NOVEMBER 2009

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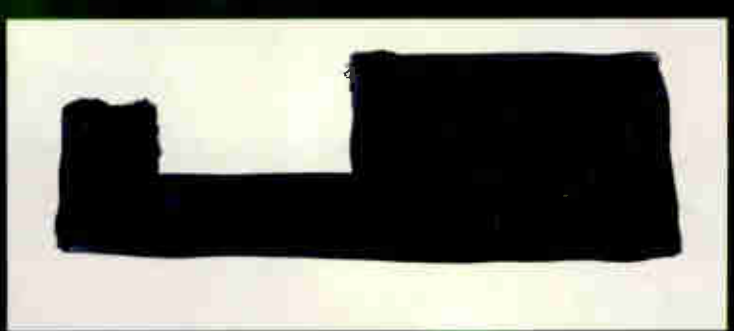
WEATHERING THE STORM

Flywheel generators green up power protection



ALSO INSIDE:

HYPERLOCAL NEWS
Adding neighborhood content requires new workflows

TESTING AUDIO CONSOLES
Today's mixers need a new kind of T&M

BROADCAST ARCHIVES
Build a long-term storage solution

AES PRODUCT HIGHLIGHTS
Discover the latest audio innovations

A PENTON MEDIA PUBLICATION

connect the shots

record, edit and upload your story–from any location.

Immediately edit and upload your breaking story in HD at breakthrough speeds with one workflow tool: the Panasonic AJ-HPM200 P2 Mobile. With the most diverse I/O connectivity of any recorder/player, it lets you integrate HD and SD video elements by recording from virtually any camera or device into AVC-Intra100 and DVCPRO HD 4:2:2 independent frame or highly efficient AVCCAM* long GOP formats simultaneously.**

From a P2 card or disk drive, you can play back or edit footage, including split-screen editing, and quickly transcode to low bit rate AVCCAM to FTP your story from the HPM200, getting your edited package on air first.

With a bevy of features like high-speed e-SATA and GigE interfaces, a rugged yet easy-to-transport design, deck-like functions including up/down/cross conversions, it's easier to list what the HPM200 doesn't do. The P2 Mobile won't forecast the weather, but it will give you the connections you need to finish your story faster.

Learn more at **www.panasonic.com/broadcast**.

P2HD

Panasonic ideas for life

AVC NTRA DVCPRO HD DVCPRO 50 DVCPRO AVCCAM

*With optional AJ-YCX250G codec board
**Panasonic markets its professional AVCHD products under the AVCCAM brand name

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A New Generation... Be Inspired

The Show Must Go On! We know you need flexibility but also a rock solid platform that can cope with today's high demand productions. Not only does the CRESCENDO give you unparalleled visual feedback, it can be customized to work the way each operator does so that they feel comfortable and the show can go on without a hitch. Stagetec is renowned across the industry for building the most robust and reliable equipment that gets the job done every time.

- Fiber interconnectivity
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Complete With Nexus

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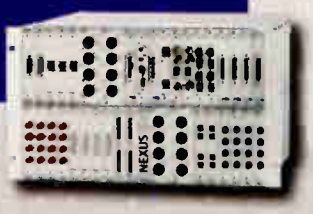
- No noise on I/O power loss
- Hotswappable I/O
- No fans needed on stage



