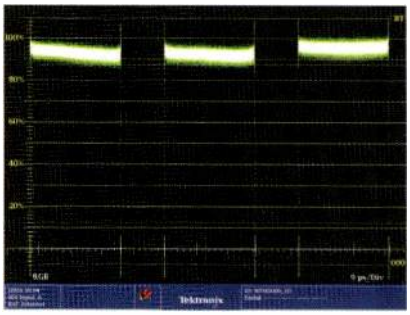

Figure 1. RGB display on a waveform monitor

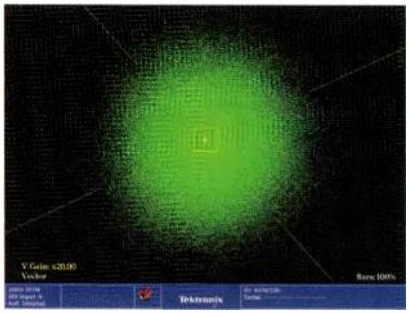

Figure 2. Vector 20X gain of correctly adjusted white-shaded camera

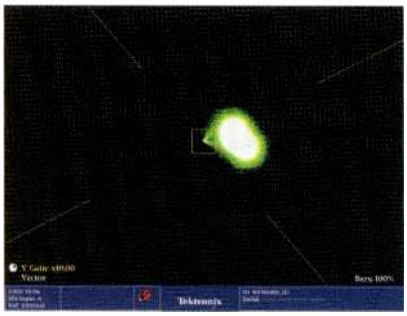

Figure 3. Vector display with incorrectly adjusted output from the camera

Select the monitor mode on the waveform monitor. On the camera, adjust the white shading settings in the following order: green, red and blue. Initially, view just the green channel on the waveform monitor by turning off the other two channels while viewing the RGB display (see Figure 1) and adjusting the H and V saw so that the trace is a flat as possible. Then make adjustments of the H and V par so that the green trace is as flat as possible. Repeat the adjustment process for the red channel and then the blue channel, with each channel showing individually on the display. Once these adjustments are complete, switch to a vector display on the waveform monitor, and adjust the gain to maximum. At this point, a small circular trace should be visible directly in the center of the display. (See Figure 2.)

On some cameras, it's not possible to adjust RGB shading parameters individually, and an absolute master control is used. In this case, use just the vectorscope display in maximum gains, and adjust the master control until a circular trace is displayed. An oval shape, as shown in Figure 3, indicates that the shading is incorrect. Deviation from the center of the vector display indicates a color cast to the image; the type of hue depends on the angle of the deviation.

Once these adjustments have been completed, store the setup as a new lens file preset. The above procedure can be repeated with different lenses and filter configurations and saved.

The waveform monitor's diamond display can be used to aid in the adjustment of white balance and camera shading. The diamond display processes the signal in the RGB color space just like the input processing of the camera. When the value of R, G and B are equal, a gray value for the signal is produced. A resulting gray scale camera chart or evenly illuminated white field will therefore produce a vertical line in both the upper and lower diamonds if the camera is correctly aligned. (See Figure 4.) Any deviation can easily be seen with the diamond display.

Conclusion

There are many ways in which a

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camera can be erroneously white shaded, just as there are as many ways to incorrectly white balance a camera. White balancing to a piece of paper that has blue spectral tones or uneven lighting is one problem. The same can be said for white shading. The characteristics of the saws and pars in each RGB channel require a perfectly illuminated surface, and any fluctuations in evenness may cause geometric distortions.

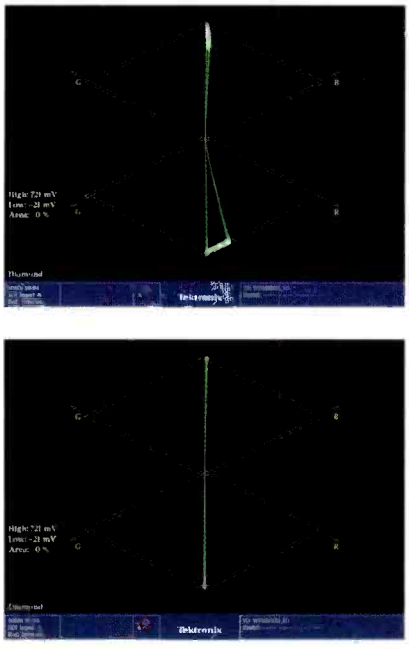
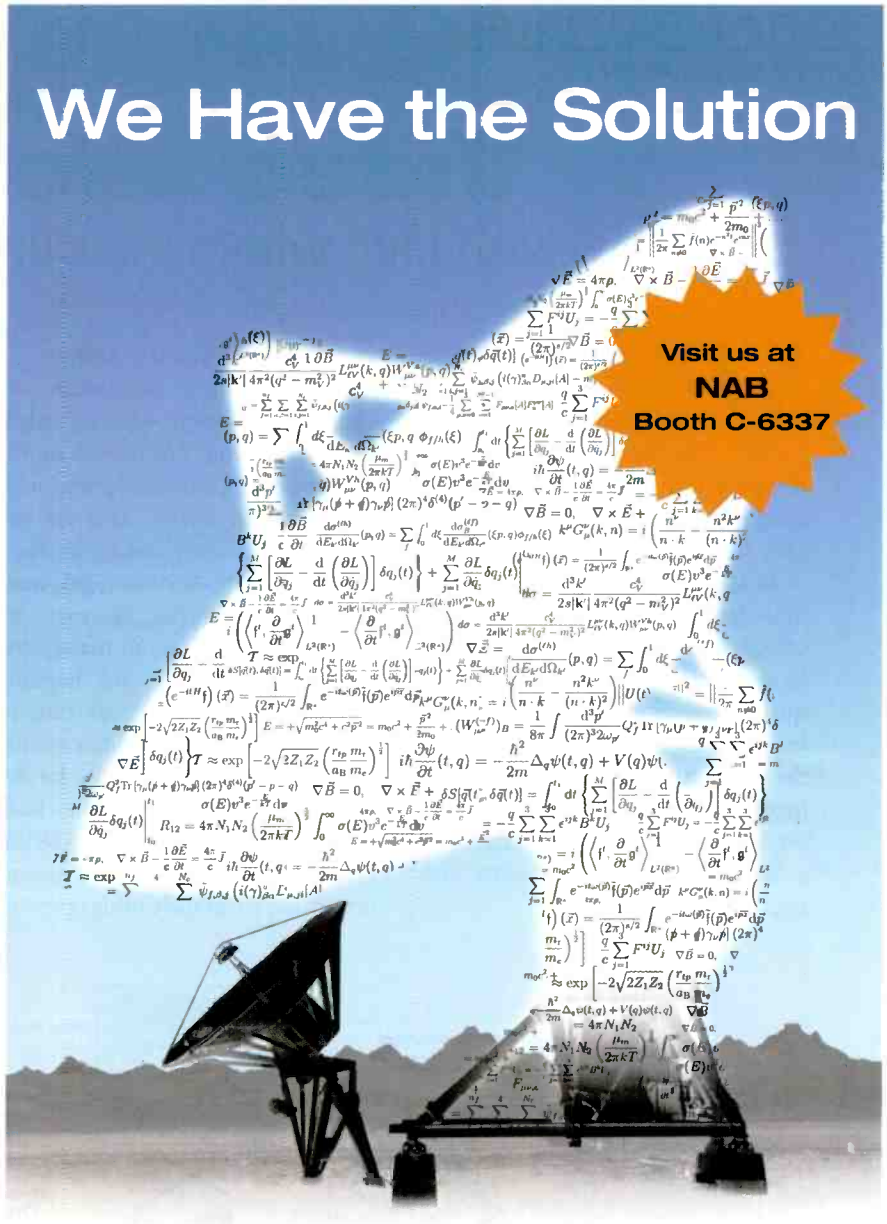


Figure 4. Diamond display with an incorrectly (top) and correctly (bottom) white-balanced camera

By using these techniques to shade and align the camera, and becoming familiar with the correct use of the Ambi Illuminator and waveform monitors, operators can ensure that the image captured by each camera has proper white shading and image quality. The user should also monitor the output of these images from the camera with waveform monitors to ensure that the camera is producing the correct video levels, is properly color aligned and matched to other cameras. BE

Jon P. Hammarstrom is the senior manager of global marketing, video, for Tektronix.



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Video over IP

Using low-res video within a facility can save on costs.

ERIC J. PIARD, PH.D.

Video over IP conjures up thoughts of bringing high-resolution video content to the home over the Internet. Bringing this content to viewers is a good thing for broadcasters, but video over IP within the broadcast facility — in a low-resolution format — is another benefit that broadcasters can leverage. Many broadcast functions can be accomplished using non-broadcast-quality, low-res video within a dynamic IT system, compared with doing the same functions using broadcast-quality, high-res video within a static broadcast infrastructure. Here are some things to consider before making the transition.

The availability of low-res video content, associated with an original high-res version, can benefit multiple departments within, and even outside, the broadcast facility. Low-res video is becoming more common in the newsroom, production and master control departments; however, areas such as traffic, program management and promotions are just beginning to realize the value. Certain functions that required access to video monitors or tape machines can now be done in less technical areas of the facility where a ubiquitous IP LAN/WAN connection suffices. For example, certain approval and timing operations moves to a file-based workflow.

Streams are typically used for monitoring purposes. For example, an off-air signal for one or more channels (one's own or even competitors') may be monitored remotely using a low-bit rate capture, which can be easily displayed at multiple locations within the broadcast facility on standard desktop computers. Alarms can also be sent to relevant personnel or other software components when certain conditions in the stream are detected (e.g., bad or no video and audio). This same stream, additionally, can be recorded for logging purposes to meet certain FCC requirements or not, correspondingly resulting in files (proxies) or in video streams.

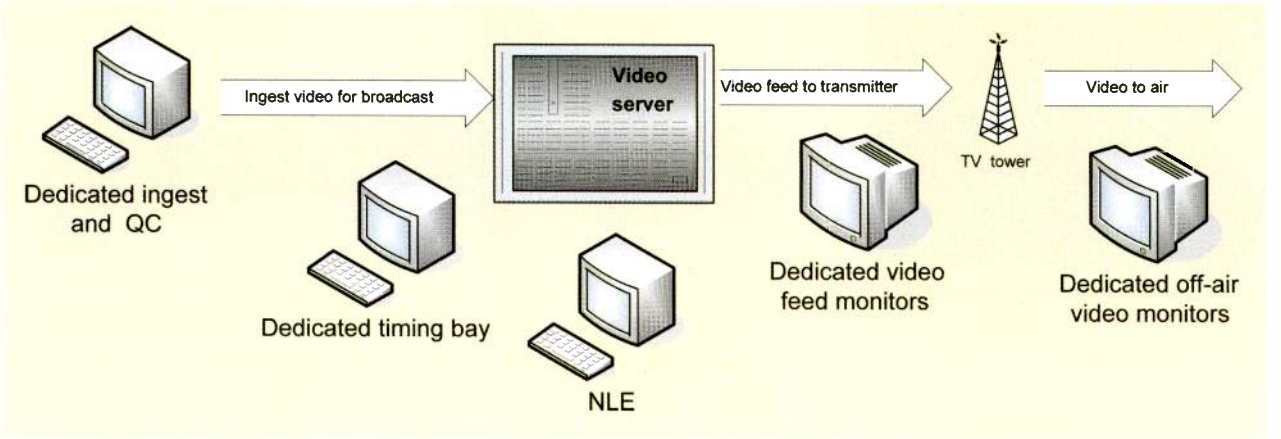

Figure 1. Dedicated, hardwired equipment is expensive, restricts workflows and requires people to work where the video is available.

Low-res video

Until recently, broadcast operators would handle all video content within the broadcast facility in high-res format. This has worked fine but requires a substantial hardware investment and dedicated facilities to transport video for viewing and editing. (See Figure 1.) The ability to do a significant number of broadcast functions using low-bit rate video solutions over IP networks introduces some interesting possibilities to the broadcaster, especially as the industry (where durations, start and end time code positions are captured) can now be performed within the traffic department instead of the master control/ingest areas. (See Figure 2 on page 42.)

High-res video sources such as baseband (tape, live signal, etc.) and file-based (commercial and program electronic delivery systems) can be captured using current acquisition methods before converting to low-res format. The low-res content, depending on the input source, can either be persisted or to provide to third parties, replacing expensive and cumbersome tape recording logging systems. Look for solutions that will not overload the network and will scale easily if the number of channels or monitoring stations increases over time.

Low-res proxies

Low-bit rate proxies can be created from baseband video via real-time encoders, in parallel to the high-res ingest ordinarily performed. They can also be produced from existing high-

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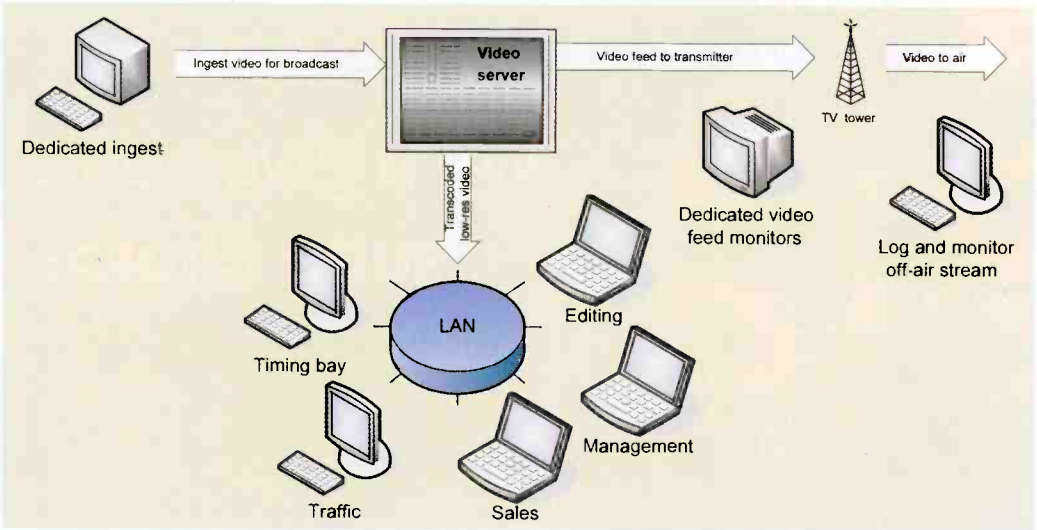

Figure 2. Existing LAN systems can be used to view and time video from any networked PC. Tasks can be redistributed to create fluid, streamlined workflows. Consider the simple task of a sales person who needs to view a spot. Often, it involves traffic and a trip to master control to view the video.

res video files on broadcast video servers via a transcoding operation, potentially faster than real time. High-res files may be the result of prior standard baseband ingests, but may also appear directly on a video server because commercial, syndicated and in-house content are increasingly acquired electronically, compared with tape. This proxy generation can be provided by the video server itself, in some cases, or by third-party tools, integrated with other solutions in use within the broadcast facility, such as automation and digital asset management systems.

Access to proxies has various applications, from simple browsing to more complex timing and editing functions. Browsing for the purpose of easily recognizing the original content merely requires a relatively low-res proxy, whereas browsing as part of a QC approval step may require a high-res proxy. The format of these browsing proxies can

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be varied, so standard players, such as Windows Media or QuickTime, can be used. Some browsing functions may require that ancillary data of the source content is also captured — for example, closed-captioning or subtitling data whose existence may need to be verified or potentially extracted as metadata to facilitate future content searches.

Timing and editing

Timing and editing functions, however, require a decent resolution, the guarantee of a 1:1 frame correspondence to the original high-res copy and the ability to identify the time code of each of these frames. For example, timing operations may need to capture accurate SOM and EOM time codes that will be used later for playback to air. An operator may use a proxy to create closed-captioning data files indexed by the time codes of the frames that will trigger display of the closed-captioning. Or an editor may use the proxy of some raw footage to create a new piece of content, which via an edit decision list will allow a nonlinear editor application, acting on the high-res original copy, to frame-accurately produce a broadcast-ready copy of this new asset.

Other features

Audio also needs to be captured accurately, staying in sync with the video in the original, not just to understand what is said, but, as is necessary in the closed-captioning example, to make sure the captions will appear at the appropriate time. Another useful feature to look for in the capture tool is access to the proxy before the capture is completed. This allows some of those aforementioned functions to be performed nearly as soon as the capture begins — clearly a more efficient process.

The transcoding method of generating proxies results in multiple versions, so the video content can be repurposed to platforms where low-bit rate formats are commonly used, such as the Web, mobile devices and smartphones, which are potential new revenue streams for broadcasters.

Working effectively and realizing efficient workflows across departments in this low-bit rate world requires proper asset management and handling of associated metadata, facilitating rapid and easy access to the video content. Therefore, broadcasters can see increased cost savings, as well as improvements in their workflows, by transferring a significant portion of their usual daily broadcast video processes to the corresponding low-res world. BE

Eric J. Piard, Ph.D., is VP of research and development at Florical Systems.

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Equipped with five bidirectional optical fiber ports that use non-blocking architecture; each port can connect up to 1024 channels; features control system based on TCP/IP architecture; allows 1024 x 1024 audio channel subrouters to be interconnected.

+34 916 861 300; www.aeq.es
Booth: N5429

COLOR DISPLAY DESKTOP PANEL

RTS DKP 16 CLD

Controlled using a full-color graphic interface; features a USB port, two user-programmable buttons, one-touch listen volume adjustment and a backlit keypad.

877-863-4169
www.rtsintercoms.com
Booth: C7025

PROMO PLAYBACK

VDS Promotor

Application suite provides automatic playback of graphics and audio promos; managed by the VDS Cortex; consists of the Promotor Control Engine (which provides quality control functions and authoring funchings where rules are applied as well as device triggering), a tightly integrated interface to the station automation that receives the playlist and timing information, the Promotor Graphics Device Engine (which provides control of the on-air graphics device for graphics generation), and the Promotor Audio Engine (which triggers all audio promos).

631-249-4399
www.videodesignsoftware.com
Booth: SL4528

SERVICE ASSURANCE TOOL

Pixelmetrix Electronic Couch Potato

Measures and reports end users' experience for delivered video services; integral elements include telemetry and fault information from multiple points along the transmission chain, as well as consolidation of that information to one or more points of central control and observation; features telepresence, which allows remote monitoring of the audio and video output of the STB.

954-472-5445
www.pixelmetrix.com
Booth: SU6007

MECHANICAL DUAL-CONCENTRIC ENCODER

Elma Electronic Type E37

Features a dual-concentric inner shaft and outer pole, enabling it to act as two encoders; comes with or without an integrated push button and with 16 or 32 detents in standard resolution; has a rotational life of 1 million revolutions; features an optional IP68 front-panel sealing, an operational temperature range of -40 degrees to 85 degrees Celsius, gold-plated contacts and a robust metal housing with metal shaft.

510-656-3400; www.elma.com
Booth: N3500

CONTROLLER

Eyeheight eyeCon

Allows PC-based control of any module in the Eyeheight FB-9E intelligent chassis; integral diagnostics provide instant assurance that the module under interrogation is fully operational; if an error is detected, holding the cursor over the red status light reveals information such as loss of source video; the Ethernet interface allows device communication and control via intranet or Internet, giving the ability to check a compatible Eyeheight product anywhere in the world via TCP/IP link.

+44 20 82 552 015
www.eyeheight.com
Booth: SL7409

WHEREVER THERE'S SPORTS

calrec.com

CALREC AUDIO IS THE BIG PLAYER

There's no more demanding environment than mobile television, so it's not surprising that demanding production companies, coast-to-coast, choose Calrec consoles time after time.

Whatever the competition, Calrec are runaway leaders in the sports field. We're in action at every Major League NFL game and there are more Calrec consoles in HD remote trucks in the US than any other make.

From auto racing to athletics, baseball to basketball, ice hockey, football and soccer...we've got it covered. And, thanks to our award-winning Bluefin HDSP, it's all in glorious, 5.1 surround sound.

If you share our passion for sports, find out more at **calrec.com**

CALREC

Putting Sound in the Picture

Brown indicates advertisers

MULTIFORMAT RECORDER
Doremi Labs V1-UHD

Provides instant access to video, uncompressed recording and networkable operation; the 3RU unit is available with fixed or hot-swappable internal drives; for feature-length recording, it is provided with an external video storage chassis; records HD-SDI and SD-SDI video; features frame-accurate control via RS-422.

818-562-1101
www.doremilabs.com
Booth: SU5021

KVM SWITCHES
Apantac MD HOOD

Dual-interfaced switches allow user to control up to eight or 16 computers simultaneously; each input can be assigned a user name and password for enhanced security; built-in Cat X extender enables the control console to be placed up to 650ft away from the computer's CPU.

503-616-3711; www.apantac.com
Booth: SL13013

SD WIRELESS CAMERA TRANSMITTER
Link Research L1360

Operates in various frequencies including 2.05-2.45GHz, 2.4-2.7GHz and 1.85-2.15GHz, among others; supports PAL, NTSC and SDI video as well as one stereo pair of line/mic level audio; powered by 12V; features DVB-T QPSK, 16QAM and 64QAM support.

+44 1923 474060
www.linkres.co.uk
Booth: C2107

MODULAR I/O RACK
Solid State Logic B-RIO

Features 7RU chassis with dual PSUs standard, integrated 24 GPI card, integrated MADI x 4, five audio card expansion slots for mic, line and AES card options, single-sided access and support for n+1 redundant MADI links.

+44 1865 842300
www.solidstatelogic.com
Booth: N4031

CHARACTER GENERATOR
Compix Media CYNERGY HD

Provides broadcast-quality, dual-channel HD CG for the broadcast, sports, professional, educational and government markets; capable of simultaneously outputting graphics in either SD-SDI or HD-SDI; brands multiple video streams with different overlay material from a single chassis and one easy-to-use interface.

800-589-2555
www.compixmedia.com
Booth: SL5105, SL4805

CLIP PLAYER
Echolab MegaKeyMD

Serves as a storage device for animated graphics and video clips; features playback of two channels of dynamic video that can be either HD or SD; allows the two channels to be controlled together for synchronous fill-and-key output or controlled independently; offers full integration with Echolab's Overture switcher series to support complex animated transitions through the switchers' Stinger feature.

978-715-1020; www.echolab.com
Booth: SU2302

PORTABLE HEADPHONE AMPLIFIER
JK Audio RemoteAmp Three

Provides a listen-only connection for IFB or full-bandwidth audio monitoring; XLR line-level input accepts either a balanced mono signal or a one- or two-channel party-line intercom feed (listen only); the XLR source switch selects between balanced input and intercom monitoring; an integrated speaker is disabled when headphones or earphones are connected.

815-786-2929; www.jkaudio.com
Booth: N2125

WIRELESS MICROPHONE SYSTEMS
Azden 325ULT series

Dual-channel UHF camera-mount wireless systems; feature 188 user-selectable frequencies displayed on an LCD screen so users can always find a free channel; consists of the 325UPR dual-channel on-camera receiver, the 35BT belt-pack transmitter, the 35HT handheld microphone/transmitter and the 35XT plug-in transmitter; the 325ULT comes with two 35BT/EX-503L body-pack mics along with the 325UPR receiver, packed in a carry case.

516-328-7500; www.azdencorp.com
Booth: N2614

DTV TRANSMITTERS
Harris Maxiva

A range of compact, efficient liquid-cooled (high-power) and air-cooled (low-power) UHF transmitters; the company's MPH platform can be installed inside Maxiva and other DTV transmitters to create a compact, multiplatform transmission solution, delivering DTV, HDTV and mobile DTV services together in the same slice of bandwidth.

800-442-7747
www.broadcast.harris.com
Booth: N2502

ENCODER
ViewCast Niagara 7500

Features a touch control interface with contextual menus that streamline and simplify operation; features SD- and HD-SDI video inputs, balanced/unbalanced analog and AES/EBU digital audio, and eight stereo pairs of embedded SDI audio inputs; users can switch on the fly between incoming SD and HD video and stream in multiple bit rates and resolutions simultaneously in Microsoft VC-1, Silverlight and H.264 Flash Live.

800-540-4119; www.viewcast.com
Booth: SL12415

pro-bel.com
snellwilcox.com

pro·bel

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ANNOUNCING THE MERGER OF PRO-BEL AND SNELL & WILCOX

Two market leading, innovative companies, Pro-Bel and Snell & Wilcox, are coming together to create a new company to better serve your needs.

The combination of Pro-Bel and Snell & Wilcox brings together a strong history of innovation and groundbreaking technical achievements including a significant portfolio of intellectual property in image processing and content management. This includes routing, switching, conversion, media management, modular infrastructure, control & monitoring, automation and file-based workflows.

See us at NAB, booth: SU1917

Brown indicates advertisers

ENCODER
ATEME Kyrion 2101

HD MPEG-4/AVC encoder targets a broad range of DTV applications; features a large operating scale, from 0.5Mb/s to 25Mb/s, with advanced Main and High Profile encoding, allowing bouquet aggregators, broadcasters and IPTV service operators to reach their audience with a high picture quality; offers a complete set of MPEG-4/AVC tools including full support of interlaced video (MBAFF).

+33 1 69 35 89 89; www.ateme.com

Booth: SU6326

X/Y STEREO FIELD RECORDING MIC
Audio-Technica BP4025

Designed for broadcast and professional recording; stereo condenser offers large-diaphragm capsules in an innovative coincident capsule configuration; allows for a smaller housing while producing an X/Y stereo image with the spatial impact and realism of a live sound field.

330-686-2600
www.audio-technica.com

Booth: N2121

DIGITAL TUNER
Aurora Multimedia V-Tune Pro HD

Designed for any integrated system, including for legacy NTSC tuning or ATSC/QAM capability; is LAN-addressable, IPTV-ready and capable of decoding MPEG-2, MPEG-4 and H.264; features intuitive RS-232 command sets for reliable two-way communication via traditional control systems, in addition to IP-based control for networked arrays.

732-591-5800
www.auroramultimedia.com

Booth: SL6424

WIRELESS RECORDING SYSTEM
Zaxcom TRX992

Environmentally friendly wireless audio transceiver designed specifically for boom pole and sports applications; performs the functions of an audio transmitter, monitor return receiver, backup recorder and phantom power supply in a single unit; a 100 percent digital transmission system optimized for boom mic operators working on motion picture and TV production; transceiver features internal recording, which backs up all transmissions to guard against lost audio files.

973-835-5000; www.zaxcom.com

Booth: N3114

NEAR-LIVE EDITING TOOL
EVS CleanEdit-XT[2]

Combines key features of CleanEdit timeline editor with XT[2] production server; supports program editing and highlights production for any near-live environment; covers all SD/HD workflow requirements from ingest to playout with advanced live editing tools.

973-575-7811; www.evs.tv

Booth: C9508

CAMERA MONITOR
Autoscript Miniscript 5.6

A 1lb, 5.6in flat-screen portable on-camera monitor; includes connections for composite BNC and Hirose power inputs; has all of the standard functions of the company's larger displays; delivers a "live" feel that provides an intimacy between presenters and their audiences, increases creative options for producers and draws viewers into the action.

203-338 8356; www.autoscript.tv

Booth: C6026

WORKSTATION MANAGEMENT
Avocent HMX Manager

Provides ease of workstation maintenance, management and access in a secure environment; provides centralized management and control of HMX 1050 extender transmitters and receivers; offers full logging of all system access, including user login, login status and connection times; includes Web-based management.

866-277-1924; www.avocent.com

Booth: SL13616

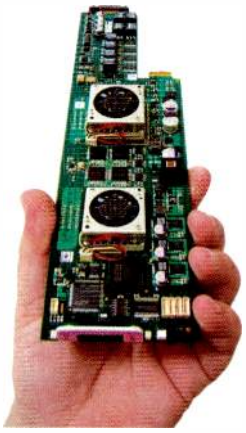
SD/HD AUTOMATION SYSTEM
Axel Technology

Features simultaneous playout of any media format — including DV, HDV, MPEG-2, DVD and MPEG-4 — as well as capture, trimming and scheduling; provides direct control of VCRs, routing switchers, cart machines and GPIs; can be easily configured as a stand-alone system or scaled up to multichannel playout with shared storage, spare units and redundancy.

+39 051 736 555
www.axeltechnology.com

Booth: N2518

SIGNAL PROCESSING
LYNX Technik P IE 5610 FLEXCARD



The latest edition to the FLEXCARD Series 5000 line of configurable HD/SD signal processing solutions; allows users to define their own toolset from a menu of firmware options including aspect ratio conversion, up/down/crossconversion, noise reduction and video delay; enables users to build a feature set of any combination of options specific to their application.

661-251-8600
www.lynx-usa.com

Booth: C1628

THIS BOX ROCKS!

Nugget HD/SD Video MPEG2 Player
for Theme Parks, Museums & Special Venues

Frame Accurate Control | Variable Speed Playback | Plays HD, SD MPEG2 Files | HD-SDI, SDI, DVI & Analog Outputs
DoremiAM Software Transfers Computer Video Files to Nugget's Internal Hard Drive via Gigabit Ethernet

SEE YOU AT NAB '09 - BOOTH #SU-5021
(South Hall, Upper Level)

doremi™
www.doremilabs.com

Doremi Labs, Inc., Burbank, CA 818-562-1101 marketing@doremilabs.com

Brown indicates advertisers

HE AAC CODEC

Dolby Pulse

Uses the HE AAC core originally created by Coding Technologies and adds Dolby metadata capability; the metadata parameters match those in Dolby Digital so broadcasters and program makers can be confident about how their mix will sound, regardless of the broadcast format; fully supported by upstream Dolby products and technologies; provides the capability to broadcast stereo and 5.1-channel audio at the lowest bandwidth rates while maintaining high audio quality; eliminates the need for a stereo simulcast with a 5.1 broadcast, further reducing bandwidth.

415-558-0200; www.dolby.com

Booth: N1815

CAMERA BAG

CineBags CB-30 Camera Daddy

Features a customizable interior, two bottom rails, side carry handle, ID tag, waterproof material, large, padded shoulder strap, oversized zipper, large opening, four exterior pouches and see-through pouches.

818-662-0605
www.cinebags.com

Booth: C3841

VARI-FOCAL LENSES

Fujinon DV Series

Three-megapixel, vari-focal lenses are designed for half-inch camera formats; the DV3.4x3.8SA-1 is a manual iris version and has a focal length range of 3.8mm-13mm, an aperture range of F1.4 to T360, and a 97-degree horizontal angle of view at 3.8mm; the lens is also available as DV3.4x3.8SA-SA1, an auto iris DC Type model; the DV10x8SA-1 offers a focal length range of 8mm-80mm without compromising an aperture range of F1.4 to T360 and is a manual iris version; the lens is also available as DV10x8SA-SA1, an auto iris DC Type model.

973-633-5600; www.fujinon.com

Booth: C7116

SURGE PROTECTION

Emerson Network Islatrol BC series

Active Tracking Filters designed to protect broadcast equipment from component degradation, malfunction and shortened life associated with AC power line spikes, transients and noise; feature 15-80 kA surge protection and 47Hz-63Hz line frequency; offers < .5 ns response time; available in units noted from 15-1200 amps; RMS voltage input ranges from 105V to more than 480V.

800-288-6169
www.emersonnetworkpower.com

Booth: C1732

PSIP GENERATOR

Triveni Digital Enhanced GuideBuilder

Enables broadcasters to meet the FCC's PSIP requirements, ensure the viewability of their DTV broadcasts and enhance off-air DTV service; features mobile signaling layer/channel-changer software extension; by integrating metadata management and generation for mobile DTV directly into the GuideBuilder, it provides broadcasters with both terrestrial and mobile functionality in a single platform using their existing workflow.

609-716-3500
www.trivenidigital.com

Booth: SU3402

COLOR CONTROL

daVinci Impresario

Designed for colorists' interaction with motion picture images and video; features the full range of da Vinci color-grading systems; allows users to customize, control and perfect their color decisions.

954-688-5600; www.davsys.com

Booth: SL3314

DVI SCALER

TV One 1T-C2-750

Converts between digital DVI-D and analog DVI-A signals including RGBHV, RGBS, RGsB and YPbPr formats; supports DVI-D resolutions up to 1920 x 1200/60Hz with DVI-A resolutions up to 2048 x 2048 and HDTV resolutions up to 1080p/60Hz; can be used as a seamless switcher device.

859-282-7303; www.tvone.com

Booth: C7408

PLAYOUT AND AUTOMATION SYSTEM

OmniBus iTX NEWS

Offers the ability to take edits to air without prior rendering; generates graphics, audio and video effects, stills and captions in real time; allows users to ingest and edit together SD and HD sources and combine them in the same playlist with non-broadcast material, such as user-generated content, with real-time format conversion and effects rendering.

303-237-4868; www.omnibus.tv

Booth: SU5417

LI-ION BATTERY

PAG L95e

14.8V 6.5A/h, 95W/h battery is available in V-Mount and PAGlok formats; V-Mount model can be charged on Sony chargers; incorporates a new 5 LED capacity indicator; displays charge status in terms of percentage; each LED represents approximately 20 percent of available capacity.

818-760-8265; www.paguk.com

Booth: C8720

QPSK MODULE

Bridge Technologies VB270

Features DVB-S and DVB-S2 demodulation for TR 101 290-based monitoring and alarming in satellite-based distribution networks; capabilities include DiSEqC 2.x compliance, SNR/BER monitoring, analog RF signal level measurements, built-in GPI and configurable round-robin transponder testing.

+47 22 38 51 00; www.bridgetech.tv

Booth: SU4412/N2530

On track, on vision

We've always had an eye on the future – a strong vision for where the TV business is going and the technologies it needs to succeed. With our Emmy® award-winning video compression and on-demand solutions, and the latest in content management systems, we've built a strong reputation for keeping our customers firmly on track.

Now as part of the Ericsson group, our vision is deeper and broader as we enable all television service providers to deliver the Individual TV Experience and generate subscriber and revenue growth with next-generation DTH, IPTV, VOD and personalized advertising solutions.

Our new collection of visionary papers will give you all the information you need to build your individual journey into the future of TV. Share our vision, visit www.tandbergtv.com/vision.

See us at NAB 2009, Booth #SU5108

the vision in television™

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Part of the **Ericsson** Group

TV ONE'S HD-SDI VIDEO & AUDIO PROCESSORS NOW SHIPPING

TV One's C2-7310 Up/Down/Cross Converter is the first HD video processor that pays just as much attention to audio as to video, offering full SD/HD-SDI audio embedding and extraction plus many other unique processing features.

The superior audio processing capability of the C2-7310 allows the user to mix, route, process, delay and framerate convert any of the incoming 32 stereo audio channels: 8 de-embedded from each of the 2 HD-SDI inputs plus the 16 external AES3-id inputs. A DARS reference input is a standard feature. After processing the audio, 16 stereo channels can be output directly as AES3-id and up to 8 stereo channels embedded into each of the 2 HD-SDI outputs. Because of its dual-channel nature, each of the HD-SDI outputs may contain completely different embedded audio. A variety of A2-7000 series external format converters are available to provide inputs and outputs as AES3-id on BNC (A2-7312), AES3 on XLR (A2-7302) or analog stereo (balanced or unbalanced) on XLR (A2-7342.)

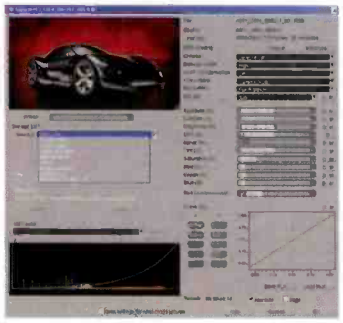
tvone

SALES@TVONE.COM
WWW.TVONE.COM
1.800.721.4044

NAB2009

COMPOSITING AND GRAPHICS SYSTEM

Avid DS



Offers native support for the RED R3D file format, delivering users increased efficiencies in the editorial and finishing process of RED projects; offers a speedier ingest of RED footage, the ability to apply RLX color intent data to the footage, and capabilities to preset project and sequence settings for RED projects at 2K, 3K and 4K resolutions; allows users to create HD RGB 4:4:4 proxies from high-resolution RED source material, which provides real-time program monitoring and results in faster system response time.

978-640-6789; www.avid.com

Booth: SU902

PRODUCTION SWITCHER

Barco FSN series

Seamlessly integrates SD, HD and 3Gb/s video along with computer graphics formats; introduced with the FSN-150, a 1.5M/E control console, and the FSN-1400, a 14-slot video processing chassis; base configuration includes one eight-channel native input card and one two-channel universal input card that are capable of accepting any video or computer format; base system also includes the M/E output card that provides program, preset, clean-feed and six native aux outputs; in addition to the cards included in the base model, users can currently add up to five additional input cards for a maximum of 38 inputs.

678-475-8000; www.barco.com

Booth: SL5008

AMPHENOL HERMAPHRODITIC CONNECTORS

Gepco TAC-4/TAC-12

Four- and 12-channel assemblies are designed to withstand harsh environments; feature precision machine-polished contacts that offer UPC quality to achieve -55dB return loss specificiations.

847-795-9555; www.gepco.com

Booth: C7430

ANTENNA

Broadcast Microwave Services (BMS) DiversaTracker

Directional/diversity receive antenna with built-in controller; when combined with the DR6000 receiver, creates a system that combines the benefits of six-way diversity reception with the extended range that a dedicated tracking antenna affords.

800-669-9667; www.bms-inc.com

Booth: C2318

SWITCHER

Gefen 4x1 3G SDI switcher

Allows four 3G SDI sources to be switched to one 3G SDI destination; offers access to any source by front-panel selector, IR remote or RS-232 connection; 1080p full-HD resolutions can be switched for each source, delivering 3G SDI video with no delays.

818-772-9100; www.gefen.com

Booth: SL4205

CROSSPOINT ROUTING SWITCH

Crystal Vision SW803 3G

An eight by three crosspoint routing switch that works with 3G HD, HD and SDI and is ideal as a small or secondary matrix for multistandard environments; fits in standard frames, with up to six routing switches in 2RU; the double-decker 100mm by 266mm module saves valuable rack space; can send the eight inputs to any of the three outputs; timing information is provided by either black and burst or trilevel sync references, allowing the unit to switch in the vertical blanking interval to avoid picture disturbance.

+44 1223 497049
www.crystalvision.tv

Booth: SU3102

Brown indicates advertisers

FRAME SYNCHRONIZER AND CONVERTER
AJA Video FS1

Universal SD/HD A/V frame synchronizer and converter; can simultaneously work with both HD and SD video — all in full 10-bit broadcast quality video and 24-bit audio; supports virtually any input or output, analog or digital, HD or SD; can up- or downconvert between SD and HD and provide simultaneous HD and SD outputs; crossconversions between HD formats are also supported, with simultaneous output of both formats.

530-274-2048; www.aja.com

Booth: SL2513

VIDEO ENCODER
HaiVision MAKO-HD

Delivers 70ms of latency from end to end; supports HD up to 1080p and computer output encoding to H.264 at up to 1280 x 768 resolution and 60fps; features WXGA encoding, multistream output, HiLo streaming, Adobe Flash compatibility and traffic shaping.

514-334-5445; www.haivision.com

Booth: SL4126

INVERSE MULTIPLEXER
ARG Brickhouse I-MUX

Has full IP connectivity as well as SNMP; grooms multiple E1 2Mb/s or T1 1.55Mb/s circuits to match the required bandwidth for DVB-ASI MPEG transmission with IP or for IP alone.

+44 1285 658 501; www.arg.co.uk

Booth: SU6307

INTELLIGENT RUNDOWN BUILDER
Chyron iRB

Browser-based tool for the creation, modification and deletion of running orders allows users to have a newsroom-style workflow within the newsroom control system.

631-845-2000; www.chyron.com

Booth: SL1420

CONNECTOR
White Sands Engineering AirBNC

Combines the high performance needed for broadcast applications with the ease of termination and reliability of a one-piece design; meets and exceeds the requirements of SMPTE 292M and provides headroom out to 4.5GHz.

623-581-0331; www.whitesandsengineering.com

Booth: C1839

THE AZDEN 1200 SERIES HIGH-PEFORMANCE TRUE-DIVERSITY BROADCAST WIRELESS MICROPHONES IN AN ALL NEW FREQUENCY RANGE

Gold Mount®
1200URX/AB

IDX® "V" Mount
1200URX/VM

1200URX-Si
"Slot-In"

Whether you use a Panasonic® or Ikegami® camera with "slot-in" receiver capabilities, or use the Anton-Bauer® Gold Mount® or a V-Mount battery, there's an Azden 1200 designed specifically for your use.

The receivers and transmitters include:

- New compander circuit for more natural sound
- Improved frequency response with lower noise levels
- New DTV-compatible (188) frequencies covering 4 UHF TV bands
- True diversity system with 2 complete front-ends and high-gain antennas
- Proprietary Diversity Logic Control circuitry for reduced drop-outs
- Dielectric filters throughout, for improved image rejection and superior diversity isolation
- High 5th-order filters for improved S/N ratio
- Multi-function LCD shows channel, frequency, battery info, AF level, and diversity operation

Transmitters also feature: New circuitry, powered by only 2-"AA" batteries, new plug-in transmitter with 48V phantom power capability

Bodypack transmitter (1200BT) with reduced current-drain for improved battery life, is available with an Azden EX-503H or Sony® ECM-44H lavalier microphone.

Plug-in XLR transmitter (1200XT) works with phantom power.

AZDEN

CELEBRATING 25 YEARS CREATING QUALITY AUDIO FOR VIDEO

P.O. Box 10, Franklin Square, NY 11010 (516) 328-7500 • FAX: (516) 328-7506
For full specifications e-mail sales@azdencorp.com or visit our Web site: www.azdencorp.com

Brown indicates advertisers

INTERCOM SYSTEM

Clear-Com Eclipse Version 5.1

Includes Logic Maestro and Production Maestro modules within the Eclipse Configuration Software (ECS); with Logic Maestro, ECS users can access a graphical object-oriented tool for rapid programming customization and simulation; Production Maestro offers a flexible and fast conference routing tool that can preset and manage live external lines in and out of a master control room to remote users' panels and their keys.

510-337-6600
www.clearcom.com
Booth: C6521

STORAGE/PLAYBACK SYSTEM

Alcorn McBride Digital Binloop HD

Provides playback of up to eight HD video channels in 3RU; stores video on CompactFlash; handles resolutions of 1080i, 720p, 480p/576p or 480i/576i; outputs video via HDMI or HD-SDI with embedded audio; can offer simultaneous SD/HD monitor outputs; supports stereo audio and Dolby or DTS bit streams.

407-296-5800; www.alcorn.com
Booth: SL4313

REFERENCE MONITOR

Sonifex RM-4C8-HDE1

Can decode Dolby E or Dolby Digital audio stream to enable visual monitoring of eight or 5.1 audio channels or audible monitoring of two; offers monitoring and metering of up to four to 10 stereo audio sources, which can be any mixture of analog and AES/EBU digital formats with sample rates up to 192kHz.

+44 1933 650 700
www.sonifex.co.uk
Booth: N3217

GRAPHICS TEMPLATE

Pharos Event Templates

Tie the graphics preparation workflow to playout and delivery when using Pharos Mediator and Playtime; simplify the creation and delivery of complex secondary events such as "coming up next" graphics, credit squeezes and promotions; frame-accurate markers can be added at any stage in the Mediator workflow to assist graphics design and trigger promotions during playout.

+44 118 950 2323
www.pharos.tv
Booth: SU8902

HD MONITOR

Tamuz Broadcast VIDRE LBM 24

A 24in, full HD LCD color video monitor for SD/HD/3GSDI 4:2:2 video signals; available in two models: the HD1 version features a 1X loop and the HD2 features a 2X loop and additionally offers a comprehensive menu of options; accepts 1080p, 1080i, 720p, 576i, 480p, 480i video signals has built-in front speakers for SD/HD-SDI audio, OSD controls for video input, color, aspect ratio, size format, markers and test, VESA-100 mounting at rear, and a detachable stand.

908-879-0010
www.tamuz-usa.com
Booth: C7412

SERVER

Doremi Labs MCS-HD

Features two record and two play independent HD video channels with shared storage and selectable compression rates; offers a front panel that mimics familiar VTR controls; compatible with Odetics and VDCP automation protocols, as well as the P2 protocol; can record all popular HD and SD video formats; features JPEG2000 video compression of the SDI and HD-SDI inputs.

818-562-1101
www.doremilabs.com
Booth: SU5021

CAMERA CONNECTOR

Fischer Connectors 1053TM

HDTV 1053TM fiber-optic camera connector is SMPTE-compliant and field-installable; offers a low-cost repair kit and termination with simple handle tools; can withstand typical daily abuse in most production environments.

678-393-5400
www.fischerconnectors.com
Booth: C9114

DATABASE BROWSER

Florical InventoryBrowser

Optional module within S.M.A.R.T. Central; allows user to browse the database and view low-res copies of the inventory; user can log in from any networked machine and view content that has been dubbed into the on-air servers.

352-372-8326; www.florical.com
Booth: SU1802

AUDIO CONSOLE

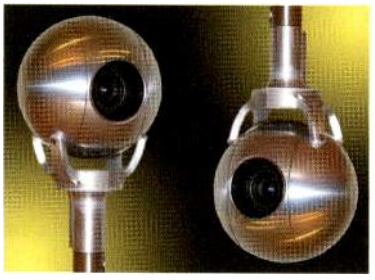
Calrec Audio

Audio console features Bluefin High Density Signal Processing technology; includes an innovative control interface offering expanded flexibility and enhanced visual feedback.

+44 1422 842159; www.calrec.com
Booth: N8207

HD REMOTE CAMERA SYSTEM

Camera Corps Q-Ball



Allows users to obtain video in full-HD quality from practically any location, any time of day; incorporates 10x zoom optics (5.1mm-51mm) and smooth-accelerating pan/tilt motors in a sturdy, fully weatherproof aluminum sphere with a diameter of 115mm; can be used upright or inverted without need for any structural reassembly, allowing fast installation and derigging.

+44 1932 592 299
www.cameracorps.co.uk
Booth: C7642

Engineers: How To Have An Easy Transition To Digital and 3Gb/s

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In your transition to digital, are you looking for a way to **simplify closed caption compliance**? Our new protection switches now have cc data detection so you can keep track of whether captions are there or not.

Please visit us at NAB. You'll find all sorts of equipment that will make your move to HD and 3G easier. From our new audio **automatic gain control** choices to **3G and HD** test signal generators, and 3Gb/s capable frames, we'll have over 20 new products for you to try - products that make your **daily business more efficient, more reliable**. Or call us and we'll come visit you.