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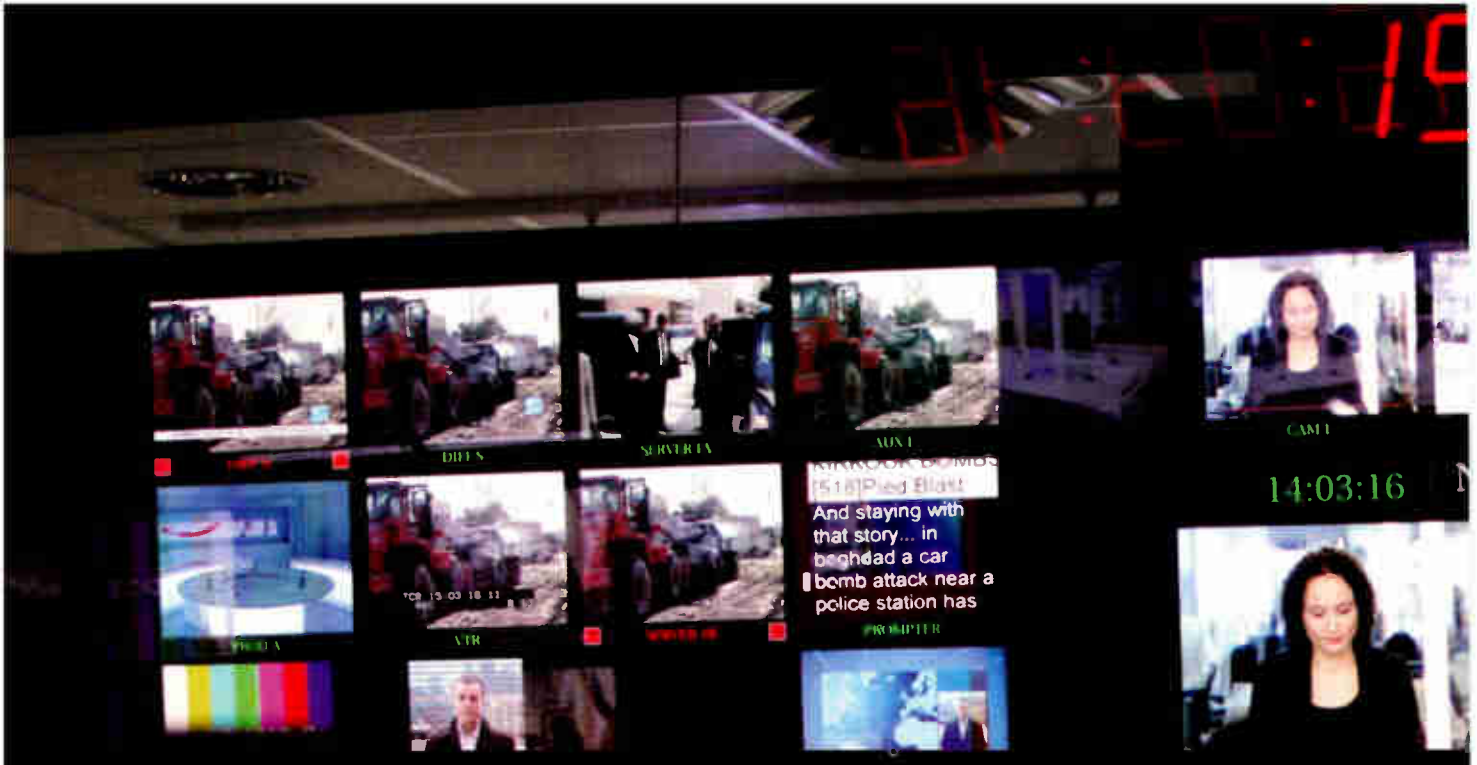


Avid HD news will

Explore these 10 ways:

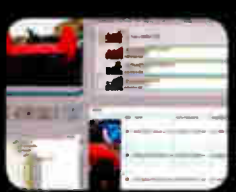
1. Increased **productivity** from staff and systems
2. Reduced editing suite **time** and costs
3. More web-based **revenue**, same headcount
4. Money-saving system **consolidation**
5. Advanced third-party **integration**
6. Support for more formats, **workflows** & users
7. Dedicated, expert **support** teams
8. Smarter **storage** management
9. Lower production control **costs**
10. Avid-quality and assurance

save you money

Avid HD News is just the beginning. Be sure to check out these other great money-saving Avid solutions:

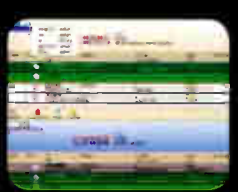
On Air Graphics

Deko : Get the graphics integration,power and speed you need



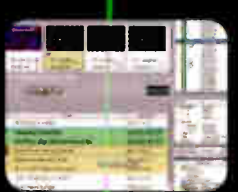
Production Asset Management

Interplay : Wherever you are, there it is. Gain the workflow advantage



Broadcast Automation

Sundance Digital : Keep the drama on the screens, not behind the scenes



Newsroom Computer Systems

iNEWS : Connect to newsroom production, communication and control

For all of the details on our Top 10, and for more on how Avid can save you valuable time and money, go to avid.com/HDSmart

avid.com

TABLE OF CONTENTS

VOLUME 51 | NUMBER 11 | NOVEMBER 2009

Broadcast Engineering®

FEATURES

BEYOND THE HEADLINES

DOWNLOAD

FCC UPDATE

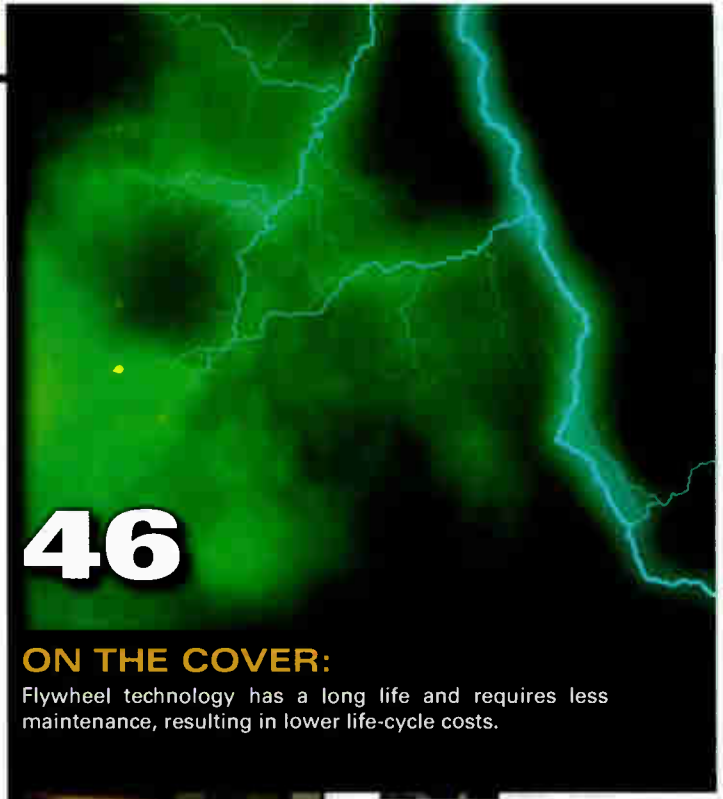
DIGITAL HANDBOOK

TRANSITION TO DIGITAL

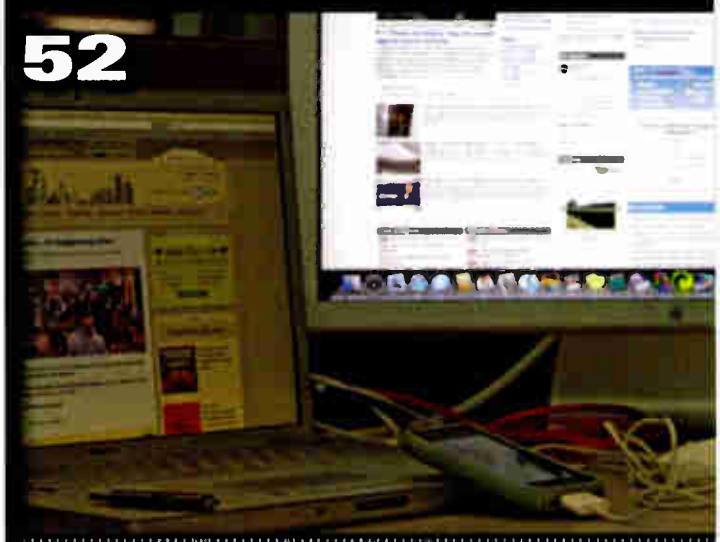
COMPUTERS & NETWORKS

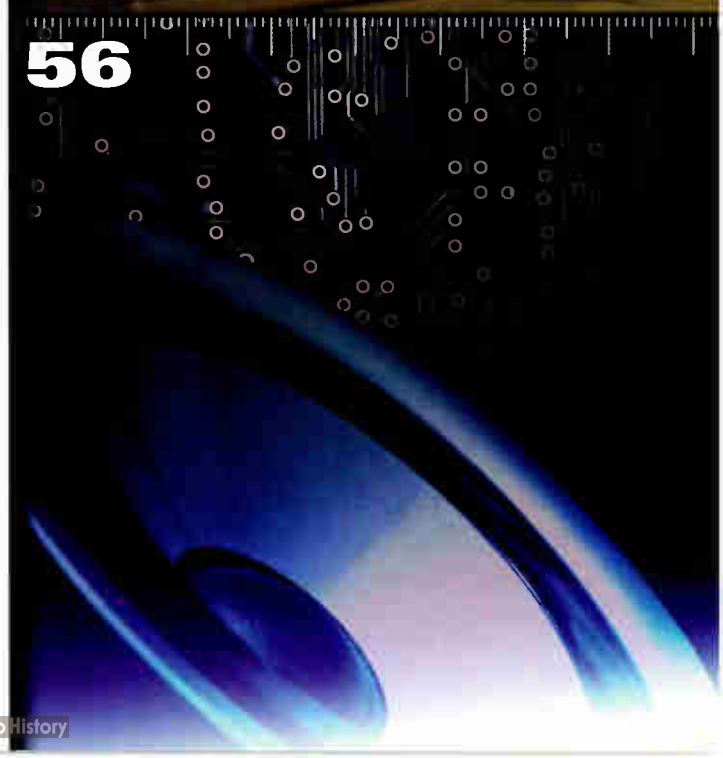
PRODUCTION CLIPS