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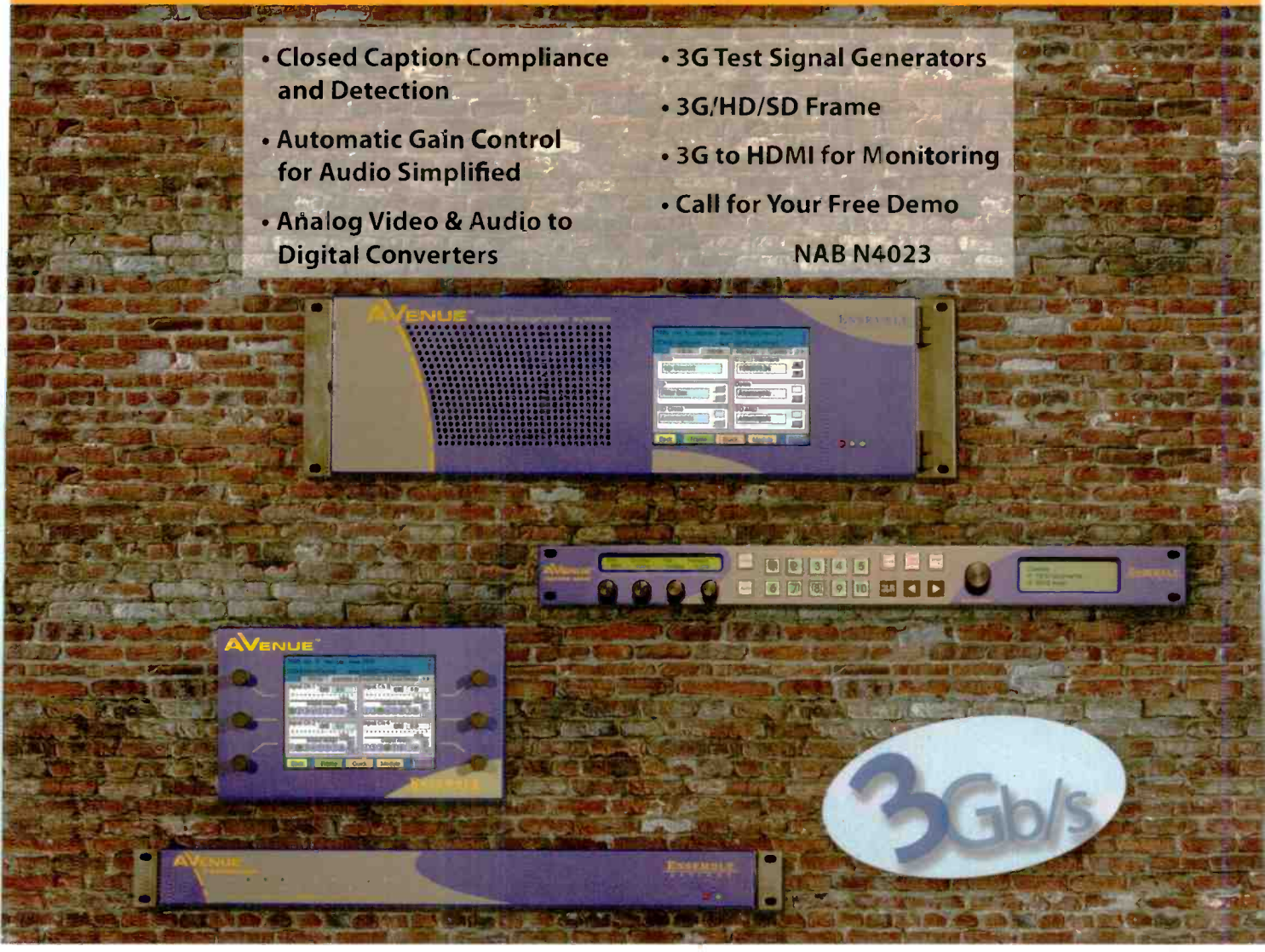
www.ensembledesigns.com
(530) 478-1830 NAB N4023

Introducing 20 New, Reliable Products for You For Broadcast and Post



Purveyors of Fine Video Gear - Loved By Engineers Worldwide • www.ensembledesigns.com

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RAID STORAGE SYSTEM

Sonnet Technologies Fusion F3

Encloses a pair of high-performance 3.5in SATA drives to create 1TB, 2TB or 3TB configurations; each of the drives is mounted side-by-side on its own multipoint shock isolation sled to virtually eliminate vibration-related problems such as crosscoupled vibration; measures 1RU high, a half-rack wide and 14.25in deep.

949-587-3500; www.sonnettech.com

Booth: SL13307

PORTABLE WORKFLOW TOOL

Panasonic AJ-HRW10

Portable workflow tool simplifies access to P2 content and incorporates the in-demand feature of RAID 1 mirroring support; features slots for two 3.5in removable hard disk drives and a built-in AJ-PCD35 five-slot P2 memory drive; can automatically transfer data from up to five P2 cards; with the touch of a button, copies material simultaneously to two separate RAID drives, putting this critical backup function within the grasp of even the least technical members of a production team.

201-392-4127

www.panasonic.com/broadcast

Booth: C3712, C3327

ATSC MOBILE DTV SOLUTION

Harris MPH

Includes the company's NetVX video networking systems and the software-definable Apex M2X exciter to encode and deliver multimedia services; brings together a suite of products to support over-the-air transmission to a variety of consumer mobile devices.

800-442-7747

www.broadcast.harris.com

Booth: N2502

BATTERY CHARGER

PAG Cube

Four-channel unit features PAG's Intelligent Parallel Charging software, which uses current efficiently for fast, fully automatic charging; capable of supplying approximately 100W (6A at 16.8V); designed for parallel charging of PAG and Sony V-Mount Li-Ion batteries.

818-760-8265; www.paguk.com

Booth: C8720

DIGITAL MICROWAVE RADIO LINK

Elber CPM

Working frequency can be any 500MHz band between 6GHz and 15GHz; modulation can be either analog or digital; an external IF input for backup signals is also available; COFDM section includes an SD 4:2:0/4:2:2 encoder .

+39 0185 351 333; www.elber.com

Booth: C2626

SATELLITE RECEIVER

Comtech EF Data CMR-8500

Encapsulates IP data into multiprotocol format for distribution over an asynchronous serial interface; designed for high-speed data applications; unit's 1RU rack-mountable platform is equipped with two GigE inputs and dual ASI outputs; capable of network throughput up to 155Mb/s and an aggregate packet processing of 140,000 packets per second.

480-333-2200; comtechefdata.com

Booth: SU6909

SHOTGUN MIC

Audio-Technica BP4071L

Measures 21.22in; features an extremely narrow polar pattern, excellent rejection from the sides and rear of the microphone and crisp, intelligible audio reproduction; offers switchable low-frequency roll-off and a 10dB pad; comes equipped with a stand clamp, windscreen and case.

330-686-2600

www.audio-technica.com

Booth: N2121

Curious? See you at NAB 2008, Booth C7637

RIEDEL The Communications People

IP-BASED AUDIO ROUTER

Logitek JetStream Mini

Provides functionality for up to 24 faders in single or multiple consoles in 2RU enclosure; offers 64 channels of IP audio through five types of I/O cards; features GPI I/O, profanity delays, input metering and microphone processing.

713-664-4470; www.logitekaudio.com

Booth: N7124

HD CONVERTIBLE CAMERA

Panasonic AW-HE870

A 2/3in HD/SD convertible camera that supports 1080i/720p/480i image acquisition; compatible with most 2/3in motor drive zoom lenses, all current Panasonic Broadcast pan/tilts and controllers and many third-party systems; 38-bit digital signal processor and 14-bit A/D converter deliver sharp images even in difficult lighting; spatial offset and image-processing technologies provide high-quality, HD imaging; 12-axis color correction allows for precise control and matching of HD video.

201-392-4127; www.panasonic.com/broadcast

Booth: C3712, C3327

SET DESIGN/FABRICATION

FX Group

Design process emphasizes collaboration with clients; provides shot-by-shot design for both HD and 16:9 using advanced 3-D modeling; fabrication division allows craftsmen to build and dry-fit set before shipping.

407-573-0499; www.fxgroup.tv

Booth: R300

RAID SYSTEM

CalDigit VR

Advanced two-drive RAID system supports a quadruple interface for easy connectivity (FireWire 400/800, USB 2.0 and eSATA); there is no performance loss when daisy-chaining the unit using FireWire 800; modular design provides two hot-swappable drive modules and an easy-to-read front LCD; with support for RAID 0, 1 and JBOD, it can reach speeds of up to 220MB/s; includes an easy-to-use GUI for configuration and monitoring, which supports e-mail notification.

714-572-6668; www.caldigit.com

Booth: SL13610

Brown indicates advertisers

MASTER CONTROL AUTOMATION

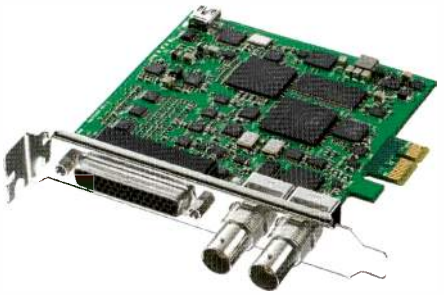
Florical RemoteAirBoss

Optional module within S.M.A.R.T. Central; enables access to monitor or control on-air playout from any workstation within the network; can control a single channel or simplify centralization of master control, allowing hub location selection based on workflow needs or as workload changes.

352-372-8326
www.florical.com
Booth: SU1802

CAPTURE CARD

Blackmagic Design DeckLink Studio



Features SDI and enhanced analog connections: SDI, analog component, S-video and composite video; has a built-in hardware downconverter and four channels of balanced analog audio, eight channels of SDI audio and two channels of AES/EBU digital with sample-rate converters; enables users to move seamlessly between SD and HD workflows; includes RS-422 deck control and blackburst and trisync reference input.

408-954-0500
www.blackmagic-design.com
Booth: SL10820

CONTENT MANAGEMENT

Front Porch Digital DIVAdirector V4.0

Features key frame and thumbnail support, enabling the addition of visual markers in query results and to better identify segments in shot lists; collaborative shot list support allows users to share viewing and editing of shot lists; virtual asset support enables an asset and its metadata to be added to the system in anticipation of the clip's later arrival in the archive.

303-440-7930
www.fpdigital.com
Booth: SU6117

AUTOMATION SYSTEM

Pebble Beach Systems Neptune

Features floating lists, global timers and multi-time zone support, as well as further expansion of Anchor, the company's integrated media management tool; floating lists allow any channel to be played from any physical playlist, which is then automatically routed to the right output; the system is aware of the available hardware and can determine whether the broadcast equipment can support SD, HD or both.

+44 1932 333790; www.pebble.tv
Booth: SU11402

SYSTEM AND ENERGY MANAGEMENT

TSL MDU12-PMi

Gives the user complete control over and visibility of equipment racks, no matter how geographically disparate their locations; provides remote Ethernet control and monitoring of 12 individually switched IEC outputs via secure Web browser with SNMP and e-mail alarms for fuse fail, power fail, over/undercurrent alarm and power measurement, all alongside 16 GPI inputs; a current-sensing feature monitors the total or individual outlet power consumption, plus the operating temperature of the rack, providing clear warnings if variables rise above or fall below fully programmable limits.

+44 1628 676 200; www.tsl.co.uk
Booth: SU7917

CAMERA COVERINGS

Petrol CamWraps

Include the PCW-11, which is specifically contoured to fit Sony's PDW-F335 and F355, and the PCW-12, which fits around Sony's PDW-700 XDCAM; safeguards the camera body from unwanted scratches or dust; constructed of a double-layered 3-D microfiber mesh that keeps the camera cool and well ventilated.

845-268-0100; www.petrolbags.com
Booth: C6031

VIDEO STREAMING APPLIANCE

Digital Rapids TouchStream

Provides live streaming in a self-contained form factor; streamlined software controls are accessible through a touchscreen interface with integrated live video monitoring and VU meters for audio validation.

905-946-9666
www.digital-rapids.com
Booth: SL6213

PRODUCTION MANAGEMENT SOFTWARE

EVS IPDirector V5.0

Covers ingest, metadata, research and clip creation as well as broadcasting capabilities based on the XT[2] production server platform; features new modules including IPEdit and IPMediaViewer.

973-575-7811; www.evs.tv
Booth: C9508

DSP CARD

Jünger Audio C8086-8

Features eight channels; incorporates Dolby Metadata Generator option; allows users to verify, modify or generate metadata, including dialnorm, according to Dolby specifications; with Level Magic system, can transport metadata from point of origin to point of Dolby Digital encoding.

+49 30 677 7210
www.junger-audio.com
Booth: N4937

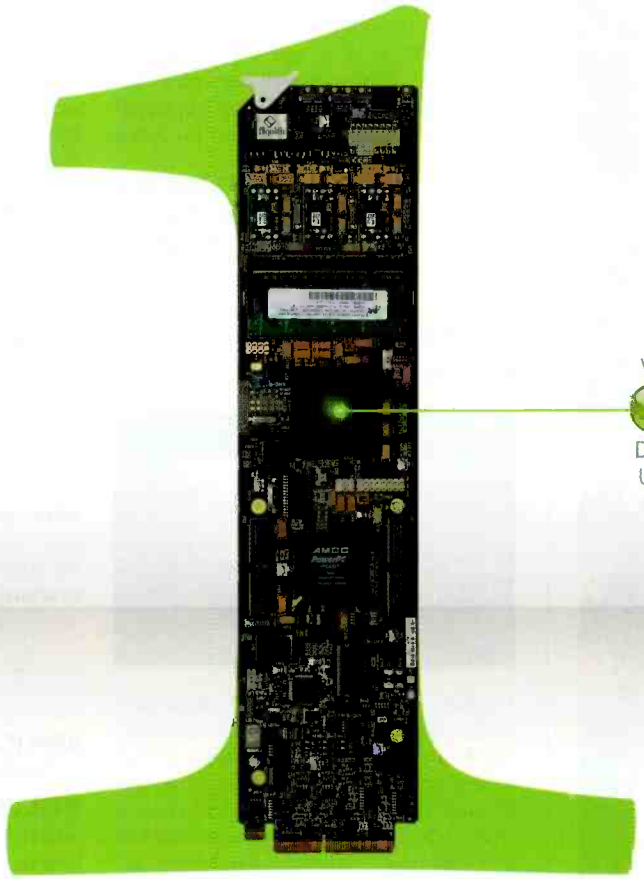
SD/HD/3GB/S ROUTERS

Miranda NVISION 8288

Available in sizes up to 576 x 576; are half the size and weight of comparable routers and consume half the power normally required; ideal for flypack and truck applications.

514-333-1772; www.miranda.com
Booth: SU2807

Sync | Delay | Convert | Clean & more with



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- *Multi-function per channel, higher level of integration*
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NAB2009

MULTIVIEWERS

Avitech MCC-8004

Can display up to 120 inputs in a single display group; combine digital or analog video, audio and computer signals on one display; video can be composite, SD-SDI, HD-SDI or component; audio can be balanced or unbalanced; computer signals can be DVI or VGA; offers an integrated on-screen display, which includes on-screen labels, borders, alarms, optional audio meters as well as support for Asian and European symbols.

877-284-8324
www.avitechvideo.com
Booth: SU10217

CONTENT STORAGE MANAGEMENT

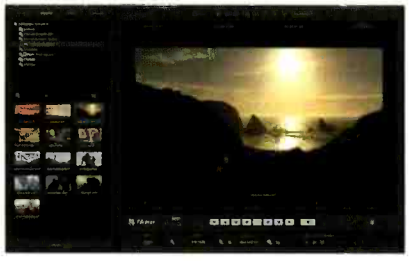
Front Porch Digital DIVAsolo

Provides an all-in-one migration path from legacy videotape to content storage management using secure, high-density data tape or disk; combines SAMMA Solo for large-scale video tape migration to various essence formats, DIVArchive Basic for content storage management and DIVAdirector V4.0 for desktop access, metadata management, proxy browsing and content repurposing.

303-440-7930; www.fpdigital.com
Booth: SU6117

ACQUISITION SOLUTION

EditShare Flow



Captures in one format and simultaneously outputs to multiple formats, including Apple Pro Res and Avid MXF, as well as low-res proxy formats; feature multichannel ingest with independent control over each channel, full metadata capture and edit-while-recording capabilities; includes the EditShare Universal Media File technology, which creates a single media file that can be used in both Avid and Final Cut Pro editing environments.

617-782-0479
www.editshare.com
Booth: SL6420

HD/SD VIDEO WRITER

FOR-A FVW-500HS

Touch-screen monitor enables users to draw and point over HD/SD-SDI video in real time; includes preprogrammed lines, shapes, arrows, spotlights and numeric icons; can display AVI animations and short movie clips; features TGA-to-AVI file converter as well as on-screen menus to adjust line thickness, color and edges.

714-894-3311; www.for-a.com
Booth: SU3507

APPLICATION PROGRAMMING INTERFACE

SGL XML Interface

Socket-based application programming interface (API) provides a robust, agile interface to FlashNet; using the flexibility of standard XML, a full set of commands equivalent to the more traditional FlashNet API is supported, along with new features that offer developers of third-party automation and media asset management systems awareness of a complete archive.

+44 1489 88 99 30; www.sgluk.com
Booth: SU8508

IMAGE PROCESSING SOLUTIONS

Algolith Algogear

Flexible, future-proof, modular solution can maximize bandwidth and clean, synchronize and scale media; comprised of image processing and enhancement solutions that harness the technology of the company's core Intellectual Property (IP); series includes noise reduction (VNR-1000-SD and VNR-1000-HD), upconversion (XVC-1001-UC), downconversion (XVC-1001-DC), frame synchronization (FRS-1002-MD), and line delay (VLD-1002-MD).

514-335-9867; www.algolith.com
Booth: SU3117

DOLBY DIGITAL ENCODER

Dolby Cat. No. 561 Dolby Digital Plus Encoder Module

Designed for integration into third-party AV products featuring the new generation of video codecs such as H.264; offers broadcast equipment manufacturers the ability to add real-time multistream and multichannel encoding of Dolby Digital and Dolby Digital Plus audio bit streams to their products.

415-558-0200; www.dolby.com
Booth: N1815

CHASSIS

Eyeheight nanoBox softPanel

Optimized for desktop use in control rooms, edit suites and graphic studios as well as on location; compact, free-standing housing accommodates any Eyeheight single-height card; available cards include legalizers, safe-area generators and SDI-embedded audio shufflers; control of nanoBox is via Eyeheight's softPanel software, which can run in Java 1.5 on any standard PC.

+44 20 82 552 015
www.eyeheight.com
Booth: SL7409

VIDEO OVER IP ENCODER/DECODER

Electrosonic ES7100

Enables 3G-SDI, HD-SDI and SDI video transmission over IP networks at bit rates of 10Mb/s-150Mb/s; features PURE3 codec designed specifically for network transmission; provides resilience to network errors with real-time error concealment and constant latency of 70ms; can encode or decode.

818-333-3602
www.electrosonic.com
Booth: SL9720

VIDEO CONVERTER/FRAME SYNCHRONIZER

Evertz HD2020 Video PassPort

Integrates four independent up/down/crossconversion paths, each with a full frame synchronizer with a wide range of AV I/Os; can generate a multi-image display from eight select video clean switch I/Os; features embedded Web server and dual 10/100 Ethernet ports.

905-335-3700; www.evertz.com
Booth: N1602

SYSTEM ADMINISTRATION

Avocent AMX5000

Allows administrators to set multilevel access to servers with password protection for each user; creates server and user group lists; provides a log of system activity; database is stored locally and can be downloaded to the AMX switch via TCP/IP.

866-277-1924; www.avocent.com
Booth: SL13616

VGA MONITOR

RTW Remote Display 30010

An 8.4in VGA monitor featuring function keys situated below the display screen; further enhances the ergonomics of the SurroundMonitor 11900; controls the instrument functions of the SurroundControl 31900; connected to the VGA connectors; allows the user to remotely visualize all instruments, options and measurement values of the units.

+49 221 709130; www.rtw.de
Booth: N3123

VIDEO OPTION CARDS

QuStream Cheetah MUX and DE-MUX

Provide fully integrated routing of embedded audio signals from the Cheetah video router; support seamless intermixing of a wide variety of signal formats, including embedded audio, MADI, balanced and unbalanced AES and analog signal formats in both synchronous and asynchronous formats; feature 16 video channels per card; Cheetah DE-MUX video input card can de-embed 128 separate audio changes from any of 16 video channels on a single card and provide discrete audio signals to other distributed routing audio system elements; Cheetah MUX video output card can seamlessly embed 128 individual, external distributed audio routing system audio from MADI, AES and analog sources into any of 16 video outputs.

416-385-2323; www.qustream.com
Booth: N3421

Setting the pace in video

Harmonic's recent acquisition of **Scopus Video Networks** brings together the industry's best solutions and most innovative technologies for end-to-end video delivery.

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HD LCD MONITOR
Panasonic BT-LH1710

Features a 1280 x 768 in-plane switching panel; incorporates the latest panel and image-processing technology to deliver higher contrast, improved black level performance and more functionality; uses a newly designed 10-bit image-processing circuit that reproduces color with increased accuracy and detail; has a 3-D look-up table that calibrates the panel to reproduce accurate images according to the specific color standard selected.

201-392-4127
www.panasonic.com/broadcast
Booth: C3712, C3327

REMOTE MONITORING SYSTEM
ARG REMON

Allows non-SNMP equipment to be managed in an SNMP network; offers the control and monitoring of equipment via any Web browser; 1RU chassis comes complete with dual power supplies and connection for up to 40 GPIs and contact closures; front-panel control provides alarm control and system health status.

+44 1285 658 501; www.arg.co.uk
Booth: SU6307

DWDM 1550NM TRANSMISSION SYSTEM
Harmonic SUPRALink

Enables cable service providers to reuse their existing optical fiber network to deliver increased bandwidth to subscribers; supports up to eight wavelengths per single fiber over link distances of 40km with optical amplification and 25km without optical amplification for up to 1GHz of digital/analog content per wavelength.

408-542-2500
www.harmonicinc.com
Booth: SU7209

FRAME SYNCHRONIZER
FOR-A UFM-30FS

Available in single- or dual-channel with 3Gb/s upgradeability as well as with audio mux or demux with single HD/SD-SDI I/O; features automatic changeover switching function; can work in traditional frame sync or line sync mode; includes 16-channel embedded audio with sampling rate converter.

714-894-3311; www.for-a.com
Booth: SU3507

UP/DOWNCONVERTER
Eyeheight UD-2

High-quality up/downconverter with three-field temporal processing and 3:2-pulldown frame rate conversion; compatible with the 18 video standards currently in use across 525/625, 720p, 1080p and 1080i; advanced video noise reduction features enable overall noise and artifacts associated with DCT compression to be minimized.

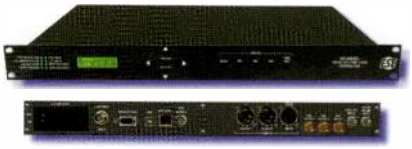
+44 20 82 552 015
www.eyeheight.com
Booth: SL7409

LOCATION LIGHTING SYSTEM
Kino Flo Vista Single

Features high-lumen 96W lamp with intensifying, parabolic reflector, one-lamp remote fixture with built-in barn doors, removable center mount and harness base; takes daylight, tungsten and visual effects color lamps; runs up to 75ft from ballast with harness.

818-767-6528
www.kinoflo.com
Booth: C8242

HD TIME CODE READER/ GENERATOR/INSERTER
ESE HD-488



Accepts multiple HD formats; generates/inserts time code; features dual LTC output, USB setup interface, time zone offset, LCD setup/status display and a universal power supply; enables as many as 30 characters of text to be superimposed onto the video.

310-322-2136
www.ese-web.com
Booth: N3124

PORTABLE FIELD/CAMERA-TOP MONITOR
Marshall Electronics V-LCD70P-HDA

Features digital TFT-megapixel high-res LCD screen with 1.2 million pixels, four-pin XLR power jack and optical-grade polycarbonate screen protection; digitizes analog signals using 10-bit processing with 4x oversampling and adaptive five-line comb filter; available in 3G-SDI and HDMI configurations.

310-333-0606; www.lcdracks.com
Booth: C8908

DIGITAL PRODUCTION SWITCHERS
Ross Video CrossOver Series

Designed for small studios, small mobile trucks, flight packs and linear editing; comes in both multidefinition and SD versions and with either six or 12 inputs; available in four configurations; features a patented UltraChrome chroma keyer, dual animation stores, two channels of 2-D DVE and four up/downconverters..

613-652-4886
www.rossvideo.com
Booth: SU1807

Tiernan unlocks multi-format decoding.

HMR5440 Multi-format Receiver/Decoder

- Decodes MPEG-2 or MPEG-4 AVC in either HD or SD
- Fully Compatible with the AVC4000 series encoders
- Decodes up to eight channels of analog and digital audio
- NTSC/PAL Composite & SDI output
- ASI, DVB-S, DVB-S2 and MPEG over IP Interfaces

www.tiernan.com • (858) 805-7000

COMTECH TV
TIERNAN VIDEO, INC.

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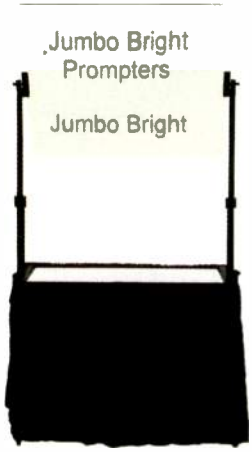
TELEPROMPTERS
Jumbo Bright Prompters



Series includes 32in, 45in and 70in units designed to be placed off-stage, in the middle of the audience, by the camera riser or in the back of the room; 70in unit can be viewed up to 120ft away and can be hung from a lighting truss; two models can be used in bright sunlight.

801-787-3712; www.jumbobright.com

Booth: C10444

RECEIVER
Nucomm Newscaster DR 2

The diversity receiver offers new features including a split box and the ability to receive UHF digital signals in the150Mhz to 850MHz band; works with external block downconverters that receive a wide range of frequencies from 1.99GHz to 7.1GHz.

908-852-3700; www.nucomm.com

Booth: C3707

PLUG-ON TRANSMITTER
Lectrosonics HM Transmitter

Features 100mW RF output, 5V, 18V and 48V phantom power, LCD and membrane switches; powered with two AA batteries.

505-892-4501
www.lectrosonics.com

Booth: N5223

ETHERNET AND TRIPLE-PLAY TEST PROBE
JDSU QT-600

Carrier-grade, scalable, multiservice probe that is a component of the company's NetComplete Service Assurance Solution; through proactive traffic monitoring, it detects patterns of QoS degradation and, from a centralized location, quickly segments the network to identify the source of the problem; provides a detailed view of network and service performance through distributed data gathering and consolidated reporting capabilities.

408-546-5000; www.jdsu.com

Booth: SU4809

HANDHELD CAMCORDER
JVC GY-HM100

Records files directly to solid-state media in the native format of Apple's Final Cut Pro; recorded material can be edited directly from the solid-state memory card, reducing the amount of time required to edit programs together; delivers high-bandwidth recordings at 1080p, 720p and 1080i on SDHC Class 6 memory cards.

973-317-5000; www.jvc.com/pro

Booth: C4315

HEADPHONES
Sennheiser HD800

Feature a 56mm sound transducer and an ear cup design that directs sound waves to the ear at a slight angle; the vibrating part of the diaphragm is a ring that sets the entire air volume over the transducer into motion, generating the full-bodies sound of the HD800; the transducer is mounted in high-precision gauze made of stainless steel, ensuring that the acoustics of the transducers are not impaired by any partial vibrations.

860-434-9190
www.sennheiserusa.com

Booth: N6520

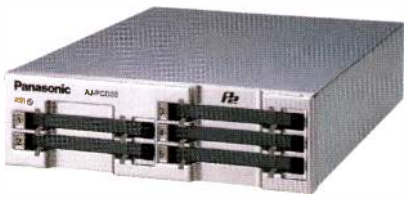
MULTIPLEX SIGNAL GENERATOR
Sencore ATX2000

Developed for ATSC-M/H standard; provides a variable broadcasting simulation test environment; can be tailored to specific situations using a comprehensive set of parameter and multiplexing function controls; offers easy-to-use interface and high-quality RF and ASI outputs in a portable platform.

605-339-0100; www.sencore.com

Booth: SU4412, C8546E, N2530

P2 MEMORY DRIVE
Panasonic AJ-PCD35



Five-slot P2 solid-state memory drive with a PCI Express interface; can increase transfer speed of P2 content to maximums of 1G/s or higher to desktop computer systems; transfers data from up to five P2 cards simultaneously, making content immediately available to nonlinear editing systems and servers.

201-392-4127
www.panasonic.com/broadcast

Booth: C3712, C3327

CABLE CHECKER
Canare FCT-FCKIT

Features the company's exclusive HFO connector design for reliable transmission and easy cleaning; allows fast, easy confirmation of HFO cables in the field; no heavy, bulky equipment to drag around; the compact design features a backlit digital display to measure optic loss and electrical continuity; small size and light weight make mobile installs smooth, secure and constant.

973-837-0070; www.canare.com

Booth: C9118

FLUID HEAD
OConnor Ultimate 2575D

Improvements include ergonomic changes to controls and more pan bar mounting points; features dual platform scales, one on each side, and four handle rosettes to allow operation from either side of the head as well as front or back handle mounting; weighs 22.9lb (10.4kg); carries 0-87lb (39.5kg) payload.

818-847-8666; www.ocon.com

Booth: C6030

Broadcasters who need the best, turn to Florical

FLORICAL
TV AUTOMATION
SYSTEMS™

Look what's
NEW!
at Florical systems

Featuring at NAB09

Visit us at NAB09 booth SU1802

S.M.A.R.T. Central is a smart client based gateway into our television broadcast automation system. This unique product was introduced at NABC8 and improves three main areas of workflow: 1) reduces redundant tasks, 2) makes systems accessible over a closed network to improve workflow while maintaining a completely secure system and 3) automatically emails critical reports to key personnel to improve communication and response times.

RemoteEditor - ***NEW!*** - a module within S.M.A.R.T. Central that allows access to current and future schedules for viewing or editing. As with all of S.M.A.R.T. Central products, RemoteEditor can be access from any networked machine so that last minute changes can be made from almost anywhere ... potentially eliminating make-goods.

InventoryBrowser - ***NEW!*** - a module within S.M.A.R.T. Central to browse the database and view low resolution copies of server inventory. With the power of smart client technology, the user can log in from any networked machine, whether from a Sales laptop in the field or Traffic desktop, and view content that has been dubbed into the broadcast servers. The tool is perfect for Traffic or Sales to view spots from the convenience of their desktop.

AssetDispatcher - ***NEW!*** - streamlines central ingest systems. AssetDispatcher is a transfer agent that uses regional dub-lists and programming settings to push commercial and long-form from a centralized ingest location to regional sites after material has been approved. Timing and all metadata can be entered once and shared by all.

RemoteAirBoss - ***NEW!*** - a module within S.M.A.R.T. Central for master control automation that allows access to monitor or control on-air from any workstation within the Florical Network. RemoteAirBoss can be used to control a single channel or can simplify centralization of master control, allowing dynamic selection of "hub" location based on your unique workflow needs or as your workload changes.

AirBoss *has a new look!* Florical has enhanced the look and user interface, including a new an on-screen video feed. Come to our booth at NAB09 to see the look (SU1802).

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352.372.8326 www.florical.com

Brown indicates advertisers

SOFTWARE FOR PRODUCTION CONSOLES

Lawo v4.4 software

For the mc² series production consoles, which includes the mc²90, mc²66 and mc²56; with the Lawo Router MKII, the new software provides a redundant control system that initiates an automatic takeover if an error on the router module/control system occurs; control system redundancy activates if the standby system notices a loss of the connection between both control systems; this can occur as a result of either a software failure or a hardware error in the active control system.

888-810-4468; www.lawo.de

Booth: N5433

SINGLE-MODE HYBRID CABLE

Neutrik

Newest addition to the opticalCON line is a low-voltage camera/single-mode hybrid cable; optimized for camera link systems (ENG/SNG), camera adapter systems, camera cranes and powered down converter boxes for broadcast applications where only ELV (Extra Low Voltage, <50 VAC) is required.

732-901-9488; www.neutrikusa.com

Booth: N7929

BUSINESS MANAGEMENT SYSTEM

Pilat Media IBMS:OnDemand

Designed for on-demand, cross-platform services management in the cable, satellite, IPTV, broadband, and mobile VOD marketplaces; supports centralized management of multiple services to help networks and service providers deploy and differentiate on-demand services.

877-873-4267
www.pilatmedia.com

Booth: SU10405

CAMERA-MOUNTED DVR

Fast Forward Video Elite HD

Camera-mounted DVR and player harnesses the J2K compression codec for recording HD-SDI video signals; accepts an incoming HD-SDI video signal with eight channels of embedded audio and records at data rates up to 100Mb/s with 4:2:2 sampling and 10-bit quantization at near-lossless compression; records video on commercially available, hot-swappable 2.5in SATA drives.

800-755-8463; www.ffv.com

Booth: N2819

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NOTE TO SELF: VIDEO OVER IP.

Competition fuels the news business. It's get or get out. So give your team an unfair advantage: Streambox. Instead of rolling ENG/SNG trucks, broadcasters can deploy a scalable IP-based solution that helps you get more news faster and at a lower cost. Go live-to-air, edit the story for later broadcast, or feed video to websites and affiliates. Call us to schedule a demo.

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Learn more at www.streambox.com
or call +1.206.956.0544 ext 222.

MULTIFORMAT FACILITY ROUTER
Miranda NVISION 5128

Designed to offer easy mixing and matching of up to eight different formats in the same frame, including 3Gb/s, HD, SD and analog video, as well as digital and analog audio; can be used for time code, sample rate conversion and machine control signals.

514-333-1772; www.miranda.com

Booth: SU2807

CONNECTORS AND CABLES
LEMO

The company has partnered with 3SAE Technologies to offer fusion splicing technology for its fiber-optic HDTV connectors and cables; the technology allows for both factory and on-site termination by replacing the fiber-optic connector polish process with a spliced fiber contact connector; reduces the time and level of expertise required for terminating the LEMO fiber-optic hybrid connectors.

707-206-3776; www.lemo.com

Booth: C7433

PORTABLE RECORDER/PLAYER
Panasonic AG-HPG20

A solid-state P2 portable recorder/player with AVC-Intra, DVCPRO HD/50/25 and DV compatibility; the 10-bit, 4:2:2 deck can be used for fast, file-based recording; removable solid-state cards offer recording times that exceed those of tape or optical disc-based products.

201-392-4127

www.panasonic.com/broadcast

Booth: C3712, C3327

HDTV ENCODER
NTT Electronics

Encodes 4:2:2 chroma AVC/H.264 HDTV/SDTV real-time, ultra-high quality video; supports MPEG-2 format to enable smooth migration from current MPEG-2 technology to future AVC/H2.64.

+81 42 796 2496

www.nel-world.com

Booth: SU11617, SU11723

DENG WIRELESS CAMERA SYSTEM
Elber WLCT-02SD

Wireless camera transmitter is ideal where portability and mobility is important; can be installed on the camera back without losing the optimum power dissipation; the integrated MPEG-2 4:2:2/4:2:0 digital encoder can accept digital SDI video as well as analog, and up to four mono audio channels or SDI embedded; provides a high-quality digital video and audio signal that can be used with others coming from wired cameras.

+39 0185 351 333; www.elber.com

Booth: C2626

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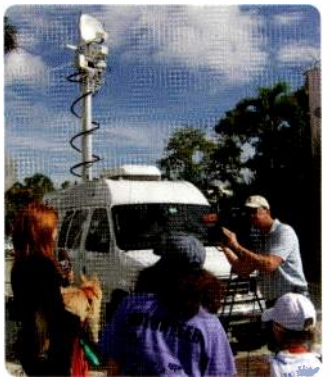
IN-RACK AUDIO MONITOR
AEQ AM-04

Accepts four analog audio signals; has two pairs of AES digital audio outputs with additional analog audio signal and SDI video embedded audio signal; acts as a de-embedder; features level alarm, RS-232 port, headphone output and two pairs of tricolor peak VU meters, each with 26 LEDs; provides scales for six types of audio measurements.

+34 916 861 300; www.aeq.es

Booth: N5429

SMART ANTENNA SYSTEM
NSI Quick Shot



An advanced transmit system for mobile operations; reduces setup time by automatically aligning the transmit antenna with the receive location; can be remotely controlled by the NSI MC5; takes the microwave setup activities out of the truck and allows a single operator at the studio to control both ends of the microwave link; incorporates an NSI Silhouette or Stiletto directional antenna and a pan/tilt positioned; existing antennas can be used in some cases.

410-964-8400
www.nsystems.com

Booth: C1715

PAN-TILT CAMERA SYSTEM
Canon BU-50H

Remote-control robotic indoor pan-tilt HD camera system; provides exceptional HD video imagery and versatile performance in such locations as houses of worship, legislative chambers, studio POV camera positions, indoor security areas, and many other environments; an extremely quiet P/T system and features a maximum noise level of NC30.

800-321-4388
www.canonbroadcast.com

Booth: C4325

ENG/SNG FIELD CAMERA INTERFACE
Studio Technologies Live-Link

Features full status LEDs, support for all video formats, two mic/line connections with selectable gain and phantom on/off, two line-level paths for IFB, two-channel auto-nulling intercom, 10/100 Ethernet transport and Anton/Bauer battery adapter.

847-676-9177; www.studio-tech.com

Booth: C11843

TV ANALYZER
Rohde & Schwarz R&S ETL

Performs 8-VSB testing and optional MPEG-2 monitoring; analyzes and generates analog and digital test signals in a single box; allows new TV standards to be implemented on a software and hardware basis; uses real-time demodulation throughout.

410-910-7800
www.rohde-schwarz.com

Booth: C1933

TRANSCODER
TANDBERG Television RX8250

Part of an end-to-end cable HD distribution system that allows content providers to carry six to eight MPEG-4 AVC HDTV channels on a satellite transponder; helps operators with networks that have a large installed base of MPEG-2 HDTV set-top boxes by enabling efficient transcoding of MPEG-4 AVC/DVB-S2 distributed content into high-quality MPEG-2 HD.

678-812-6300; www.tandbergtv.com

Booth: SU5108

STANDARDS CONVERTER
Snell & Wilcox Alchemist Ph.C - HD

Offers simultaneous SD and HD conversion; new features include a FilmTools option, which delivers results with film-like quality quickly and affordably, and a new option for integrated Dolby E audio handling, which simplifies broadcast and post-production workflows and eliminates the need for outboard Dolby decoders and encoders; provides SNMP support.

212-481-2416; www.snellwilcox.com

Booth: SU1917, SU1717

AUTOMATION
Pro-Bel Morpheus

Includes a new scripting capability that allows users to automate repetitive tasks, improving productivity and consistency; anything users do via the user interface is captured within macro code and can then be mapped onto LCD panels; new fast commercial break feature tracks all commercials within a schedule, allows an operator to instantly swap or move them and also provides detailed information on what has been aired.

631-549-5159; www.pro-bel.com

Booth: SU12710

RED ONE HANDLE
Anton/Bauer QR-RH

Enables multiple mounting and the ability to mount the RED drive in various locations; permits users to attach various accessories to the camera's handle via 1/4-20 and 3/8-16 tapped holes; tape hook provides tape measure attachment for camera focus.

203-929-1100; www.antonbauer.com

Booth: C6201

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Lifetime HD
MLB HD
Showcase HD
Showtime HD
The Movie Channel HD
TV HD
Golf Channel HD
VERSUS HD
encore HD
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bio. HD
History HD
ci HD crime & investigation network
tbs HD
Cartoon Network HD
TNT HD
Rainbow Broadcasting & Technology
A&E HD

On April 12, 1989, Intelsat delivered the first digital HD transmission between the United States and Japan. Today, Intelsat delivers the brightest stars in news, entertainment and sports through its industry-leading HD neighborhoods. Our partners trust Intelsat to deliver HD content at the highest quality, because with HD, every bit counts.

Visit Intelsat during NAB 2009 at Booth C4937 and OE404

For more information contact:
sales.na@intelsat.com
+1 202-944-7025

INTELSAT

www.intelsat.com

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SINGLE/DUAL-LINK FIBER-OPTIC TRANSPORT SOLUTION

MultiDyne DVI-6000

Designed for RGB-HV and DVI-D with DVI-I interface; supports WQXGA, 2560 x 1600 resolution with dual link over a single fiber; provides optional stereo audio and bidirectional data for monitor control; transports image with no frame dropping up to WUXGA, 1920 x 1200; enables 24 bits for all scan rates.

516-671-7278; www.multidyne.com

Booth: SU6917

NEWSROOM COMPUTER SYSTEM

OCTOPUS Newsroom OCTOPUS6

Cross-platform system enables using Windows, Mac and Linux platforms simultaneously, reaching free operating systems as well as working with Apple Final Cut Pro; a new FCP plug-in gives users access to stories and scripts while editing their video footage.

+420 221 181 511
www.octopus-news.com

Booth: SU8523

ROUTING SWITCHER

QuStream Tiger Pro

Compact and modular 144 x 144 fiber-optic routing system for 3G-SDI, HD-SDI or as a dual-link DVI switcher when used with the QFX series of video extender modules; starts at 36 x 36 and expands to 144 x 144 within the same frame; frame supports redundant power and redundant control; crosspoint switching is based on a single front-loaded 144 x 144 hot-pluggable matrix card; each input or output card supports up to 36 fiber-optic connections using standard LC-type SFP modules; I/O fiber cards are based on 1310nm single-mode lasers but can be used in multimode applications with reduced performance.

416-385-2323; www.qustream.com

Booth: N3421

CONDENSED INTERCOM SYSTEM

RTS Zeus III

Features a compact size, 32 channels in/out and two configurable party-line interface channels; with the addition of Ethernet, the system can be configured from virtually anywhere on the network using AZedit Intercom software; can be directly connected to AZedit through the use of the USB connector on the front panel.

877-863-4169; www.rtsintercoms.com

Booth: C7025

CONTENT DISTRIBUTION PLATFORM

Omneon ProCast CDN

Manages and distributes content between two discrete locations as well as between any number of disparate sites worldwide; provides content exchange, disaster recovery and remote file access; enables the user to schedule transfers, manage bandwidth of each individual transfer and prioritize rules-based transfers.

408-585-5000; www.omneon.com

Booth: SU7217

MULTICAMERA INGEST SOLUTION

EVS Insio

A software application engineered for prerecorded program production; combined with a production server, it allows producers to control each production phase of prerecorded TV programs, including multiple recording feeds, instant review, clip management, metadata creation, clip transfer and feed streaming to post production.

973-575-7811; www.evs.tv

Booth: C9508

HYBRID ELIMINATION DEVICE

Telecast Fiber Systems HDX-3D

Accommodates stereoscopic camera systems from Ikegami and Sony; using local power, the device provides power and optical connectivity to camera heads, making 3-D acquisition easy; also supports HD cameras from Panasonic and Thomson.

508-754-4858
www.telecast-fiber.com

Booth: SU8517

ELEVATOR PEDESTALS

Telemetrics EP-PT-S2 and EP-PT-S2-2

Remotely controlled, motorized telescoping tripods are designed to add pedestal height control to the Telemetrics Robotic Pan/Tilt product line; available in two versions: 1-stage (EP-PT-S2) and 2-stage (EP-PT-S2-2) for additional height.

201-848-9818
www.telemetricsinc.com

Booth: C9525

ANCILLARY DATA MONITORING

Tektronix ANC Data Inspector

Enhances the ancillary (ANC) data monitoring capabilities of the WFM7120 and WFM6120 waveform monitors; ensures that all required ANC data is present and correctly configured through an intuitive data display.

800-835-9433; www.tektronix.com

Booth: N2522

REPLAY CONTROLLER

Thomson Grass Valley K2 Dyno

Coupled with K2 Summit; features intuitive user interface that includes the GV T-bar, switcher-quality buttons, a touchscreen LCD and high-speed GigE networking; can operate as a dedicated client within MediaFrame; users can import and export MXF, QuickTime and GXF files directly using a USB device.

530-478-3000
www.thomsongrassvalley.com

Booth: SL106

GOOD THINGS COME IN ALL SIZES

A new series of durable 7" Portable Field / Camera-Top Monitors

Three different models to choose from:

- Component (V-LCD70P-HDA)
- HDMI (V-LCD70P-HDMI)
- 3G / SD / HD with 1080p (V-LCD70P-3GSDI)

Starting at $999

NAB booth# C8908

9 different battery configurations available

All three new models provide a number of features including a wide variety of screen formats and markers, 4 user-configurable front panel function buttons, RGB Check Field / Field Detect, and RGB gain and bias control. Two other major features include Marshall's new FALSE COLOR and PEAKING Filters:

Assists in setting camera exposure

Assists in obtaining a sharp and focused picture

Marshall Electronics / LCDracks.com

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TOWER ERECTION, ANTENNA INSTALLATION

Radian Communications Services

Produces broadcast towers up to 2000ft; performs tower erection and antenna installations with in-house full-time field crews; provides inspections and engineering structural analyses; installs combiners, filters and transmitters for AM, FM and HDTV as well as LPTV/FM translators.

905-339-4059
www.radianbroadcast.com
Booth: C3009

FOOT CONTROL

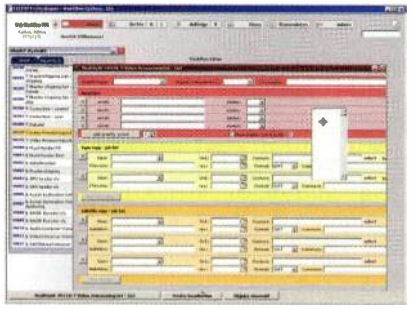
Autoscript Mango

Connects directly with the WinPlus prompter software, offering built-in intelligence to allow production staff or multiple presenters to allocate any controller for use at any time and with failsafe accuracy; using intuitive deskpad keys, the presenter can immediately assign specific controllers, view which ones are live, personalize them and enable or disable.

203-338-8356; www.autoscript.tv
Booth: C6026

WORKFLOW INTEGRATION AND SCHEDULING SYSTEM

Ceiton Web Workflow PPS version 4



A workflow management system for broadcasters and post-production studios; features a new Web application design and user interface; Oracle is now supported as a second database system, in addition to MSSQL; can be easily scaled up for thousands of users; Oracle security and failover features make the system secure for highly sensitive processes and information; contains a new Reports engine based on .NET technologies; users can develop more flexible reports and Office exports such as PDF and Excel.

818-827-7113; www.ceiton.com
Booth: SU13304

SD/HD PRODUCTION SWITCHER

Snell & Wilcox Kahuna

New features include the K-Watch software application, which allows file content and graphics to be converted and uploaded to one or multiple networked Kahuna systems, and the K-Mirror software application, which facilitates the rapid backup and sharing of Kahuna projects; also features 3-D stereoscopic functionality.

212-481-2416
www.snellwilcox.com
Booth: SU1917, SU1717

CONVERTER

Ensemble Designs Avenue 5360

Converts four channels of analog video and audio to four streams of SD-SDI with embedded audio; the A-to-D converter and embedder is for broadcast and satellite applications; built-in TBC and frame sync allow users to bring in any analog signal with ease; expandable, modular, tray-based signal integration system is housed in a 1RU or 3RU frame; allows any combination of HD video, SD video, DVB-ASI and audio modules in the same frame.

530-478-1830
www.ensembledesigns.com
Booth: N4023

SHOW CONTROLLER

Alcorn McBride V16 Pro

Features 16 serial ports, 16 inputs, 16 outputs, a MIDI port and a dual Ethernet interface; can communicate with virtually any piece of equipment and can be monitored and programmed off-site.

407-296-5800; www.alcorn.com
Booth: SL4313

MANAGEMENT SYSTEM

VCI Solutions Velocity

Automates back-office from sales to traffic to operations; designed to eliminate costs and go beyond BXF to provide ultimate control over your operation.

413-272-7200; www.vcisolutions.com
Booth: TBD

DIGITAL MATRIX ROUTER

RTcom EDM-3636M

Supports many popular digital interfaces, such as DVI, HDMI, SDI, and Display Port; provides prompt availability for any interface; features a back plane with slots for various port cards; allows users to easily expand or exchange the slot cards.

732-591-5800
www.digitalextender.com
Booth: SL6424

ADAPTERS

Nemal Electronics SMPTE adapters

Series of adapters between the SMPTE standard HDTV camera connector and discrete single mode ST connectors; allow use of standard single mode fiber with HDTV cameras; rugged and compact machined body with nonroll "D" shape; the rugged and compact units are available in male and female SMPTE versions, and either in passive or active models..

305-899-0900; www.nemal.com
Booth: C2542

AIM HIGH

By utilising building materials created for the Aerospace industry in our console design, some people think we go overboard with our attention to detail. But how else can we ensure you save valuable weight in OB applications? Ergonomics and failsafe architecture are other key factors that are constantly being addressed by our R&D team in Berlin and help us keep at the forefront of console design. Our goal is to meet your highest expectations!

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2009 OFFICIAL EXHIBITOR
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LIGHTWEIGHT using materials designed for aircraft a typical surface weighs just 88 kilos!
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www.stagetec.com

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SD/HD PRODUCTION SWITCHERS

Ross Video Vision QMD/X v9.0

Enhancements include up to eight channels of DVE in a single MLE, WhiteFlash transition type, expanded still-store functionality with thumbnails, animation trimming, new warps, MLE auto follow and memory attributes; also offers an expanded complement of device controls, including serial or Ethernet control of VTRs, video services, audio servers and audio mixers.

613-652-4886
www.rossvideo.com
Booth: SU1807

INTERCOM CONTROL PANELS

Riedel Artist 4000

Provide the full functionality of Riedel's digital matrix intercom solutions at an entry-price level; eight-key control panel is housed in a universal enclosure, which allows both rack-mount and desktop operation; available in two versions either with marker strips or an eight-digit, high-contrast, full graphic LCD display.

914-819-0495; www.riedel.net
Booth: C7637

MONITORS

Tamuz Broadcast Imperial Eagle/RLM HD Class-1

Class 1 32in monitor; meets SMPTE, ITU and EBU recommended specifications; HD-capable and use customized LCD panels; conform to the EBU t3320 Grade-1 and EBU t3325 measurement and exceed the recommended specifications values for brightness, contrast and black level.

908-879-0010; www.tamuz-usa.com
Booth: C7412

HDV CAMCORDER

Sony HVR-Z5U

Offers native 24P recording as well as tapeless recording capability through an optional CompactFlash adapter; uses three ClearVid 1/3in CMOS sensor chips, which are designed to provide high sensitivity, deep resolution, high-speed reading, low noise and a wider dynamic range; the CMOS sensors capture full HD 1920 x 1080 resolution, resulting in better picture quality when recorded onto miniDV tape in the HDV format (1440 pixels x 1080 lines).