continued on page 8



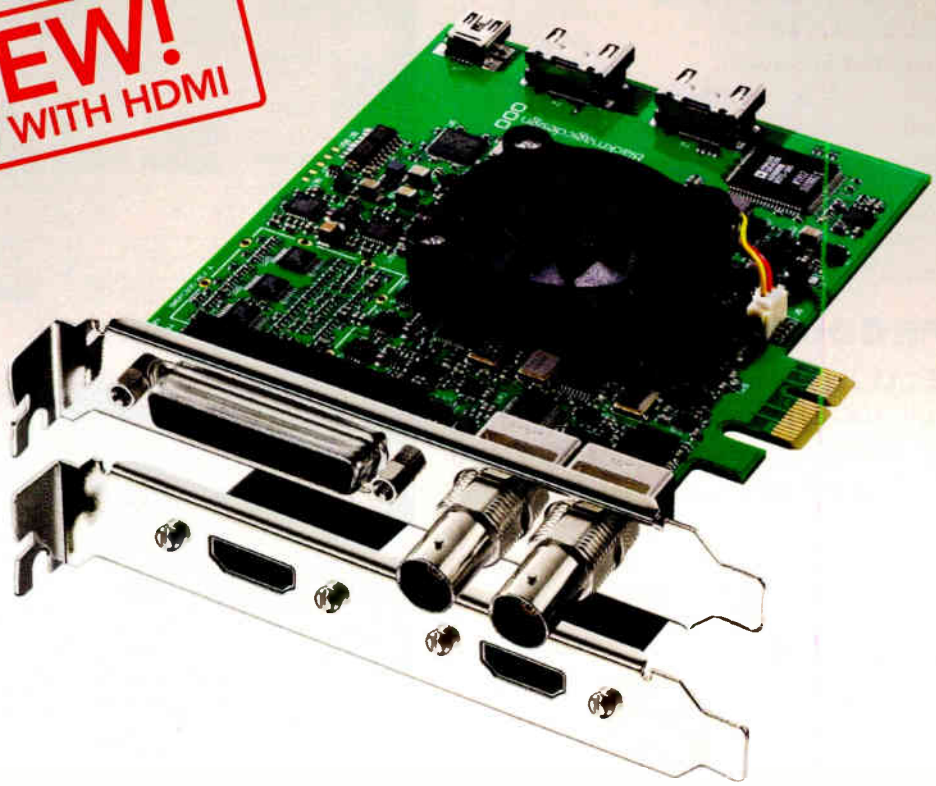
ON THE COVER:
Flywheel technology has a long life and requires less maintenance, resulting in lower life-cycle costs.





Blackmagicdesign

NEW!
NOW WITH HDMI



DeckLink Studio has SD/HD-SDI & HDMI, loads of analog connections, simultaneous SD & HD playback for only $695!