201-930-7330
www.sony.com/professional
Booth: C11001

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You've relied on CEI for 22 years to deliver world-class systems design, integration and service. Now, we're also applying that award-winning dedication to excellence and reliability to providing superior broadcast and multimedia solutions, such as the new Grass Valley™ K2 Dyno™ replay controller.

This compact, cost-effective controller is designed to help sports producers and other professionals capture live events in SD and HD resolutions and instantly play them out at variable speeds for critical analysis during fast-paced events.

Until June 1, 2009, CEI is offering a 10% discount on in-shop equipment repairs -- and free estimates! Bring by or ship your equipment to us for fast turnaround times. We also offer training and customized maintenance contracts to fit your specific needs.

For more information, visit our Web site at www.commeng.com, email sales@commeng.com or call 703-550-5800.

COMMUNICATIONS ENGINEERING, INC.
703 550 5800 WWW.COMMENG.COM SALES@COMMENG.COM

THOMSON

ROUTER AND DA SERIES

Utah Scientific ProProducts

Series includes fixed frame and modular routers, as well as distribution amplifiers, for all signal types, including the 3G format; also includes a full-featured sync and test signal generator with options designed for all professional video applications.

801-575-8801
www.utahscientific.com
Booth: N3531

DIGITAL CINEMA SERVER

Doremi Labs DCP-2K4

4U configuration includes DVD-ROM and CRU ingest inputs; plays JPEG2000 and MPEG-2 MXF files; supports the latest 3-D technologies, including REAL D, XpanD, Sensio 3D, Dolby 3D and dual-projectors 3D playback; external control of captioning devices and 4K resolution playback are also available; includes the CineLister software utility that provides scheduling and playlist administration.

818-562-1101; www.doremilabs.com
Booth: SU5021

VERIFICATION NETWORK

XOrbit ProofPositive

Improvements to the watermark-free delivery verification network include a new 3RU video signal monitor (VSM) chassis, new motherboard and CPU, new video capture technologies, and version 2.0 software; provides engineering with audio-level alerts and video-overlay alerts automatically; features a single interface to monitor alerts and play back clips, new full-search capability, auto-filing alerts by location for tracking and archival purposes, and a "watch list" capability, so specific locations can be tagged as high priority.

301-362-9500; www.xorbit.com
Booth: SU3417

MONITOR WALL PROCESSING

Videoframe Tally Server VNODE

Solves interface and equipment control issues for monitor wall processing; interfaces to Ethernet and serial tally streams, as well as GPI/GPO ports, with full logic capability; includes a time code input for timed events.

530-477-2000
www.videoframesystems.com
Booth: SU5422

AUDIO RECORDERS

Zaxcom Deva and Fusion

Deva hard disk and Fusion audio recorders now feature a sunlight-readable screen; the brighter display screen allows for easier control in any environment; feature 3X the luminance of existing Deva displays; the new screen will allow users to view and adjust all of the Deva's settings, such as scene, take, note, and roll number metadata, even in bright sunlight.

973-835-5000; www.zaxcom.com
Booth: N3114

Brown indicates advertisers

ENCODER
ViewCast Niagara Pro II

Captures, encodes and streams video and audio over the Internet and mobile networks for live viewing and video-on-demand applications; comes with SimulStream and Niagara SCX Pro control and management software, which allow users to manage the streaming workflow from a single user-friendly Web interface and enable a single video source to be streamed simultaneously at multiple resolutions, at multiple data rates, and in a variety of streaming formats, including H.264, MPEG-4, Adobe Flash, Windows Media (Silverlight compatible), and 3GPP/3GPP2 for mobile applications.

800-540-4119; www.viewcast.com

Booth: SL12415

SHARING/STORAGE SYSTEM
Bitcentral Oasis Media Marketplace

Enables local TV stations to share and sell media over existing bandwidth without paying for satellite transmissions; stations can share within their own groups while selling content to other stations.

949-253-9000; www.bitcentral.com

Booth: SU913

TAPELESS ENG SYSTEM
Ikegami GF series

Developed in cooperation with Toshiba; includes the GFCAM HDS-V10 tapeless camcorder, the GFSTATION GFS-V10 studio deck and the GFPAK high-capacity flash media to record more than two hours of HD video; features an open-codec HD/SD architecture, proxy video and metadata convenience.

201-368-9171; www.ikegami.com

Booth: C5108

POZI-LOC TRIPOD
Vinten Pro-5Plus

Features a Pozi-Loc Tripod; designed to support the latest lightweight HDV and DV camcorders; available with matching floor or midlevel spreaders; can be augmented with a multipurpose dolly.

845-268-0100; www.vinten.com

Booth: C6028

DENSE DECODER AND DESCRAMBLER
Scopus Video Networks Integrated Receiver Processor

Combines a dense receiver that uses a variety of front ends, a dual decoder, a transport stream descrambler and a remultiplexer; features multiple DVB-s/S2, ASI and GigE inputs, a variety of TS outputs, two integrated DVB common interface modules that allow descrambling of two complete transport streams, and regeneration of MPTS to multi-MPTS/SPTS.

609-987-8090; www.scopus.net

Booth: SU10917

DIGITAL TV TRANSMITTERS
Screen Service Broadcasting MAGNUM series

Digital TV transmitters for SFN and MFN networks; feature a built-in SFN adapter and advanced technology, which allows implementation of all modulation patterns for either digital or analog in the same hardware; firmware allows zero-error signal processing thanks to an internal 32-bit architecture; the SDT ARK-1 is an all-in-one transposer and transmitter for all modulation, including the ISDB-Tb.

+39 030 358 2225; www.screen.it

Booth: C1925

ARCHIVE TOOL
SGL FlashBrowse II

A client-based Web tool that allows FlashNet users to capture simple metadata and archive and restore media from many different forms of archive; can be used on any platform — Mac, PC or Linux; users can search for content held in the archive as well as view low-res proxy versions without restoring the original material from the archive; supports both simple and advanced searches.

+44 1489 88 99 30; www.sgluk.com

Booth: SU8508

STANDARDS CONVERTER
Snell & Wilcox MachHD

Offers cost-effective, high-quality motion-compensated HD and SD standards and format conversion with synchronization capability; offers multirate HD/SD inputs and outputs; provides up/down/crossconversion, along with aspect ratio conversion and colorspace conversion; supports embedded AES and analog audio.

212-481-2416

www.snellwilcox.com

Booth: SU1917, SU1717

VIDEO JACKS
Canare DVJB series

75Ω digital video jacks; feature a 3.0Ghz bandwidth; come in normal and straight-through design; feature a new rotary switch design for better performance; can also be used as a digital audio patchbay.

973-837-0070; www.canare.com

Booth: C9118

TECHNICAL FURNITURE
TBC Consoles Trac series

Series includes the IntelliTrac, TracWall and SmartTrac consoles; provide modular designs for control room consoles, edit desks and flat-panel monitor walls; integrate perfectly with each other; offer highly adaptable furniture solutions.

888-266-7653; www.tbcconsoles.com

Booth: C12126

Inter BEE

International Broadcast Equipment Exhibition

2009.11.18 Wed. ⋙ 20 Fri.
at Makuhari Messe, Tokyo

Professional Show for Audio, Video and Communications

In the broadcasting industry and among its wide-ranging clients, the Inter BEE exhibition has earned a solid reputation as a venue to unveil some of the world's most advanced technologies. Typically visited by creators and engineers at the forefront of fields involving visual, audio and broadcast media, the exhibition serves as both an international technology exchange and an opportunity to cultivate business over a broad spectrum of needs. Inter BEE is an excellent business opportunity for **manufacturers of audio, visual and broadcast equipment.**

We hope you will take full advantage of this exhibition by becoming an exhibitor.

Applications to Exhibit Now Accepted
Primary application deadline: Friday, May 29

Organizer:
JEITA Japan Electronics and Information Technology Industries Association

Global partners:
Asia-Pacific Broadcasting Union
iabm
NABSHOW Where Content Comes to Life
BIRTV
BroadcastAsia2009
KOBA
HKTDC Hong Kong International Film & TV Market (FILMART)
香港國際影視展

Management/Contact:
Japan Electronics Show Association
5F, Sumitomo Shiba-daimon Building No.2, 1-12-16,
Shiba-daimon Minato-ku, Tokyo 105-0012, Japan
Tel: +81-3-5402-7501 FAX: +81-3-5402-7605
E-mail: contact@inter-bee.com

For Video, Audio, and Communications Professionals

Inter BEE online
www.inter-bee.com

Brown indicates advertisers

TRANSMITTER

Rohde & Schwarz R&S SCx8000

Features integrated cooling, integrated splitter and coupler station and new redundancy concept for the exciter and amplifier; can be switched from analog to digital transmission as required; power output stage comes ready with broadband precorrection for user's preferred digital standard.

410-910-7800
www.rohde-schwarz.com

Booth: C1933

HD/SD-SWITCHABLE GRAPHICS SERVER

Chyron MicroClyps

Provides instantaneous clip recall and playout; can be configured as either HD or SD with synchronized audio, video and key outputs as well as a built-in keyer for compositing clips on program video; features local and remote browse, media management and playback control.

631-845-2000; www.chyron.com

Booth: SL1420

RAID STORAGE SYSTEM

Sonnet Technologies Fusion DX800RAID

Eight-drive RAID SATA storage features a built-in SAS expander that enables up to 16 eight-drive enclosures to connect so a single Sonnet RAID controller; provides the speed required for working with uncompressed 10-bit 1080 HD video streams and the data security and monitoring critical in a large RAID system.

949-587-3500; www.sonnettech.com

Booth: SL13307

ATA OVER ETHERNET SHARED STORAGE

Small Tree GraniteSTOR EasyAoE

Designed for A/V editors and graphic artists to manage shared storage solutions that are direct attached; provides robust, consistent performance over Ethernet networks or directly attached to a server while offering optimal cost-efficiency; offers a fast (greater than 500MB/s), economical solution with two 10Gb or six 1Gb Ethernet connections with up to 24 hot swap SATA disks; available in 4-, 16- or 24-drive configurations.

866-782-4622; www.small-tree.com

Booth: SL10210

SCHEDULING COMPONENT

ScheduALL Process Manager

Provides granularity of task-based scheduling, faster work order/process creation via drag-and-drop templates and enhanced forecasting, budgeting and reporting within the project workflow spectrum; enables a greater degree of visibility across the enterprise.

954-334-5406; www.scheduall.com

Booth: SL1606

DIGITAL MIXING CONSOLE

Salzbrenner Stagetec Mediagroup AURATUS

Developed as a small production, broadcasting and live console; has 54 input channels and a fixed bus layout; modular structure supports versions featuring eight, 16 or 24 channel strips; available as desktop or fitted versions without legs; designed for 5.1 and stereo formats; a stereo-only version is available on request.

888-782-4391; www.stagetec.com

Booth: N1115

ON-CAMERA LED LIGHT FIXTURE

Sachtler Reporter 8LEDim

Offers a full range of dimming from 100 percent to zero; can be powered off input voltage from 6V to 24V; can be used as a small location light by placing it on a mounting base or on a mini croco clamp; available in a daylight or tungsten version.

845-268-0100; www.sachtler.us

Booth: C6027

GRAPHIC GENERATION AND OVERLAY

Compix Media Channel Brander

Designed for channel branding, dedicated logo insertion, EAS message generation and automated template-based sports-score generation; accepts static graphic/logo import of TGA, BMP, JPEG, GIF, PNG, and TIF files, automatically converting images to and from different video resolutions as needed; uses Compix Media's GenCG software; offers 4000 True Type fonts and 300,000 premium quality images.

800-589-2555
www.compixmedia.com

Booth: SL5105, SL4805

AES/EBU ANALOG-TO-DIGITAL PORTABLE CONVERTER

Whirlwind AESDA

Provides high-quality AES analog-to-digital conversion while providing diagnostic analysis of the incoming digital signal to help in troubleshooting signal faults; features 110Ω balanced and 75Ω unbalanced inputs; dual function level meters display either digital input signal level or analog output level; dual function LEDs display digital input information or signal condition/fault type.

585-663-8820
www.whirlwindusa.com

Booth: C6533

PLAYOUT AND REAL-TIME GRAPHICS SOLUTION

ToolsOnAir CompositionSuite

Provides broadcasters with Apple-based playout automation and real-time graphics; features an intuitive interface that mimics Apple's simplicity and design; streamlined processes create shorter time to air and more flexibility.

+43 6643 336708; www.toolsonair.com

Booth: SU9624B

MULTICHANNEL LEVEL CONTROL

Ward-Beck Systems MLC8

Handles AES, Dolby E, Dolby AC3, analog audio or HD/SD embedded signals; equipped with eight LED bar graph level displays, individual channel and master level control with mute function, level status LED indicators, presets and toggling between 5.1 and stereo listening, and 7.1 and 5.1 to stereo mix-down capability.

416-335-5999; www.ward-beck.com

Booth: SU4813

To create a masterpiece, sometimes it only takes a simple tool.

mc²56 – Performance, pure and simple. A reduced control surface with maximum performance from the system core – these advantages of the latest mixing console from Lawo will really impress you. With the mc²56, not only do you benefit from the well-known highlights of the mc² family – powerful HD core, absolute reliability and innovative features – you also benefit from the console's unprecedented ease of use. The worldwide success of mc² quality, paired with groundbreaking functionality – just two of the features that make an mc²56 the perfect tool for daily broadcasting. For further information visit www.lawo.ca

See us at NAB
Booth #N5433

NABSHOW

LAWO

Networking Audio Systems

MHEG-5 RECEIVER ENGINE

Strategy & Technology (S&T) REDKEY 2

MHEG-5 middleware engine offers a modular architecture and supports all of the current international profiles of the MHEG interactive TV standard, including those implemented in the UK Freeview/Freesat, Boxer/Ireland, New Zealand, Hong Kong, South Africa and Australia; also supports the interaction channel IP connectivity to enable hybrid broadcast/IPTV receivers.

303-926-4933; www.s-and-t.com

Booth: SU8606

HD POV CAMERA

Sony HXR-MC1

HD compact point-of-view camera and solid-state recorder combination; has a unique design that separates the camera head from the control unit/recorder, giving professional users more flexibility to capture shots in video applications where increased mobility is required beyond the use of traditional handheld or shoulder-mount cameras; records onto Memory Stick PRO Duo media using AVCHD compression; can record up to six hours of HD content onto a 16GB Memory Stick media.

201-930-7330
www.sony.com/professional

Booth: C11001

VIDEO TRANSPORT ENCODER

Streambox SBT3-9500

Enables broadcasters to get more HD/SD video back to the studio over networks including 3G, WiFi, WiMAX, the Internet and satellite; facilitates multiplexing/demultiplexing of a single video stream over two IP networks; based on ACT-L3 codec; encodes full-frame 1080i/720p HD video and NTSC/PAL SD video and audio.

206-956-0570
www.streambox.com

Booth: SU14413

WEB BROWSE ARCHITECTURE

TransMedia Dynamics i-Mediaflex

Features redesigned GUI; allows users from inside and outside the enterprise to examine content and workflow from any desktop browser and see content as it flows through a facility; enables operators to use workflows for processes such as post production, dub ordering, subtitling/closed-captioning and audio dubbing.

+44 1296 745080; www.tmd.tv

Booth: SU9205

HDTV STUDIO/FIELD PRODUCTION CAMERA

Hitachi Kokusai Electric SK-HD1000

Offered with hybrid fiber-optic cable or digital triax cable transmission; converts into a solid-state field recorder and wireless configuration; features two-piece body design, F10 sensitivity with 60dB signal-to-noise ratio, 14-bit analog-to-digital conversion and CCU outputs of 1080i and 720p, or switchable between the two.

516-921-7200
www.hitachikokusai.us

Booth: C4310

DIGITAL AUDIO ROUTING AND INTERCONNECT SYSTEM

Salzbrenner Stagetec Mediagroup NEXUS

Audio network and routing system for controlling studio or mixing console resources, routing areas, OB trucks and sound reinforcement; offers audio format conversion, A/D and D/A converter systems, audio processing, data forwarding, routing interfaces, multichannel metering, power-amplifier control and intercom.

888-782-4391; www.stagetec.com

Booth: N1115

TRANSMITTER

Axcera 6X series

Liquid-cooled transmitter uses the company's frequency agile exciter and the latest LDMOS devices for broadband operation across the entire UHF band; power amplifier systems operate at the highest power density available, reducing floor space requirements; uses parallel amplifier and power supply modules, which can be removed and replaced while the transmitter is on the air.

800-215-2614; www.axcera.com

Booth: C8546D, C1319

UPS

Staco Energy UniStar C series

A single-phase online UPS; series consists of 1-, 2- and 3-kVA rack-mount models; includes hot-swappable batteries, a powerful internal battery charger, emergency shutdown and programmable receptacles; this double-conversion UPS protects from outages and irregularities in incoming line voltages from 60Vac to 144Vac (120Vac input) or 120Vac to 288Vac (230Vac input) at 45Hz to 65Hz.

866-261-1191
www.stacoenergy.com

Booth: N2814

ROUTER

Thomson Grass Valley Trinix NXT

Switches any signal from analog and SD to 3Gb/s 1080p HD; available in configurations of 128 x 128 in 8RU, 256 x 256 in 15RU and 512 x 512 in 32RU; integrated with CleanFlow architecture to minimize number of connector contacts; provides redundancy options including redundant matrix switching on the 128 and 256 input frames.

530-478-3000
www.thomsongrassvalley.com

Booth: SL106

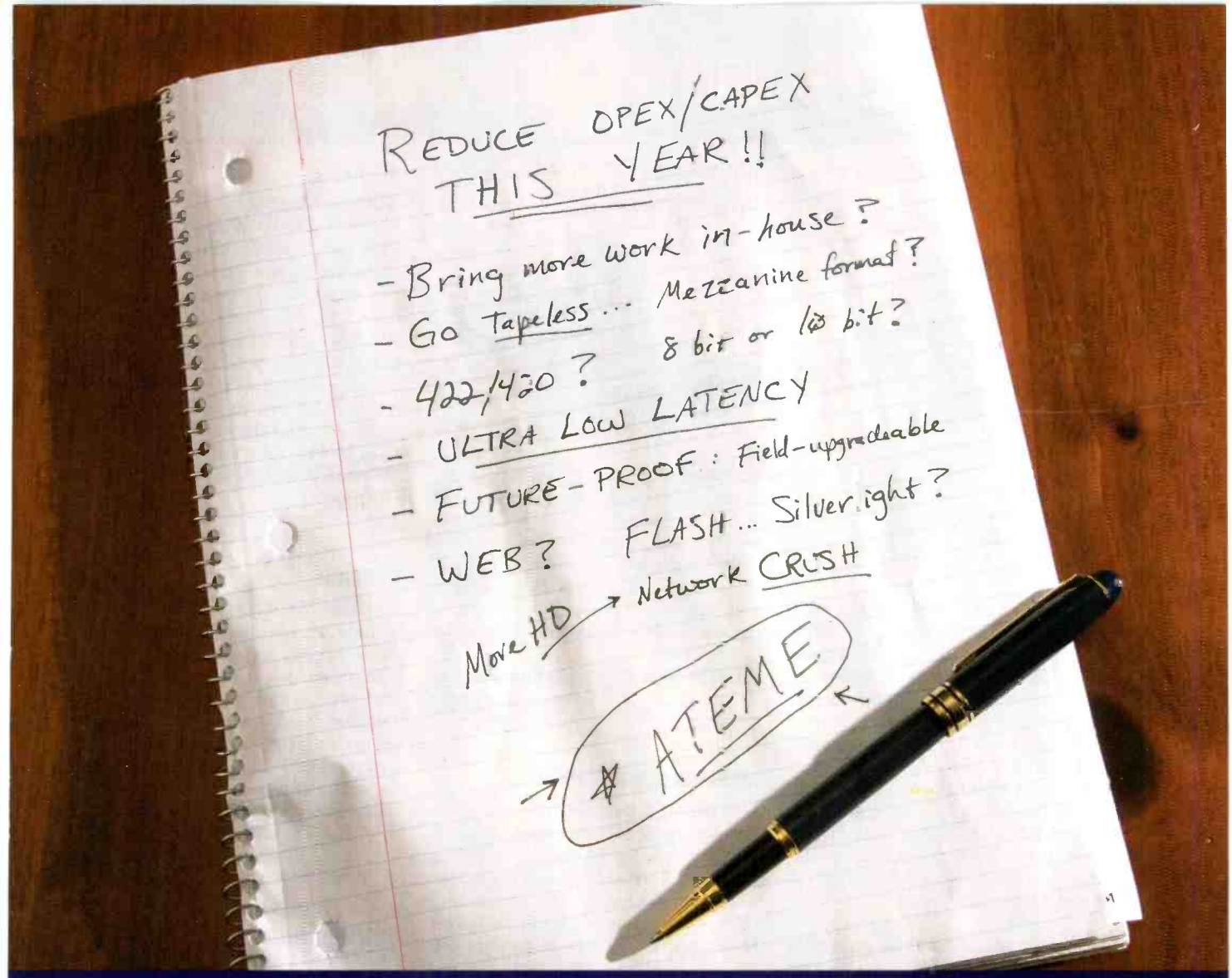
DIGITAL WIRELESS INTERCOM

Riedel Acrobat

License-free, full-duplex, wireless communications intercom; allows the operation of an unlimited number of wireless beltpacks; features both partyline and point-to-point communications, digital audio quality and no interference with radio microphones or in-ear monitoring.

914-819-0495; www.riedel.net

Booth: C7637



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Because Content Deploys Everywhere

www.ateme.com

For more information: sales@ateme.com

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DISTRIBUTION AMPLIFIERS

Harris 3Gb/s distribution amplifiers

Provide broadcasters with a unique combination of configurations, including single-channel transceiver, dual-channel fiber transmitter, dual-channel fiber receiver, and dual-channel fiber receiver with dual fiber transmitters per channel; the DA-HRO6803+D is a single-channel 1x8 DA with O-to-E or E-to-O conversion; the DA-DHREO6803+D is a dual-channel 1x4 DA with E-to-O conversion; the DA-DHROE6803+D is a dual-channel 1x4 DA with O-to-E conversion; the DA-DHROOE6803+D is a dual-channel 1x4 DA with O-to-E conversion.

800-442-7747
www.broadcast.harris.com
Booth: N2502

ENCODER

ViewCast Niagara 8224

Captures, encodes, streams and archives premium-quality audio and video simultaneously from eight fully independent channels; accepts component, Y/C (S-Video), and composite analog video inputs and balanced and unbalanced stereo audio inputs; allows users to encode and stream media in real time, at multiple bit rates, in multiple formats, and multiple resolutions.

800-540-4119; www.viewcast.com
Booth: SL12415

AUDIO CONSOLE

Wheatstone D-8

Surround-sound audio console for medium and smaller market stations, remote trucks, or secondary on-air/production rooms in larger facilities; features 24 motorized input faders, surround, four submasters, two main buses, two aux sends, and extensive processing (four-band parametric EQ, filters, compressor/limiter, de-esser).

252-638-7000; www.wheatstone.com
Booth: N7612

MEDIA SERVER SYSTEM

Omneon Spectrum

Enables broadcasters to migrate from analog to digital, tape to disk, SD to HD and from single- to multichannel operations; incorporates open, advanced architecture; includes MediaController, MediaDirector, MediaPort I/O modules, MediaStore storage arrays and SystemManager.

408-585-5000; www.omneon.com
Booth: SU7217

ADJUSTABLE-BEAM FLUORESCENT LUMINAIRES

Videssence Power Key

Feature adjustable mounting yoke and lever at the back fixture to adjust each lamp cell; allows adjustments from 60 degrees to 90 degrees beam spread; reflector refocuses the light without the need for additional accessories; use 55W Biax lamps; P055-155BX is 55W, P110-255BX is 110W and P220-455BX is 220W.

626-579-0943; www.videssence.tv
Booth: C8428

SERVER

360 Systems MAXX-2400 HD

Plays up to four HD video streams at once, or can record two streams, while playing two others; also can be used as a graphics store, with linked key-and-fill capability; standard features include HD-SDI video I/O with frame synchronization for recording wild sources like tape and satellite feeds; audio formats include embedded audio, and your choice of AES/EBU digital or balanced plus four analog.