The new DeckLink Studio includes more video and audio connections than any card on the planet! You get SDI, HDMI and enhanced analog connections in full 10 bit in SD and HD. Connect to equipment such as HDCAM, HD-D5, Digital Betacam, Betacam SP, HDV cameras, big-screen TVs, projectors and more!

More Video Connections!

DeckLink Studio includes 10 bit SD/HD-SDI, HDMI, component, composite, S-Video, 4 ch balanced analog audio, 2 ch AES/EBU, reference, RS-422 deck control and a built in hardware down converter. High speed 1 lane PCI Express gives you more HD real time effects and supports advanced video formats such as ProRes(Mac), DVCPro HD, JPEG, DV, HDV playback and 10 bit uncompressed capture and playback!

Hardware Down Conversion

For monitoring, you'll love the built in HD down converter that's always active on the SD-SDI, S-Video and composite video output connections. The built in hardware down converter lets all video outputs remain active in both capture and playback mode, and in all HD video formats! Instantly switch between letterbox, anamorphic 16:9 and center cut 4:3 down conversion styles.

Built in SD Keyer

DeckLink Studio includes a built in internal SD keyer that lets you layer RGBA images over the live video input. You can also use the included Photoshop plug-ins for broadcast graphics! DeckLink Studio also supports external SD keying with key and fill SDI out.

Windows™ or Mac OS X™

DeckLink Studio is fully compatible with Apple Final Cut Pro™, Adobe Premiere Pro™, Adobe After Effects™, Adobe Photoshop™, Fusion™ and any DirectShow™ or QuickTime™ based software. DeckLink Studio instantly switches between, 1080HD, 720HD, NTSC and PAL for full worldwide compatibility.

DeckLink Studio
$695

Learn more today at **www.blackmagic-design.com**

TABLE OF CONTENTS (CONTINUED)

VOLUME 51 | NUMBER 11 | NOVEMBER 2009

SYSTEMS INTEGRATION

INFRASTRUCTURE SOLUTIONS

DIGITAL TUTORIAL

NEW PRODUCTS & REVIEWS

FIELD REPORT

TECHNOLOGY IN TRANSITION

DEPARTMENTS

SEE IT ONLINE!

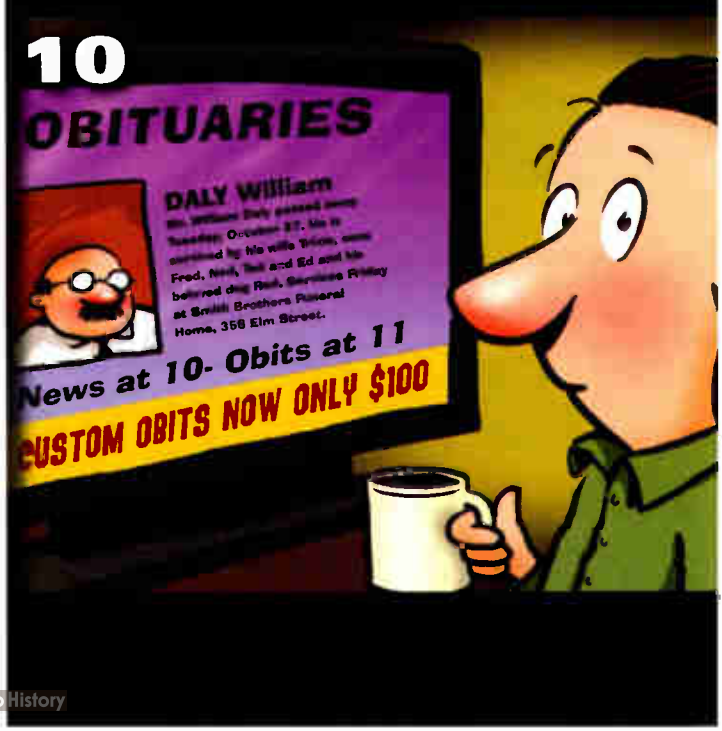
Check out Brad On Broadcast, editor Brad Dick's blog, for industry insights. A recent post, "Your TV is spying on you," discusses a new system-on-a-chip technology from Intel that goes beyond the traditional functions like sound and video, and can "learn" based on your TV viewing habits.

Learn more at *http://blog.broadcastengineering.com/brad*

LATEST NEWS!