818-991-0360; www.360systems.com
Booth: N4120

STORAGE

Bycast StorageGRID 8

Virtualizes information retention and access over a range of storage devices from high-performance disk to archival media, distributed over multiple sites; features the new Distributed File System Gateway (DFSG), a high-performance clustered file system front-end; provides a unified solution to manage the storage of digital data and images from primary storage to deep archive.

866-217-6813; www.bycast.com
Booth: SU6925

CONTROL AND MONITORING SYSTEM

Pro-Bel Morpheus Control & Monitoring (MCM)

Seamlessly integrates with systems from two new manufacturers; new MCM routing configurations also offer users the capability to control and monitor more features within the company's recent routers, and to display status at a glance; new features include advances in the rules engine, customer-defined logic functions and a tie-line engine.

631-549-5159; www.pro-bel.com
Booth: SU12710

LCD VIDEO MONITOR

Wohler RM-3270W-2HD

Measures 3RU in height; features two 7in widescreen LCDs, each with 800 x 480 resolution and 16.7 million colors.

510-870-0810; www.wohler.com
Booth: N1102

CABLE ASSEMBLIES

Wireworks BG Cable Assemblies

Can be used in both microphone and line level applications; feature MusiLUX microphone cable or AES/EBU digital cable teamed with Neutrik's convertCON connector; available in four configurations: XLR male to convertCON, XLR female to convertCON, convertCON to convertCON and quarter-inch TRS to convertCON.

908-686-7400; www.wireworks.com

Booth: C4147

VIDEO CONNECTORS

Gepco V-CON

Provide bandwidth and electrical performance necessary for multichannel HD interconnects in a durable, all-weather design; available in three- to six-channel versions as well as 10-, 12- or 14-channel versions; can be used for both component video and high-density, uncompressed HD video applications.

847-795-9555; www.gepco.com

Booth: C7430

ROBOTIC AND MANUAL PEDESTAL

Vinten Radamec Fusion FP188

Recognizes new, compact L-shaped floor targets that offer more precise reference positioning across a wider range of floor finishes; features smoother on-shot transition sequencing and collision avoidance protection; 187lb payload supports an expanded camera/prompter package, including the talent-facing vanity monitor often attached to the head during HD production.

845-268-0100; www.vinten.com

Booth: C6029

SIGNAL SWITCHER

Whirlwind AB-8

Eight-channel, balanced bidirectional switcher auto-senses loss of input on its eight primary inputs; automatically switches to secondary inputs for backup in live tracking applications; can also be used manually to switch between inputs and outputs when multitracking in a studio; channels can be switched individually or globally; AB-8 units can be master/slaved for switching large numbers of channels.

585-663-8820; www.whirlwindusa.com

Booth: C6533

EXTENDER

Avocent LongView 1000P

Separates users up to 1000ft from computers; user PC experience unaffected over distance of 1000ft; extends audio and serial ports; single cable-to-user design simplifies installation and moves; with its dual transmitter, supports connectivity to a second user station.

866-277-1924; www.avocent.com

Booth: SL13616

Brown indicates advertisers

FIELD RECORDER

Sony PDW-HR1

Part of the XDCAM HD422 Professional Disc system; the HD mobile unit is designed as an ENG/EFP complement for XDCAM HD422 optical camcorders, while also supporting legacy formats including MPEG IMX, DVCAM and 4:2:0 HD 24P content; features a built-in up/downconverter; provides multiformat (1080i/720P) recording flexibility, as well as HD/SD conversion and crossconversion during playback between 1080i and 720P.

201-930-7330
www.sony.com/professional
Booth: C11001

SD/HD/2K VIDEO CARD

Blackmagic Design DeckLink HD Extreme

Features SDI, HDMI and analog component, NTSC, PAL and S-Video capture and playback, combined with dual-link 3Gb/s SDI technology and hardware downconversion; SDI, HDMI and analog video capture and playback, combined with both balanced analog and AES/EBU digital audio, lets users connect to all decks, cameras and monitors; instantly switches between SD and HD video.

408-954-0500
www.blackmagic-design.com
Booth: SL10820

CAMERA-MOUNTED FIBER-OPTIC TRANSCEIVER

Telecast Fiber Systems CopperHead INF

Designed for the Thomson Grass Valley Infinity camcorder; enables use of the Infinity as both a camcorder and an HD-SDI multicam production camera; fits between the Infinity and its battery, delivering bidirection HD-SDI, composite video, audio, intercom, genlock and camera control between the camera head and the remote base station over a single lightweight, battlefield-ready fiber-optic cable.

508-754-4858
www.telecast-fiber.com
Booth: SU8517

LIGHTING SYSTEM

Kino Flo BarFly 400

Uses True Match 55W QFL daylight and tungsten lamps; draws 4A of power on 120VAC; features four-lamp remote fixture and removable center mount; mounts to stand; includes 90-degree honeycomb louver, gel frame and built-in harness; runs up to 75ft from ballast.

818-767-6528; www.kinoflo.com
Booth: C8242

LIGHTING DESIGN

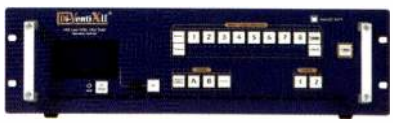
FX Group Lighting Optimization Program

Provides consultation, design and installation in a station's studio by a professional lighting designer; lighting solutions specifically for HD broadcasting; consultations with talent to optimize lighting for skin tones and hair colors; and return maintenance visits on a regular basis.

407-573-0499; www.fxgroup.tv
Booth: R300

SWITCHER

Analog Way Di-VentiX LE



A multilayer mixer, scaler and seamless switcher with universal analog and digital input/output and full high-resolution digital processing; offers numerous live effects including picture in picture, downstream keying and chroma key as well as a multilayer mixer operation mode; can display up to four layers: two live sources, one frame and one logo.

212-269-1902; www.analogway.com
Booth: SL7423

RECEIVER

ANT Group DTMR-A850

Monitors ATSC signals at the transmitter output and/or at the antenna, to have a real performance measurement of an 8VSB transmission system; reaches quality measurement performances (>38dB MER, +/-0.5dB); automatic alarms on user preset thresholds on level, MER, S/N and eye aperture ensure that the digital signal will cover all the planned reception area; can be used in the field to check signal coverage and quality.

+39 346 8836776; www.antgroup.it
Booth: C3321

RESOURCE MANAGEMENT APPLIANCE

ScheduALL Enterprise Resource Management

Delivers resource sharing across facilities; enables resources to be shared on a one-to-one basis with dedicated business units or made available to the entire corporate network; consolidates financials, resource planning and reporting across the enterprise.

954-334-5406; www.scheduall.com
Booth: SL1606

MULTISCREEN TRANSCODER

Harmonic ProStream 4000

Offers real-time transcoding of MPEG-2 and MPEG-4 AVC content for Internet, 3G/4G mobile and broadcast mobile TV services; can transcode up to 16 channels simultaneously; features an all-IP infrastructure and flexible software.

408-542-2500
www.harmonicinc.com
Booth: SU7209

TRANSMISSION SYSTEM

OmniBus iTX On-Demand

Allows broadcasters to transmit conventional channels and save VOD-ready content from the same iTX workflow and hardware, without having to reingest or reformat material explicitly for VOD use; can be used to create everything from low-resolution files for Web download or mobile phones to HD MPEG-4 files with Dolby surround sound for broadband IPTV applications.

303-237-4868; www.omnibus.tv
Booth: SU5417

Comtech EF Data has a proven track record of supplying satcom infrastructure equipment to broadcasters in more than 160 countries. By joining forces with Radyne, our broadcast product portfolio is now expanded. The combined Comtech EF Data and Radyne solutions encompass contribution and distribution for a range of broadcast applications.

- Radyne DVB-S2 Modulators offer a robust feature set, powerful coding, flexible interfaces, amplitude and group delay equalization, and proven performance.
- Comtech EF Data IP Encapsulators leverage embedded platforms, the bandwidth efficiencies of DVB-S2 and advanced technologies to provide reliable multi-protocol encapsulation.
- Comtech EF Data Receivers feature redundancy and embedded platforms, facilitating standard data broadcasts and the transport of MPEG-2 video service over IP.

These advanced communication solutions can help you maximize transponder utilization and minimize operating expenses. Contact us to learn more about how our reliable, efficient and cost-effective solutions can be integrated into your broadcast network.

COMTECH EF DATA™ RADYNE

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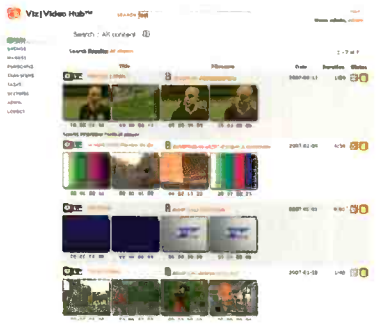
PRODUCTION/ARCHIVE SOLUTION

Vizrt Viz Video Hub v1.2.1



Enables broadcasters to archive video assets directly within the system as well as quickly retrieve and repurpose them; allows graphics solutions to search for video clips on the MAM storage, retrieve and edit them and add them to graphics and templates; assets can be directly accessed through the Escenic Content Studio software.

212-560-0708; www.vizrt.com

Booth: SL5508

SYSTEM DESIGN SOFTWARE

WireCAD

WireCAD standalone system design and documentation software aids engineers in creating 2-D CAD drawings and functional block diagrams, and rack layouts; automatically assigns cable numbers, prints cable labels, bills of materials and other reports.

661-253-4370; www.wirecad.com

Booth: N4932

ENG RECEIVER

Lectrosonics Digital Hybrid Wireless

Features two independent channels that can feed separate inputs or can be mixed internally to feed a single input; offers two diversity modes: SmartDiversity reception is employed by independently combining antenna phase for each receiver channel, while the two channels can be used together in True Diversity Ratio mode as a single receiver.

505-892-4501

www.lectrosonics.com

Booth: N5223

SIX-WAY COFDM DIVERSITY RECEIVER

RF Central RFX-RMR-X6-II-D

Features an internal SD/HD decoder, on-screen display of stream data, Ethernet monitoring for remote-control access and IP encapsulation for Internet broadcast; available as a standalone COFDM receiver with ASI output or with an integral SD/HD encoder.

717-249-4900; www.rfcentral.com

Booth: C3707

HDMI UPCONVERTERS

TV One 1T-VS-622/1T-VS-624

Feature HDCP compliancy, DVI compatibility, comprehensive OSD menu and locking DC power connector; externally available audio can be embedded into the output HDMI signal via separate TOSLINK and analog stereo inputs; 622 converts composite or S-video SD analog signals to HDMI output at PC, SD or HD resolutions; 624 converts variety of RGB signals between VGA and WUXGA to standard HDMI output at PC, SD or HD resolutions.

859-282-7303; www.tvone.com

Booth: C7408

SATELLITE NEWSGATHERING

Stratos BGAN

Provides an SNG solution in a small, portable satellite terminal; offers broadcast-quality IP streaming and store-and-forward capabilities; simultaneous voice and data lines allow field reporters to maintain voice contact with the studio for cueing without compromising data.

709-748-4226

www.stratosglobal.com

Booth: OE411

SERIAL DIGITAL VIDEO FIBER-OPTIC TRANSPORT LINK

MultiDyne HD-3000

Supports 1080p progressive 3Gb/s HD-SDI SMPTE424M format; provides fiber-optic transport and distribution of virtually any digital signal from 5Mb/s to 3Gb/s.

516-671-7278; www.multidyne.com

Booth: SU6917

MULTIPLEXER

Rohde & Schwarz R&S AEM100

Enables network operators to completely upgrade their ATSC networks to ATSC Mobile DTV standard; can be integrated in the existing infrastructure.

410-910-7800; www.rohde-schwarz.com

Booth: C1933

VIDEO SIGNAL TRANSMITTER

Otari LWB-08HD

Uses industry-standard fiber-optic camera cables for long-distance signal transmission; supports up to eight video transmission signals as well as one-to-one connection and cascade connection; accepts HD-SDI and SD-SDI signals, and optionally AES3id.

408-226-9800; www.aheadtek.com

Booth: C10820

DATA COLLECTION

ANT Group RDF-L -ETH

Data collection equipment designed to serve secondary and small transmission and reception sites where there are DSL connections; manages eight analog inputs (8- or 10-bit resolution), eight digital inputs (on-off) and eight relays (digital output); they are configurable, both locally and remote, and are programmable to generate alarms or run simple routines, called macros; the analog inputs have six programmable thresholds: two for alarms, two for pre-alarms and two for history; contact closure inputs can be set as open or closed.

+39 346 8836776; www.antgroup.it

Booth: C3321

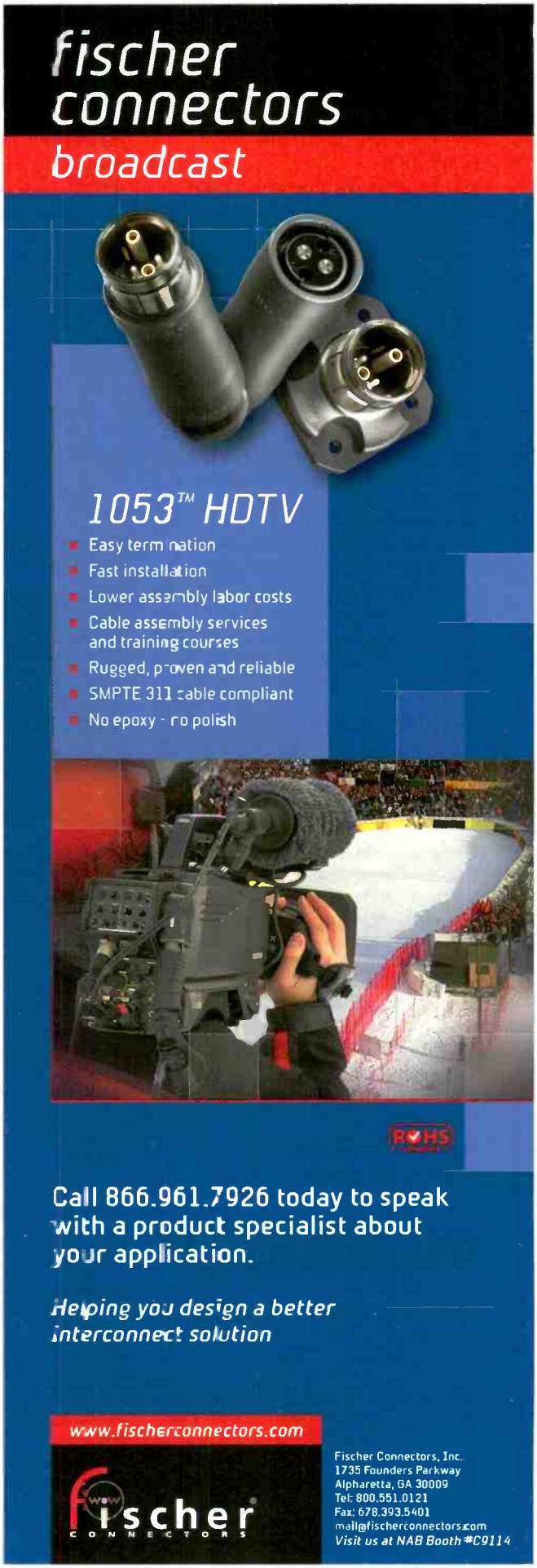
NETWORK MANAGEMENT SYSTEM

Scopus Video Networks Eldorado NMS

Manages services and devices across networks, scaling from small headends to large and distributed networks; features IP and ASI routing solutions, a variety of redundancy schemes, drag-and-drop operations for topology and views, and easy integration of third-party devices.

609-987-8090; www.scopus.net

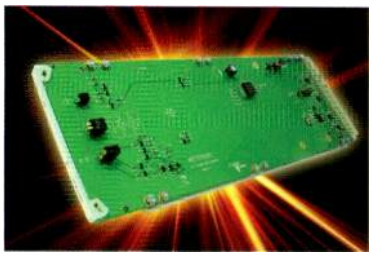
Booth: SU10917



Brown indicates advertisers

3G/HD/SD DISTRIBUTION AMPLIFIER

Crystal Vision 3GDA105C



A 3GHz reclocking distribution amplifier that can distribute 3G HD, HD or SDI; provides five reclocked outputs and has auto detection of input, recognizing whether the standard is HD or SD and switching the output slew rate automatically; with 3G HD cable equalization of up to 80m using Belden 1694A, it can handle all data rates up to 3GHz and easily meets the -10dB input return loss that must be achieved for 3GHz, along with the -15dB input return loss required for 1.5GHz.

+44 1223 497049
www.crystalvision.tv
Booth: SU3102

MODULAR RECEIVER/DECODER

Sencore Atlas MRD 3187B

Combines dual-channel processing with MPEG-2, MPEG-4, 4:2:0, 4:2:2, SD and HD video decoding; adapts to virtually any contribution, distribution or backhaul environment while allowing upgrade paths to future technologies; features DVB-CI and SCTE35/104 messaging support.

605-339-0100; www.sencore.com
Booth: SU4412, C8546E, N2530

AVC SD/HD ENCODER

Fujitsu IP-9500

Supports HD satellite newsgathering applications that require high picture quality at SD bit rates with low delay; features advanced H.264 compression technology; produces high-quality bit rates of 4Mb/s to 27Mb/s; other features include 300ms low latency, low bit rates, DVB-ASI or IP transports for network flexibility, and full compatibility with industry-standard decoders.

800-626-4686; http://us.fujitsu.com
Booth: SU10921

HD PRODUCTION CLIENT

Thomson Grass Valley K2 Summit

Supports SD/HD live event news production and live-to-tape/disk applications; supports four bidirectional channels of DVCPRO HD, DVCPRO 50 and DVCPRO 25; features responsive performance, a small form factor, instant playback of recorded material and built-in transition effects that only take one playback channel.

530-478-3000
www.thomsongrassvalley.com
Booth: SL106

UPS

Staco Energy UniStar P series

A single-phase online UPS; available in 6-, 8- and 10-kVA models to protect from outages and irregularities in incoming line voltages from 160VA to 280VA at 45Hz to 65 Hz; up to four modules can be installed in parallel for redundancy or additional capacity; features a near unity input power factor and AC to AC efficiency greater than 90 percent that meets industry standards for energy savings and less than 5 percent reflected harmonics.

866-261-1191
www.stacoenergy.com
Booth: N2814

ONLINE COMMUNITY PLATFORM

Cisco Eos

A hosted software platform that enables media and entertainment companies to deliver community-driven Web sites, creating more personalized experiences around their content and brands while increasing overall end-user engagement and retention; unlocks unrealized value in media company Web sites by integrating social networking, content targeting, asset management, and site administration features into a robust backend system.

800-553-6387
www.cisco.com
Booth: S214LMR, S213LMR

HD WORKFLOW

Avid HD News

An end-to-end HD news system that enables broadcasters to cost-effectively produce HD programming; broadcasters can easily acquire, edit, network, manage assets, playback and control functionality of XDCAM HD (long GOP HD MPEG-2) content with a workflow designed to deliver significant time, storage and bandwidth savings; consists of the new AirSpeed Multi Stream production server version 1.0, NewsCutter software version 7.5, as well as the Interplay Production Asset Management and Unity shared storage systems.

978-640-6789; www.avid.com
Booth: SU902

IP-BASED VIDEO SERVER

Streambox Store and Forward Server

Supports hundreds of simultaneous video file uploads from field crews, stringers and citizen reporters; provides searchable metadata via a Web-based interface; can be customized to facilitate rule-based transcoding to and from a variety of file formats.

206-956-0570
www.streambox.com
Booth: SU14413

MONITORING SYSTEM

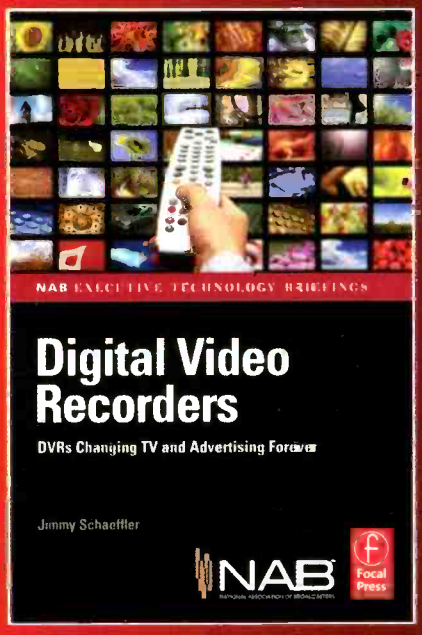
Genelec SE DSP

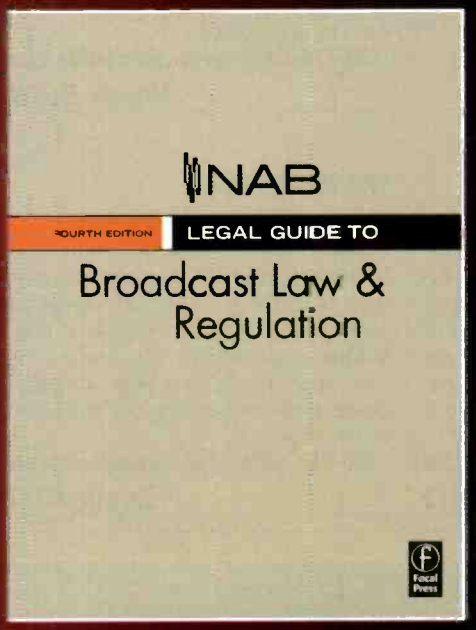
Small Environment DSP monitoring system is designed to solve acoustic problems associated with small recording and mixing environments; combines the SE7261A 10in DSP subwoofer with 8130A digital input active monitors, configurable as a subassisted stereo or multichannel reference system.

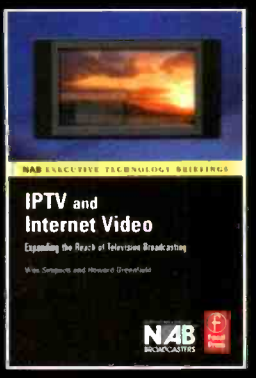
508-652-0900
www.genelecusa.com
Booth: N3414

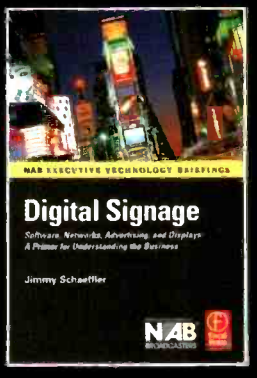
hot resources

available at the NAB Bookstore









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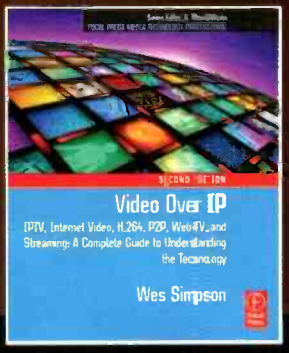

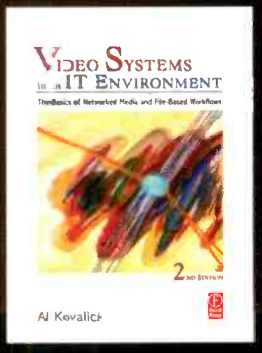

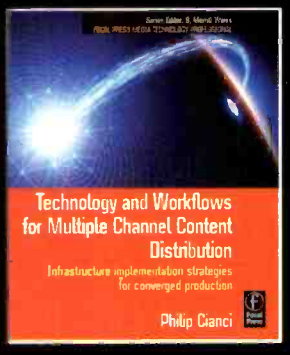

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NABSHOW STORE

also available at www.focalpress.com

Brown indicates advertisers

MULTIVIEWERS

Apantac Tahoma

Series is 3G ready and auto-detects four to 32 video inputs (HD/SD-SDI/composite); support DVI, HDMI and VGA outputs up to 2048 x 1080; include built-in video and audio alarm detection, as well as 16 channels of embedded audio per input with four channels of discrete analog or digital audio; feature built-in Cat X extender.

503-616-3711; www.apantac.com

Booth: SL13013

ROUTER CONTROL SOFTWARE

Sierra Video TyLinx Pro

Designed for the company's entire line of video and audio routing switchers; provides unique profiles for each user; adds additional security features for the control system; has a Windows-based GUI that allows users to virtually recreate their routing system on their computer desktops, defining sources and destinations, signal formats and cabling.