After more than three years of work, the ATSC has adopted a standard for sending video to mobile devices using the same spectrum now used for over-the-air television. It's officially called the A/153 ATSC mobile DTV standard.

Learn more at *www.broadcastengineering.com*



Beauty on the outside.
Beast on the inside.

It's easy to be enticed by the alluring good looks of the Niagara® 7500 – the newest HD streaming solution from ViewCast. On the outside, its sleek, innovative design and responsive touch-control interface will excite you. Its brilliant high-resolution HD display will dazzle you. But on the inside, it's a beast.

The Niagara 7500 devours your HD video and easily transforms it into high-quality streams for delivery to IP and mobile networks. Its powerful video pre-processing features streamline and simplify your workflow. Inverse telecine, closed caption extraction and rendering, de-interlacing, scaling, cropping and bitmap overlay are just a few of its standard features.

You can switch on-the-fly between HD or SD video, and with ViewCast's SimulStream® technology, you've got the power to stream simultaneously in multiple formats, bit rates and resolutions from a single SDI video source.

The Niagara 7500 from ViewCast. Beauty on the outside... a beast on the inside.

Speak with one of our streaming experts today at ***800-540-4119***, or visit us on the Web at **viewcast.com\be** to learn more.

ViewCast®

USA 800.540.4119 | Europe, Middle East, Africa +44 1256 345610

News at 10, obits at 11

Your last hurrah may be on the 11 p.m. news.

It seems at least one group of TV stations has decided to run obituaries. Until now, obits were the exclusive domain of newspapers. I've heard radio stations read obits direct from the newspaper, but seeing TV stations run them would be something new.

A story on AdAge discussed how station WNEM-TV, in Saginaw, MI, was running on-air and online obituary stories — for a fee. The station charges $100 per death

announcement. For that fee, the departed gets a last electronic blast of publicity with the person's name and photo on-air and "full-length obituary" on the station's Web site.

"The venture could make obits one of our top billers within two years," said Jeff Guilbert, WNEM's general sales manager.

Major- and midmarket newspapers make good money publishing obits. According to one source, obits can cost as much as $1000. Why shouldn't TV stations offer a similar service?

There's a win-win here. First, the departed gets an electronic send-off, complete with photo. Second, an open-ended bio and life history gets posted to the station's Web site, where it can easily be seen by family and friends from around the country. And best of all, TV stations have a new revenue source.

Heck, who wouldn't feel better knowing you would get an extra special send-off so everyone can, for one more time, see Aunt Betty's bingo hall photo along with her name on the local newscast. The TV news reader says, "And now for today's obituaries ..." The reader pauses, then says, "Stay tuned, as Rachael Ray brings us her fabulous corn fritters recipe, right after this commercial from Funeral Brothers Mortuary, where your dearly beloved not only gets buried on time, but scheduled on the news."

It's easy to laugh at this idea, but TV stations are struggling to find new revenue-generating ideas, even if that means trying to generate another dollar with news of the recently dead.

TV stations, newspapers and cable are all competing for slices of the same advertising pie. Whoever comes up with a way to take a piece from the competitor wins, and maybe, just maybe, death announcements are another tool in a station's arsenal.

By using one of a station's subchannels, a broadcaster could run obits 24/7. It could be called the Last Channel: "Watch it until you appear." It would be a low-bit rate, low-effort, 100-percent profit operation.

A station could easily add advertising to the obit channel. Mortuary Mac could deliver his solemn, soulful and caring words about the Macky Funeral Home. The channel could be a great platform to sell insurance, burial plots, headstones and caskets. Because there's even a company that offers electronic headstones, the TV station could sell the video production. Package it along with the obit as an up-sell, and Grandpa Fred is shown in HD video on an electronic display built inside his headstone. You can honor him with this for only another $5000. This will work!

Of course, the TV station could use the channel to upsell the obits. "For only $1000 more, Aunt Gladdis can continue to smile back at you on this channel for another 30 days. Don't let her fade into the ether; buy her one more month of exposure!"