530-478-1000; www.sierravideo.com

Booth: SL6205

TRANSMITTERS

Emcee Titanium series

Medium-power UHF transmitters and translators; available in power output options of 250W to 2KW of average power; using high-efficiency amplifiers and a unique high-density air cooling system, series produces a large amount of power while consuming low amounts of electrical power.

480-315-1666; www.emceecom.com

Booth: C1415

LCD VIDEO MONITOR

Wohler RM-4290W-2HD

Measures 4RU in height; incorporates two 9in widescreen LCDs with 800 x 480 resolution and 16.2 million colors.

510-870-0810; www.wohler.com

Booth: N1102

NEWS PRODUCTION SYSTEM

vsn vsnnews

Allows text/video editing in the same application; covers all issues in a uniform environment, including rundown planning and creation, resource management, word processing, video feed recording, and archive storage, organization and cataloguing.

305-629-3201; www.vsn-tv.com

Booth: SU5425

TAPELESS ENG SYSTEM

Ikegami GF series

Developed in cooperation with Toshiba; includes the GFCAM HDS-V10 tapeless camcorder, the GFSTATION GFS-V10 studio deck and the GFPAK high-capacity flash media to record more than two hours of HD video; features an open-codec HD/SD architecture, proxy video and metadata convenience.

201-368-9171; www.ikegami.com

Booth: C5108

HDTV LENS

Canon HJ14ex4.3B

Wide-angle portable HDTV lens; combines an extended 14X zoom range and 4.3mm wide angle while also improving on the optical performance of its predecessor; newly developed Digital Drive unit provides improved operability and ergonomic advances for user comfort and convenient control of lens functions.

800-321-4388
www.canonbroadcast.com

Booth: C4325

TRANSCODING SOFTWARE

AmberFin iCR Version 4.5

Content mastering and transcoding software; now offers native support for Avid DNxHD and Final Cut Pro, offering instant interoperability with Avid and Apple editing systems; strengthens the link between content creation and distribution to expedite editing and versioning; extended MXF support of native Panasonic P2, Sony XDCAM and Avid Op Atom MXF further increases interoperability with a wide range of tapeless cameras, VTRs, editing and server systems.

866-939-3167
www.amberfin.com

Booth: SU4323

HDTV STUDIO/FIELD PRODUCTION CAMERA

Hitachi Kokusai Electric SK-HD1000

Offered with hybrid fiber-optic cable or digital triax cable transmission; converts into a solid-state field recorder and wireless configuration; features two-piece body design, F10 sensitivity with 60dB signal-to-noise ratio, 14-bit analog-to-digital conversion and CCU outputs of 1080i, 720p or switchable between the two.

516-921-7200; www.hitachikokusai.us

Booth: C4310

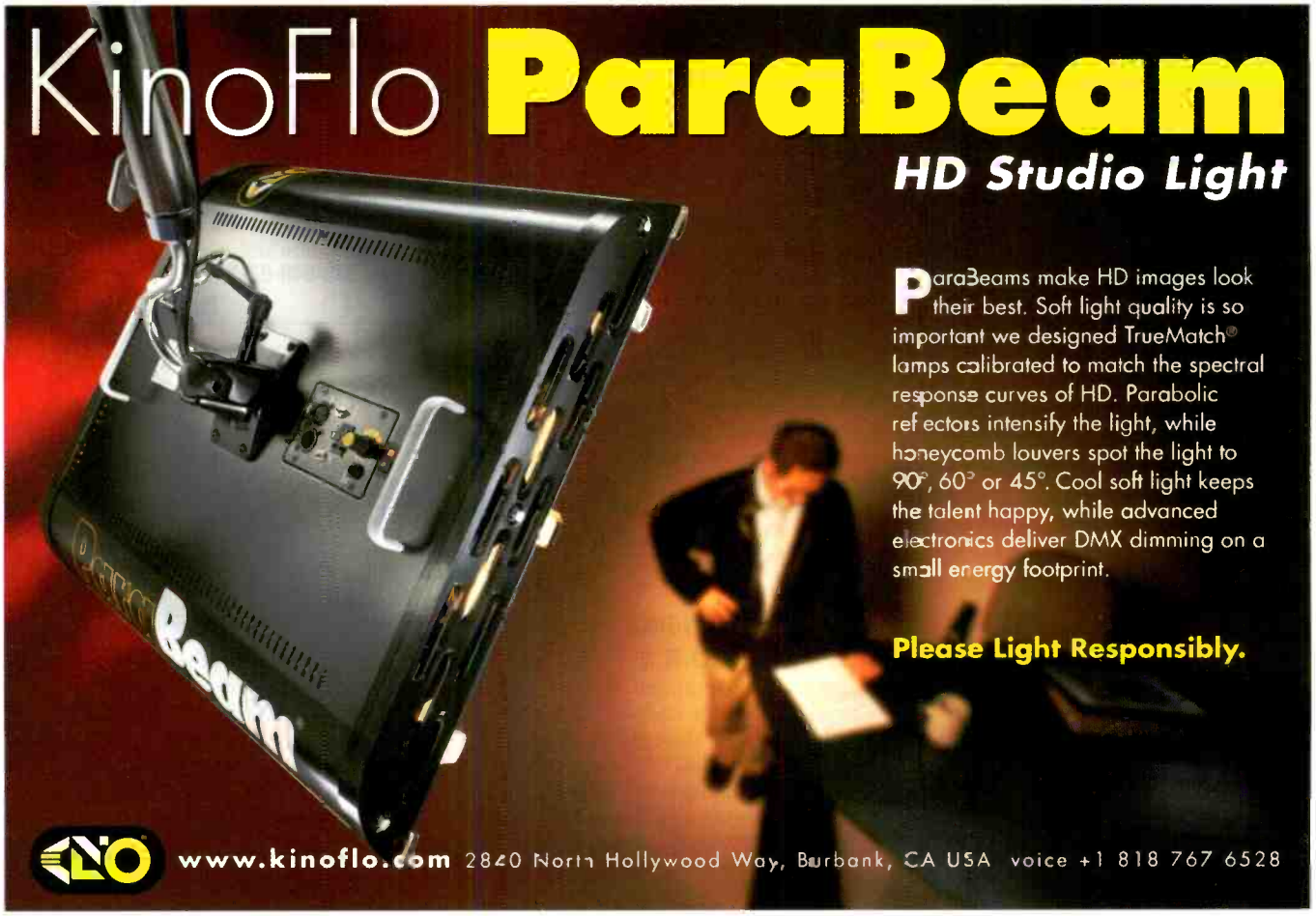
CONNECTOR

White Sands Engineering 1.0/2.3FPB

Features a return loss of >10dB out to 4.5GHz; designed to mate securely with a broad range of jacks used on router panels; compatible with 23 AWG Precision Video cables.

623-581-0331
www.whitesandsengineering.com

Booth: C1839



Brown indicates advertisers

SMART ANTENNA SYSTEM
NSI NuPod

A low-profile, lightweight system that incorporates a directional antenna and continuous rotation positioner encapsulated within a nonconductive radome; specifically designed for mobile applications; features embedded control, which provides automatic alignment of the directional antenna and greatly simplifies operation; can be remotely controlled by the NSI MC5; ideal for transmit as well as receive applications.

410-964-8400; www.nsystems.com

Booth: C1715

TRANSMISSION SERVER
SeaChange BMLxt

Adds features and performance capabilities to Broadcast MediaLibrary system; features SAS drivebased design that improves reliability; scales from a single 3.6TB node to a nine-node cluster providing almost 00TB, which can be combined with MediaClient software codecs for broadcast-quality HD and SD channels.

978-897-0100; www.schange.com

Booth: SU12009

HD WIRELESS CAMERA TRANSMITTER
Link Research L1500

Supports a wide selection of RF modules that can be swapped over to operate in bands of 1.4GHz to 7.5GHz; uses the company's encoding and modulation methods to cut transmission delays to about one frame, making the transmitter suitable for live sports productions; includes options for camera control for Sony and Thomson Grass Valley cameras.

+44 1923 474060; www.linkres.co.uk

Booth: C2107

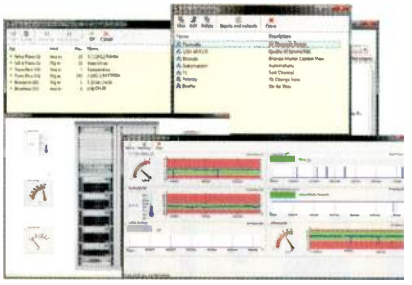
TEST SIGNAL AND SYNC PULSE GENERATOR
Ensemble Designs BrightEye 57

A 3Gb/s, HD, SD and analog test signal and sync pulse generator; memory card allows users to create custom test patterns and audio clips; analog audio, AES, LTC, VTC and tri-level sync outputs are also provided; can be used as either a slave or master reference generator; can lock to house reference or to its own internal precision standard; suited for remote trucks, post, helicopters and flypacks.

530-478-1830
www.ensembledesigns.com

Booth: N4023

REMOTE CONTROL AND MONITORING
ANT Group NetPOD PIM UDS



A graphical instrument that allows users to easily and completely configure graphic windows inside a NetPOD window; the editor allows users to insert one or more background images or devices and to connect inputs and outputs to them; UDS module is a powerful tool to concentrate and visualize in one single window a number of data according to user priorities; users can build windows displaying custom status summaries or dataflow paths; helps to create group defined screens, concentrating all coherent data in a single window.

+39 346 8836776; www.antgroup.it

Booth: C3321

PROCESSING ENGINE
da Vinci C.O.R.E.

The CUDA Optimized Resolve Engine provides R-series and 2K Plus systems with real-time throughput of nonlinear images in film, television, and other commercial applications; works to maximize the power and efficiency of scalable NVIDIA processing.

954-688-5600; www.davsys.com

Booth: SL3314

FINAL CUT PRO PLUG-IN
AJA Video Io HD

A transportable plug-in solution that works with HD and SD in Final Cut Studio 2; with a single FireWire 800 connection, it supports the new Apple ProRes 422 Codec natively, in hardware, to bring production-quality HD editing to the Mac Pro desktop and the MacBook Pro laptop.

530-274-2048; www.aja.com

Booth: SL2513

EDITING SOFTWARE
Avid Media Composer v3.5

Now includes native support of the Sony XDCAM format, allowing users to playback and edit directly from the disc, render, mixdown, export sequences and clips with eight audio tracks, and write back with sequence time code; supports stereoscopic workflows, enabling users to acquire, edit and display stereoscopic 3-D material; eliminates the need for a dongle key to activate new software purchases and upgrades; all new software sales and single seat upgrades will be licensed by a system activation key.

978-640-6789; www.avid.com

Booth: SU902

CAMERA RF AUDIO SYSTEM
Zaxcom QRX100

Receives four channels of audio from up to two stereo or mono digital transmitters; outputs these received audio channels as both analog and AES digital formats; a unique interface allows broadcasters to record all channels from four-channel ENG cameras quickly and easily.

973-835-5000
www.zaxcom.com

Booth: N3114

COAXIAL CABLE

Belden7732LL

Plenum-rated RG-11 precision digital video coaxial cable; offers significant performance enhancements over Belden's previous plenum-rated version (Product No 7732A), especially when deployed in long cable runs for high-definition video (HD-SDI) or 1080p/60 applications; features a return loss of -23dB from 5MHz to 1.6MHz and -21dB from 1.6GHz to 4.5GHz.

800-245-3361; www.belden.com

Booth: C6508

FIXED SATELLITE SERVICES

Intelsat

The company's satellite fleets covering more than 99 percent of the world's population; operates more than 54 satellites with a fully integrated satellite operations model that features two operations centers connected by redundant fiber; a terrestrial network of teleports, points of presence and leased fiber links that Intelsat uses to carry traffic and provide satellite access for its customers complements its satellite fleet.

202-944-6800; www.intelsat.com

Booth: OE404, C4937

SATELLITE RECEIVER

Comtech Tiernan Video HMR5400

Fifth-generation receiver features both MPEG-2 and MPEG-4 capabilities; can decode HD (1080i and 720p) and SD (NTSC and PAL) formats; supports digital and analog video outputs; supports four pairs of audio in analog, digital and embedded formats; DVB-S L-band and ASI inputs are standard; DVB-S2, G.703 and IP are available as options; control is available through a complete front panel along with a Web interface and full SNMP support.

858-805-7000
www.comtechtv.com

Booth: SU6909

TRANSFER AGENT

Florical AssetDispatcher

Option in S.M.A.R.T. Central; streamlines central ingest systems; uses spoke dub lists and programming settings to push commercial and program from a centralized ingest location to spoke sites after material has been approved; timing and metadata can be entered once and shared by all.

352-372-8326; www.florical.com

Booth: SU1802

COLOR CORRECTOR

FOR-A UFM-30DCC

Offers balanced, differential and sepia modes, as well as red, green and blue controls over white, black and gamma levels; available in single- or dual-channel configurations; upgradable to 3Gb/s capability.

714-894-3311; www.for-a.com

Booth: SU3507

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25 New Ross openGear Products at Ross NAB Booth SU1807 including:

- MDK-111A-M HD/SD Mixer/Keyer

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1 Control System
Unparalleled Diversity

www.opengear.tv

ROSS
Live Production Technology™

www.rossvideo.com

NAB2009

PROHD CAMCORDER
JVC GY-HM700

Shoulder-supported camcorder records directly to SDHC memory card in the QuickTime format for Final Cut Pro, and optionally to SxS media compatible with Sony's XDCAM EX format; includes several key technology innovations that result in improved resolution in the camera's CCD/optional block, lens and viewfinder.

973-317-5000; www.jvc.com/pro

Booth: C4315

CHANNEL PLAYOUT
Omneon MediaDeck GX

Combines video server playout, graphics and advanced audio processing, all of which operate under the control of the user's preferred automation system; offers rich branding and master control functionality; designed to make it easier and more affordable for broadcasters to launch new services or to make incremental additions to their existing channel line-up.

408-585-5000; www.omneon.com

Booth: SU7217

DIGITAL MIXING ENGINES
Yamaha Commercial Audio Systems DME64N/DME24N

DME24N features up to 24 channels of I/O (including eight built-in analog I/O); inputs will accept mic/line level signal; additional digital and analog I/O is also available via a single MY (mini-YGDAI) card slot; DME64N features four times the processing power of the DME32, and includes up to 64 channels of I/O.

714-522-9011
www.yamahaca.com

Booth: N3838

TOWERS
Sabre Towers & Poles

Provides concealment towers, monopole structures, and self-supporting and guyed communications towers; performs in-house structural analyses by using industry-accepted software; prepares plot layouts, bills of material, final drawings and permit packages with the latest CAD systems; each of the company's towers and poles come with complete instruction manuals and erection drawings to ensure easy and accurate assembly and installation.

712-258-6690
www.SabreTowersandPoles.com

Booth: C1632

ANTI-SLIP CABLE SUPPORT PADS
Middle Atlantic Products OWP

Designed to drop in from top of racks; improve cable management and performance in broadcast applications; take almost 40 percent of the cable weight off the tie point, while reducing pull tension at mounting points; no need to overtighten the cable fastener, risking the deformation of cables.

973-839-1011
www.middleatlantic.com

Booth: SU4408

HDTV DIGITAL COLOR CAMERA
Hitachi Kokusai Electric HV-HD30

Incorporates 1/3in, 1.3-megapixel CMOS sensors; provides 1080i and 720p outputs; features compact, box-style head; usable as a studio subcamera, a POV camera or in remote observation applications.

516-921-7200
www.hitachikokusai.us

Booth: C4310

MASTER CONTROL
Harris master control solution

Consists of the company's NEXIO AMP media platform providing broadcast video feeds to the IconMaster master control switcher, CENTRIO multi-image processor, Platinum routing switcher and ADC automation; the five systems work seamlessly together, simplifying workflow in multichannel situations and for automated and manual control.

800-442-7747
www.broadcast.harris.com

Booth: N2502

3G DUAL-LINK CONVERTERS

Crystal Vision 3G-DL and Dual DL-3G

Designed to interface between 1080p dual-link (SMPTE 372M) equipment and 3G equipment, allowing integration of existing dual-link equipment into a 3G system without taking up two ports on jackfields and routers; Dual 3G-DL is a 3G to dual-link converter that converts a signal on a single 3GHz link to dual 1.5GHz links; Dual DL-3G is a dual-link to 3G converter, designed to convert a signal on dual 1.5GHz links to a single 3GHz link.

+44 1223 497049
www.crystalvision.tv
Booth: SU3102

MD SWITCHER

Echolab Overture1, Overture2

Available with 1 or 2 M/Es; now features 3Gb/s (1080p60) format support to its existing range of SD, 720p and 1080i over a single SDI or HDMI input; offers internal conversion and synchronization with powerful key layering and special effects to put creative control at the user's fingertips; uses internal frame synchronization to help ensure the quality of effects.

978-715-1020
www.echolab.com
Booth: SU2302

MEDIA ASSET MANAGEMENT SOFTWARE

NETIA Manreo

A software family designed to maximize productivity gains in media asset management and use of rich media, which can then be repurposed and published to multiple platforms including mobile devices; features an archiving tool that interfaces with a wide range of production, automation/playout, and storage and ingest systems for efficient handling of video, audio, images and text with support for all industry-standard formats; ingests content in high resolution and converts it automatically to a low-resolution proxy used to index the video and its content.

+33 4675 90807; www.netia.com
Booth: SU822

Courtesy France 3 UF Paris

Tetra VIO™

All in One Solution for Signal Conversion with Universal Inputs and Outputs

> Universal Converter (SD, HD, PC or customized formats)
> Analog / Digital In/Outs
> High performance scaling with HD de-interlacing
> Audio de/embedder
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> Genlock output for SD/HD analog signal
> HDCP Compatible NEW

Broad Scan™ Family

State of the art Computer to Video and HDTV converters

> True Broadcast analog or digital genlock (ITU, SMPTE)
> Real time conversion and high performance image processing
> Zoom up to 1000% and easy to use new zoom finder
> Audio embedder
> Computer Input format memory (up to 16 presets)
> SDI connections, HD format delivery or standard conversion

Optimizer HD™

Innovative SDTV/HDTV Scaler based on Let It Wave's bandlet transform technology

> Converts any TV, HDTV or PC signal into a digital TV, HDTV or hi-res PC format
> Genlock in SDTV or HDTV (model OHD888-AG)
> Real time motion adaptive de-interlacing, correction of compression artefact
> Audio embedder

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Email: salesusa@analogway.com
For more information, please consult our web site: www.analogway.com

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CONTROL PANELS

Videoframe LCD24PL/24PR

Machine control and router-master control panels feature 24 programmable LCD switches; the four menu buttons are located either to the left of the LCD switches (24PL) or to the right of the LCD switches (24PR); use Power over Ethernet technology, eliminating the need for an external power supply.

530-477-2000
www.videoframesystems.com
Booth: SU5422

STREAMING SOLUTION

Bitcentral AirNow!

Streams a live shot from the field without a laptop, software or special training; connects to a camera and streams content directly in real time; uses EvDO to deliver broadcast-quality video; provides a portable wireless hotspot that converts the broadband cellular network to standard WiFi.

949-253-9000
www.bitcentral.com
Booth: SU913

PROGRAM OPTIMIZER

Dolby DP600

Program optimizer provides automatic analysis and intelligent correction of audio loudness and metadata (if applicable) for common broadcast media file and audio formats in use today; offers the option of faster-than-real-time file-based encoding and decoding of Dolby Digital, Dolby Digital Plus and Dolby E content, as well as efficient transcoding between the formats.

415-558-0200; www.dolby.com
Booth: N1815

TEST AND CHIP-LEVEL INTERFACE

Audio Precision Digital Serial I/O

Allows engineers to test audio devices at the level of individual ICs rather than being limited to evaluating only the external inputs and outputs of a device; enables all normal audio measurements to be carried out on A/D and D/A converters, codecs, DSPs and sample rate converters; interface can generate and measure up to eight audio channels simultaneously using TDM or multiple data lines.

503-627-0832; www.ap.com
Booth: N6223

FRAME SYNC MODULE

Nevion FRS-HD-CHO

HD/SD frame sync module is part of the company's Flashlink signal processing/optical distribution range; well suited for use with electronic newsgathering and satellite newsgathering vans, where it is critical to provide an uninterrupted signal feed to downstream equipment, such as MPEG-2 encoders; can be added to any field-deployed unit; removes glitches from the input signal; provides error-free synchronous switching between two sources.

805-247-8560
www.network-electronics.com
Booth: SU10811

DIGITAL SIGNAGE

Harris Digital Signage solutions

Merges broadcast-quality graphics with flexible media management and playout solutions from the company's InfoCaster products; offers broadcasters an end-to-end solution to distribute video and data services to displays in virtually any location; the ability to harness a broadcaster's assets to deliver targeted out-of-home advertising networks with much higher CPM values; provides broadcasters with new revenue-generating opportunities; support multiplatform delivery services, including the ability for broadcasters to equip advertisements with mobile response capability.

800-442-7747
www.broadcast.harris.com
Booth: N2502

PROMPTER MONITORS

Autoscript LED TFT-Plus monitors

High brightness LED flat screens for all Autoscript prompter systems; include 17-, 15-, 12-, and 8in versions, all of which will feature an illuminated control panel for easy visibility in dark studio conditions; feature improved operational performance and environmentally friendly construction.

203-338 8356; www.autoscript.tv
Booth: C6026

HD CAMERA

Toshiba IK-HD1

One-piece, single-chip CMOS camera is in an ultra-sized housing measuring just 1-3/4in x 1-3/4in x 4 1/16in and weighs 4.3 ounces; outputs a full 1920 x 1080 resolution (12-bit) switchable between 1080i and 1080p at 60fps via DVI-I; DVI-I output affords users more flexibility by interfacing with less expensive HD monitors and recorders; can easily be converted to HDMI via adapter.

713-466-0277; www.toshiba.com
Booth: C5119

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Clear-Com Concert 2.0

Connects to the Eclipse matrix system via the IVC-32 high-density card, establishing a single communication environment for traditional and IP intercom users; customizable user interface is now available in a soft-panel that emulates a traditional intercom station, offering functionalities such as push-to-talk, monitor and latch-to-talk keys for communication with other Concert users, as well as connection to predefined conferences.

510-337-6600; www.clearcom.com
Booth: C6521

MANAGEMENT CONSOLE

Inlet Technologies Spinnaker Management Console

Enables users to monitor large Spinnaker deployments from a single interface; includes global scheduling, sharing presets, automatic encoder software upgrades, backup and redundancy options, and a mosaic video page that enables monitoring of all active streams.

919-856-1080; www.inlethd.com
Booth: SL7029

EMERGENCY SWITCH
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+44 1223 497049; www.crystalvision.tv

Booth: SU3102

WORKFLOW MANAGEMENT PLATFORM
Inlet Technologies Armada 3.0

Multiformat, multi-CPU, high-output architecture manages an entire workflow or plugs into existing facilities and asset management tools; works with other Armada systems to provide pre-encoding and analysis capabilities, encoding functionality and post-encoding such as QC, third-party integration.

919-856-1080
www.inlethd.com

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847-795-9555; www.gepco.com

Booth: C7430

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Allow Mac and Windows application controls to be allocated to LCD key switches or a control wheel, giving operators a clear and quick interface to a computer application without the need for keyboard and mouse; allows for multiple applications on multiple computers to be allocated to just one panel; LCD keys can be configured for color, brightness, text or icon, and other operational functions, such as grouping, GPI triggering, a string of keyboard shortcuts or the launch of Java scripts.

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www.hitechsys.co.uk

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PRODUCTION SERVER
EVS XS Studio

A four-channel video production server specifically designed for studio applications; part of the new Silverline brand; optimized for the recording of multiple audio and video feeds, as well as instant control and multichannel playback operations; offers multiple SD and HD codec configurations with native support, such as IMX, Avid DNxHD and Apple ProRes 422 for faster and easier media exchange with post production.

973-575-7811; www.evs.tv

Booth: C9508

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Eyeheight LE-2MD

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+44 20 82 552 015
www.eyeheight.com

Booth: SL7409

HD SLOW-MOTION SYSTEM
I-Movix SprintCam v3 HD

Allows users to capture 500fps to 10,000fps and replay them instantly in HD native resolution; can be integrated into a mobile broadcast setup or used as a stand-alone solution.

+32 65 32 15 35
www.i-movix.com

Booth: SU7328A

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Fast Forward Video NDT200

Compact, portable DVR can be used as a drop-in replacement for tape-based recording devices; simplifies operations with an intuitive user interface; provides instant access to video recordings via a removable 2.5in SATA hard drive or the onboard USB 2.0 port; combines a soft-button user interface with large push-button controls and PC software that make operations instinctive even for new users.

800-755-8463; www.ffv.com

Booth: N2819

FILE-BASED WORKFLOW SOLUTION
Harris NEXIO Browse suite

A comprehensive portfolio of tools that facilitate H.264 proxy viewing and editing; helps eliminate the need for a complex baseband infrastructure for proxy storage and management; simplifies media management and editing; part of the company's NewsForce HD/SD news platform; includes all the tools necessary to generate, view and edit low-resolution proxy files across a SAN.

800-442-7747
www.broadcast.harris.com

Booth: N2502

DTV IFB RECEIVER
Nucomm ProQ

IFB solution for ENG users during DTV transmission, monitoring of DTV signals through a DVB-ASI output and streaming video over an IP connection to a laptop or other IP-enabled device; measures 5in x 1.75in x 8.5in; features dual UHF/VHF antennas, two advanced silicon tuners and sixth-generation VSB demodulators; contains an MPEG Layer 1/Layer 2 audio decoder that is capable of decoding two independent sound programs, providing up to four audio channels and using bit rates as low as 32kb/s for each.

908-852-3700; www.nucomm.com

Booth: C3707

SDTV STUDIO/FIELD PRODUCTION CAMERA
Hitachi Kokusai Electric Z-4500W

Offered with configurations for digital/analog triax, OFDM wireless, multicore and ENG-HDR; features 520,000-pixel IT CCDs, 16:9/4:3 switchable aspect ratio, -130dB vertical smear specification; 14-bit A/D converters; 67dB signal-to-noise ratio, digital NTSC encoder and gunlock system and digital SMPTE color bar generator.

516-921-7200
www.hitachikokusai.us

Booth: C4310

WIRELESS HEADSET SYSTEM
HME DX300ES

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800-848-4468; www.hme.com

Booth: C7834

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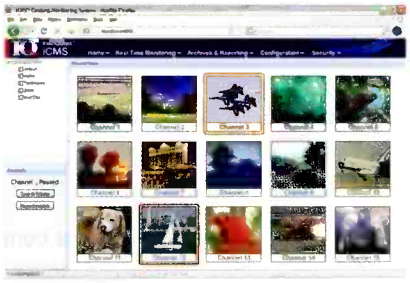
301-362-9500
www.xorbit.com

Booth: SU3417

VIDEO ANALYSIS SOFTWARE

IneoQuest VeriFrame



Offers baseband content monitoring and auditing; delivers both real-time and historical metrics; designed for use with a variety of solutions, including ad insertion (e.g., splice performance and ad auditing) and distributed video verification where generic remote consumer video viewing products are typically used; enables users to automatically verify video and audio content frame by frame, detect black screen, luminance levels and freeze frame, and monitor audio levels.

866-464-4636; www.ineoquest.com

Booth: SU6523

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Offers complete design, renovation and build-out of facilities, including television stations, post-production and production studios; follows a rigorous five-phase system, which is a complete, extensive process consisting of initial design, system drawings, and line-item equipment lists that follow on to system installation, proof of performance, and end-user system training.

858-650-3155; www.tvmagic.tv

Booth: SU4723

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626-579-0943; www.videssence.tv

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510-870-0810; www.wohler.com

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916-383-1177; www.jampro.com

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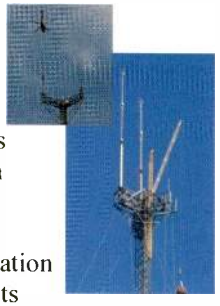

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www.tektronix.com

Booth: N2522

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+49 221 709130; www.rtw.de

Booth: N3123

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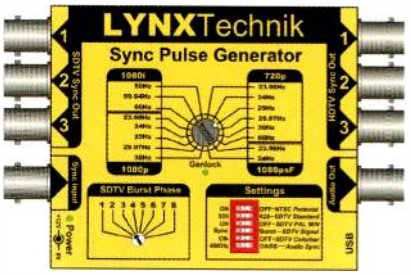
LYNX Technik YelloBrik



Modular interface products offer an array of cost-effective SD/HD standalone solutions for signal processing; provide straightforward user controls and instructions directly on the unit; available modules include an SD/HD sync pulse generator, SD/HD sync pulse generator with genlock, 3GHz SDI distribution amplifier, 3GHz SDI to fiber-optic transmitter, 3GHz fiber optic to SDI receiver, and 3GHz fiber-optic/SDI transceiver.

661-251-8600
www.lynx-usa.com

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A video test solution that supports emerging technologies like MPEG-4 AVC, video over IP and broadband; helps with monitoring and troubleshooting digital video in networks of many varieties, including cable, broadcast, IP and terrestrial; supports the following: IGMPv3, GigE and QAM Channel Scanning, SNMP and MS-RTP.

408-546-5000; www.jdsu.com

Booth: SU4809

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NETIA Warehouse Web 2.0

Audio and video broadcast and display platform; provides companies with a system for centralizing, sharing and viewing audio, image and video archives, and broadcasting them across multiple distribution channels (Web portals, mobile devices, ADSL, etc.); uses the REST (Representational State Transfer) architecture and includes XML Web services; offers up to four easy-to-use interfaces.

+33 4675 90807; www.netia.com

Booth: SU822

HD/SD AUTHORING SOFTWARE

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Creates templates for the addition of real-time, 2-D/3-D graphics and animations; enables unlimited number of layers in the scene and easy object addition; allows access to primitives, fonts, textures and complex objects; supports mathematical functions for automatic calculation of percentages and other operations.

+972 9 7676862; www.orad.tv

Booth: SU10517

ROUTER

Pro-Bel 3Gb/s router

The new 1080p router offers a mix of video and audio routing modularity with optional SFP 3Gb/s fiber; the large-scale, multiformat router is easily expanded up to 1152 x 1152 simply by linking two frames via multiway cables without the need for any external splitters or combiners; further capacity is added by linking further frames, even when the system is in use.

631-549-5159; www.pro-bel.com

Booth: SU12710

RACKMOUNTABLE I/O FOR THE MAC

Matrox MXO2 Rack

2RU unit is designed for broadcast news operations, OB vans and other environments where heavy-duty, rack-mountable equipment, more audio inputs and outputs, and genlock loop through are required; streamlines editing workflow with Apple Final Cut Studio on Mac Pros and MacBook Pros; provides broadcast-quality input/output, monitoring and up/down/crossconversion; supports a variety of formats and codecs.

514-822-6364
www.matrox.com/video
Booth: SL3814

REAL-TIME INTERNET BROADCASTING SOLUTION

Harris Dynacast

Provides a two-screen, interactive viewing experience for TV audiences; allows broadcasters to synchronize Web content with live and prerecorded programming; connects the broadcaster's channel and brand to the Internet, creates a compelling new way to engage audiences through an enhanced viewing experience and generates revenue through cross-promotion of on-air and online media.

800-442-7747
www.broadcast.harris.com
Booth: N2502

SD SLOW-MOTION SYSTEM

I-Movix SprintCam Live v2.1

Allows user to capture 500fps to 10,000fps and replay them instantly; features enhanced algorithms, remote functions that enable fine-tuned settings, a slow-motion remote with new cueing system and enhanced light sensitivity; comprises a camera, CCU, operational control panel and slow-motion remote control.

+32 65 32 15 35; www.i-movix.com
Booth: SU7328A

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The AESDA converts the AES digital signal into dual XLR analog outputs with separate level controls. It also monitors the signal integrity of the digital input.

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800.733.9473 | whirlwindusa.com

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Grass Valley's Kayenne

The new switchers support today's multifaceted productions.

BY DAVID CASPER

When the design team at Grass Valley set out to develop the next generation of production switchers, it understood that any new platform would have to meet the demands of today's more complex productions, supporting sophisticated, multilayered effects and HD signal processing.

Most importantly, the switcher control panel had to be laid so its new features were immediately familiar to technical directors, whether or not they were used to working on a Grass Valley switcher.

Grass Valley's Kayenne switchers offer broadcasters 1.5 to 4.5 M/E, with unique functionality, such as six keyers per M/E.

The result is the 1.5 to 4.5M/E Kayenne video production center, which offers a wide range of solutions to address operators' pressing concerns. The switchers feature unique operational functionality such as six keyers per M/E, 20 DPM channels, define E-MEM, aux bus transitions and source rules.

Switcher operators not only have to be the creative person answering to the director, but also the mechanic who knows how to get the most out of the switcher panel in front of them. The solution has to be easy to use and powerful, which is why Kayenne includes a highly intuitive user interface.

This ease of use starts with source rules, which allow an operator to set specific rules regarding how to handle different program elements. At a live football game, a broadcaster would never show a "live" bug over a replay. With Kayenne, the operator can now preprogram the keys that should be added or dropped to match specific sources. These source rules can also be used on preview before being taken to air. Previously, the operator had to remember these implicit or explicit rules according to a director's wishes and then apply them. Source rules make this laborious task easy and protects against errors, providing a safety net for operators.

All of the features, menu items and buttons are more easily accessible on the control surface. The menu navigation structure has been simplified to enable TDs to do more with less button pushes. With new tools like "History" and "Favorites"— which mimic Internet browsers — the TD can recall a desired menu with a single selection using the newly designed widescreen touch-screen control panel. Navigation is fast and easy, enabling the operator to assign and then return to a favorite menu item at will.

A vibrant yet elegant control panel

The new control surface is perhaps the switcher's most visible attribute. Several ergonomic studies and prototype models were used to develop a control panel that makes switching sources and effects easy, even after long hours of operation. Its modular design affects how the switcher can be used as well as how it can be serviced. All of the modules are hot-swappable, so if one component fails, it will not affect the entire panel and can easily be replaced during production.

The panel can be curved or flat, depending on the installer's preference, making all of the buttons easy to see and reach. Two rows of configurable OLED source and function name displays provide crisp legibility at a wide range of viewing angles. All panel buttons are RGB. Color is used to aid the technical director by indicating M/E stripe and key row delegation, as well as functional delegation, and can be used to highlight sources.

Soft buttons feature a four-character LED display above them. The LED titles tell the operator which function is assigned, and the button color indicates the overall mode of operation.

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Avocent HMX Extender Provides High Resolution DVI Extension and Matrix Switching over LAN

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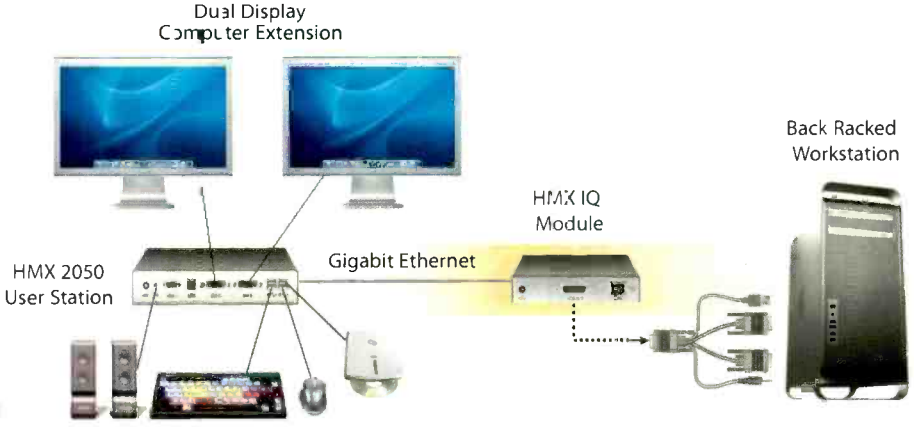

The HMX 1070 Single Head, High Res-DVI Extender makes its NAB debut!

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By incorporating all three elements — OLEDs, RGB buttons and soft buttons — the system is simple to operate.

The features TDs need most

For many years the goal has been to add more features into the TD's toolbox. Kayenne offers 20 channels of DVE available at the touch of a button, as well as six keyers per M/E to support multilayer effects. It also includes one minute of HD storage for stills and clips, which is especially useful for animated transitions. This is all accomplished by leveraging leading-edge FPGA technology.

In addition, the switcher features several new control functions. It has a panel module dedicated to external device control, complete with a jog shuttle wheel, and access to a library of cues. These cues identify clips by device, name, duration (time code), etc. Cues can be recalled from an E-MEM directly or by being manually loaded from the device control module and then played in conjunction with an E-MEM.

Kayenne features a widescreen touch-screen control panel, which allows operators fast and easy navigation.

The entire E-MEM system has also been improved for better performance. There's a finer granularity and more precise control, where the operator has access to 23 sublevels within each M/E. Prior to this new development, an E-MEM took a snapshot of the whole M/E. Now the TD can keyframe one iDPM channel or a single key without affecting the rest of the M/E. This

flexibility allows a TD to build more interesting effects in less time.

Likewise, the architecture has been structured to accommodate the tight quarters of a production truck or space-limited control rooms. The switcher's control panel runs silently during operation because the cooling fans and CPU have been moved into an external panel control unit that can be located up to 50ft away.

Internal format conversion

The Kayenne includes in and out conversion features to handle any type of mixed format production. If an operator has an HD project and has to produce an SD output, he doesn't have to burn up an M/E to do so. This is accomplished via circuitry internal to the switcher. The switcher can handle both 16:9 and 4:3 aspect ratios within a single production by automatically inserting video into sidebars on 4:3 sources for 16:9 viewing.

Mixed format production is handled with a feature called MatchDef, which facilitates internal input conversion (from SD to HD, or vice versa, or cross-conversion) so that the TD is always working in the same format inside the switcher. Another feature, SetDef, is used for setting the resolution of the required output. These internal converters use motion adaptor circuitry, color space conversion and other high-quality signal processing techniques.

FlexiKey allows an operator to create programmable clean feeds. Each M/E channel has four program outputs, and the user can specify which keys go on which outputs. This allows Kayenne to support multiple program feeds with different titles over the same background for multichannel applications.

The switcher is available in a range of video processing frames from 1.5 to 4.5 M/E (with the half M/E standard in all frames).

A switcher ready for today

Kayenne is being introduced at NAB 2009 with all frame and panel models immediately available. For the purist TD, many features of Grass Valley's switchers have been reintroduced. For example, the split-level arm that was used in earlier switchers is back on the Kayenne, this time for use by DoubleTake, the split M/E mode introduced with Kalypso. Now the primary and secondary M/E partitions provided by DoubleTake can be independently controlled at the same time to create captivating effects on-screen. **BE**

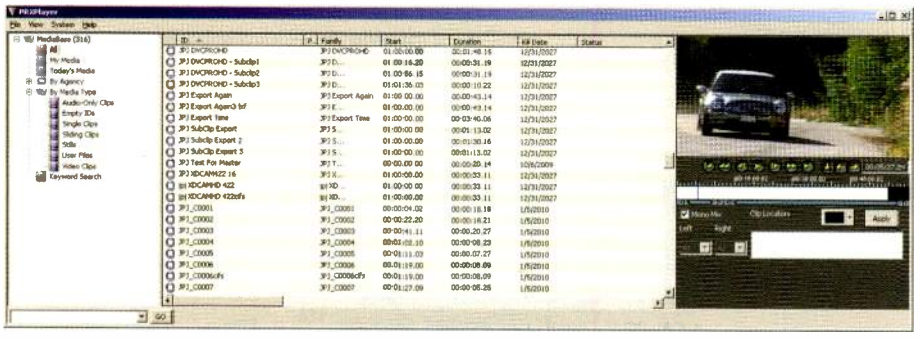
David Casper is the advanced development manager for production switchers and effects for Grass Valley.

Building file-based workflows

Understand the true essence of workflow.

BY JOHN LUFF

You don't have to look too far into broadcast technology today to see a fundamental shift in paradigm at work. For decades, since the first audio recorders were used in radio broadcasts, we have been focused on the conception that physical media contains programs for broadcast. Millions of hours of "content" exist on shelves in stations and in deep archives in all parts of the world. We think of the media as the actual program, which is a convenient construct, though at best imprecise.



Harris' NEXIO Browse helps eliminate the need for a complex baseband infrastructure for proxy storage and management, making it easier to deploy a low-resolution, file-based workflow in news and sports operations.

The original work in our business is by definition ethereal, unlike, for instance, works of art that hang in museums. What we really have is no more than a representation of the original work sampled by either analog or digital means and stored on media that we can use to reproduce a simulation of the content at a convenient time. The same is true of books, where the author's original copy is used to create many copies for consumption by an arbitrary universe of users. Each book appears to be the original work, but of course we know that is not true.

You probably wonder why this matters, to which I would tell you, "elementary, my dear Watson." A file-based workflow is all about moving and processing versions of content for air, not about processing the original works. There are some key concepts that need to be understood. In this article, instances refer to precise copies of a piece of content that cannot be distinguished from the original. Different instances are clones of the original, which cannot be differentiated from the original. Parent and child in this context refer to original content and derivative works made from it. Let me further explain the meaning and implications.

Two concepts for understanding workflows

You might have two instances of precisely the same piece of content in redundant servers, with redundant storage used for protection of air signals. No matter which copy plays, you cannot determine a difference because the copies are in fact two instances of the same thing. Think of it as multiple copies of a book at your local bookstore. It doesn't matter which one you read, because each was produced in precisely the same "workflow."

But this raises questions about managing multiple instances that are not always transparent. How do you distinguish between the copy in the archive, the backup data tape on a shelf and the copy in the air server? You have to be able to know where copies live if you are to manage them effectively, and you must be able to recognize them as copies and not original works.

The other concept, parent and child, is quite different. The parent, perhaps the original of a program, can be used to make a copy, a child if you will, with perhaps different bit rates or audio tracks for release for other purposes. Indeed, a derivative of a PBS program might have different underwriting credits, or a child of a syndicated program might be edited to allow an extra commercial break. It is the same program in the most generic sense, but differs in critical ways, making it essentially a new program derived from the parent. Another example is a down-converted copy of an HD program displayed in a letterbox on a 4:3 screen. It contains the same content, but in a different form, and is easily identified as a derivative of the original.

Defining a workflow

File-based workflow is all about facilitating the processes that are possible while maintaining control over the content through managing metadata and tracking instances and relationships between media in external databases. Doing so allows orderly media management that enhances the value of the original asset and avoids destroying the original work to create a derivative.

To be clear, there is nothing new about these concepts. Tape-based

workflow 40 years ago when I worked on "The Johnny Cash Show" was only different in the sense that the media was sampled using analog means, and the tracking was done with file cards containing notes we call metadata today. We created instances to be used for protection masters and audio sweetening that — while not true clones — were as close as technology would permit. We could trace back to the original recordings if something happened to the edit master because there were technical differences, but the workflow shared many of the same attributes. We delivered copies to ABC in New York that were dubs with commercials physically cut into the dub. They were clearly children of the edit master. In fact, we had two protection masters on the shelf, made at the same time, in the event the plane went down carrying tapes to New York. Those were truly second instances and not derivatives.

File-based workflow today allows us to create, often using automated processes, the derivatives and additional instances we need for production and air of content. When a motion picture airs today, it is a derivative transferred from the original work (film), and then protected and distributed as additional instances after editing a new child from the parent media as delivered from the studio.

Let me try to be precise about why this matters. Though technology allows new processes and different workflow that files facilitate, the most essential step is to define a workflow based not on the fact that it is file-based but rather on the manipulation and copying of the original essence of the media. If you can define a process and the intended result, you can build a workflow that uses file-based content to great advantage.

It is not, however, an improvement in workflow to replicate workflow from old paradigms in a newer technological era. The temptation to do so is great, but resist that temptation at all costs. Nothing is gained if you take that easy route. Rather, it is appropriate to throw out all assumptions about what "has to be done" and instead look at what needs to be delivered. Commercials can be delivered as files to edge servers in a station and then played out as analog video to be recorded in a video server for integration into the concatenated air signal. That treats the instance of the content in the edge server as original essence with another instance created by conventional means.

It is substantially better to clone the content directly to the air server via FTP transfer, with perhaps new wrappers and specs. While that might be a new derivative, it allows for the best of digital file-based workflow to enhance quality and improve tracking of the metadata resident in the edge server that is not transferred with an analog dub. Keeping these concepts in mind should help you to understand the true essence of workflow in modern file-based systems. **BE**

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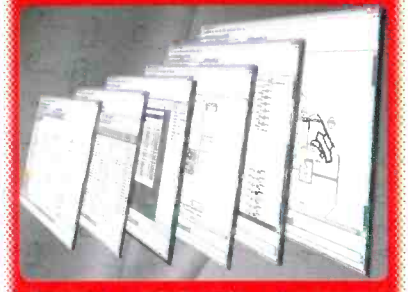

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Broadcasters in postland

The 2009 HPA Technology Retreat gave industry leaders an open forum for sharing new technologies.

BY ANTHONY R. GARGANO

A trip out of the cold and snow of the Northeast to the palm trees and warmth of sunny Rancho Mirage, CA — must be a boondoggle. Actually, it really wasn't. The Westin Mission Hills at Rancho Mirage was the host venue for the recent Hollywood Post Alliance (HPA) Technology Retreat. This event is noteworthy for the quality of its presentations and the high-level discussions of the latest in technologies impacting our industry today and influencing its direction for the future.

The HPA Technology Retreat is known for the quality of its presentations and discussions, such as the one shown here from Ioan Allen (at the podium) of Dolby Labs.

The birth of HPA

The annual event was the ninth under the auspices of the HPA and the fifteenth since the Technology Retreat's inception from its roots in the now defunct International Teleproduction Society (ITS). But, don't let the name mislead you. The 400 attendees represented a significant cross section of our industry. Numbered among them were not only representatives from the Hollywood post and production community but also technology executives from the CBS, FOX, NBC and PBS broadcast networks. In addition, attendees from cable networks ESPN, HBO and TBS were there along with representatives from the ATSC, the EBU, the NAB and SMPTE.

By way of background, the ITS was founded in 1986 with roots in Hollywood as a trade association to support and advance the common agendas of the production and post-production community. It grew quickly and soon had local chapters in the content creation hotbeds of Chicago, Hollywood, London, Miami and New York among others. Last known as the Association of Imaging Technology and Sound, a combination of factors caused it to seemingly lose its way, and the trade group folded in 2001. Notwithstanding the ITS' demise, the Hollywood community still found a continuing need for a common forum to share ideas and to serve as an advocate for the content community. Thus, out of the ashes of the local Hollywood ITS chapter was born the Hollywood Post Alliance.

Technology retreat

One of the more popular undertakings initiated by the ITS was the establishment of an annual technology sharing event, and to its credit, the HPA has carried on this activity. The annual retreat is organized by HPA executive director Eileen Kramer.

The quality of the presentations and discussions at the event are at a level that not only draws attendance from the United States but also now attracts a growing international participation, with attendees this year traveling from Canada, Europe, Japan and the UK. Presentations were quite varied and covered everything from digital age TV test patterns to high frame rate television, from 4K imaging techniques to 3-D, including 3-D acquisition, 3-D compatibility and 3-D display. If attendees weren't overloaded with technology by the end of the day, in the evenings they could attend technology demonstrations by some 60 companies in a separate ballroom. But don't get the wrong idea; this is not a trade show, and you won't find supplier booths. Manufacturers were confined to simple 10ft tables with actual demonstrations of technology — not just selling products. This is in keeping with the high standards that the HPA maintains to keep the event first and foremost as a technology symposium.

Attendees also had the opportunity to participate in early morning breakfast roundtables that took place before the day's formal sessions. There were about 30 tables, each with a different technology topic and hosted by a discussion leader. In a uniquely informal environment, after picking up bacon and eggs from the breakfast buffet, attendees could select a table to join and either participate in or just listen to the topic of their choice being discussed by a cross section of retreat attendees.

If you are interested in a truly learning, sharing experience, this is the event to attend. The HPA limits attendance to the Technology Retreat, so book early. Next year's event is scheduled for Feb. 17-19 at the Rancho Las Palmas Resort in Rancho Mirage. Pencil it in on your calendar. It should be well worth the trip. BE

Anthony R. Gargano is a consultant and former industry executive.

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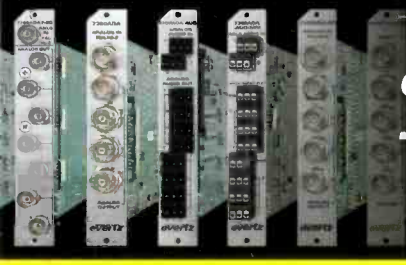

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