OK, maybe that won't work. BE

Brad Dick

EDITORIAL DIRECTOR

Send comments to: editor@broadcastengineering.com

Rethink automatic loudness control

Excessive loudness variation is probably the most common viewer complaint, and it's now something you can eliminate entirely. Our Automatic Loudness Control for our Densité interfaces is designed to address all typical loudness problems, including audio jumps between programs and commercials. To ensure effective loudness control without adversely impacting program content, we've incorporated the latest proven technologies from our partners, **Linear Acoustic** and **Jünger Audio**. It's time to rethink what's possible.

ALC
AUTOMATIC
LOUDNESS
CONTROL

Miranda

Rethink what's possible

www.miranda.com/loudness

A word of thanks

Dear editor:

In response to the article "News: the ROI equation" in your October News Technology supplement, I would like to say a word of thanks.

Thank you to all of the station CEOs/GMs who have installed newsroom automation. Thank you for all the people you have put out of work and possibly out of the industry. Thank you for wasting the time and money of every college student in a communications program. Thank you for dishonoring every professor of every college/university that labors tirelessly to train young men and women to enter our industry. Thank you for taking away the opportunity to further one's career and talents.

I think that it is such a cop out to put others out of work when I'm sure there are many other areas where fat could be trimmed. It's people that make a system work — not a machine.

Brad Palmer
VP of operations
Mansion Mobile Television

Satellite TVRO

Dear Russell Brown:

Thank you for your satellite TVRO series in your "Transition to Digital" newsletters. Your articles are insightful and informative. I appreciate you writing these.

I would like to add a little regarding the offset dishes commonly installed at the home for receiving satellite services. When considering look angles involved with the offset, or reflector satellite dish, it is important to understand what the dish "sees." With the reflector dish, objects that would cause obstruction are higher than one might first think. The satellite signals have a bounce angle from the reflector to the LNB. While the average individual usually trims the branches that look to be straight forward of the dish, these branches are not the cause of the obstruction. The offending branches are higher than what it would appear. This is difficult to explain in words, so I have included a link to pictures that will show this offset angle more clearly: *www.wowvision.tv/whatdoesadishsee.htm*.

Reflector dishes typically have no polarity adjustment at the LNB. Transponder and polarity of a satellite is selected by the voltages sent to the LNB from the receiver or signal meter. To select and view even transponders, send 18V to the LNB, and the signal received will be from even transponders. To select odd transponders, use 13V; and when using a satellite with circular polarity, a 22kHz tone is generated to accompany the voltages sent.

With the heightened sensitivity of these dishes, only a slight alignment error can produce many heartaches. It is more important than ever to achieve the true peak of these dishes for hassle-free operation and awesome picture quality.

Your TV knows what you did last night

Dear Brad Dick:

In response to the blog post "Your TV is spying on you" (*http://blog.broadcastengineering.com/brad/2009/10/19/your-tv-is-spying-on-you*), this is really frightening. I for one do NOT want to be the subject of ads that are targeted at me according to some simplistic scheme involving what a dumb computer thinks of my "recent activities."

It is frightening to consider what other uses such detailed knowledge may be put to. Who would have access to this information? Would the police be able to access it? Under what circumstances and with what controls? Could a stalker use it to learn the habits of his/her target? Could lawyers use it to help formulate lawsuits against me? The list is almost endless.

I don't have any mobile Internet access devices, and if this is how they will be used, maybe I never will. The ordinary user should be able to easily and quickly find out where every byte of information he/she recieves on the Internet comes from. That means a real person at a real street address and a real phone number.

I also believe each person should be able to access exactly how any information he/she has ever provided on the Internet will be used and have the option of denying that use before it is so used. In fact, that information should not be available for any use unless the individual consents to each and every particular use in advance. A lack of a response for such permission must be considered as denial of permission to use it.

Extreme? I don't think so. We are rapidly losing control, and something needs to be done to recover it before it's too late.

Paul Alciatore

Share your thoughts at
http://community.broadcastengineering.com/forums/80.aspx

www.aja.com

One workflow.
From Lens to Post.

Ki PRO

Ki Pro is an all new way of connecting production and post. Finally, shoot on the same codec as you edit with, Apple ProRes 422, built natively into Ki Pro's stand-alone, portable hardware.

With its extensive analog and digital connectivity, virtually any video and audio source can be fed into Ki Pro. It also includes AJA's powerful 10-bit realtime up/down/cross-conversion, enabling instantaneous recording of SD or HD from any camera format.

Record pristine ProRes media to a removable Storage Module with built-in FireWire 800, or to 34mm ExpressCard Flash — both instantly mount on your OSX desktop for immediate editing and file access.

Ki Pro is tough and rugged, yet small and portable, designed for real production environments. Powered through an industry standard 4-pin XLR, you have flexible AC and battery options. Use Ki Pro on a table, or mate it between your camera and tripod via a bulletproof optional aluminum cage, complete with sliding baseplate and accomodation for 15mm rods.

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- Record natively to Apple's ProRes 422 codec for full raster 10-bit 4:2:2 HD and SD.
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Ki Pro. Because it matters.

AJA VIDEO SYSTEMS

Broadcast monitors

How close are we to the ideal flat-panel display replacing the CRT?

BY ALDO CUGNINI

LCD displays have rapidly displaced CRT monitors, first for computer users and then for consumer TV viewing. The same evolution is now taking place for the most challenging application of video displays — in critical viewing environments, such as for television and film production and distribution. How close are we to the ideal flat-panel display replacing the CRT?

LCD state of the art

Two technologies define the flat-panel industry: LCDs and plasma display panels (PDPs). Manufacturing and yield issues generally segregate displays by size; while LCDs run up to 82in and higher, PDPs are comparably less expensive for the larger sizes and more expensive at the smaller end. Because most critical video evaluation is done on monitors of less than 24in, essentially the entire application has gone to LCD displays. In addition, PDPs rarely come with signal monitoring features like waveform displays, now common in LCD production monitors.

Economy of scale, driven by the consumer electronics business, has caused a widespread shutdown of CRT production lines. Professional CRT monitors can still be found, but no new monitors have hit the market in quite some time. This means the industries formerly served by CRTs are increasingly moving to flat-panel technology. Also, California's Legislature has adopted a RoHS (Restriction on the use of certain Hazardous Substances) Law, limiting the use of lead in displays. While it is not expected that federal or widespread state laws will soon follow, the writing is on the wall, and manufacturers are fleeing from CRT production.

Economy of scale, driven by the consumer electronics business, has caused a widespread shutdown of CRT production lines.

Broadcaster needs

In 2008, the EBU revised its Tech 3320 document, "User requirements for Video Monitors in Television Production," which provides an excellent set of recommendations on the technical characteristics of video broadcast monitors. While this document specifies numerical values for many parameters, we'll concentrate here on important qualitative characteristics for monitors.

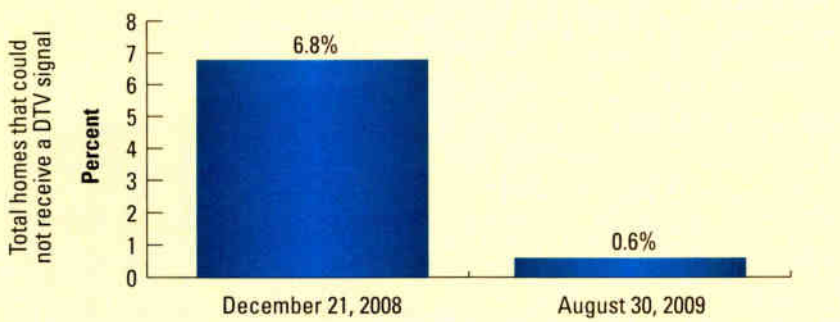
Most monitors have no trouble achieving a satisfactory peak luminance level. What is more important is how other parameters such as gray scale, color temperature (white point) and color saturation track at different levels of luminance. Surprisingly, some professional LCD monitors come shipped with "contrast" and "brightness" presets that greatly compromise the gamma and gray scale tracking, as seen in Figure 1 on page 22.

In fact, LCD display panels inherently have this S-shaped transfer characteristic, and some monitors arrive from the factory with the peak luminance set rather high, resulting in this undesired transfer characteristic. Thankfully, most monitors operate in an environment with subdued lighting, allowing operation at lower peak luminance levels, where the gray scale performance of the display is usually more linear; black level and gamma are consequently improved.

FRAME GRAB *A look at tomorrow's technology*

Most U.S. homes can receive a DTV signal

In December 2008, 6.8 percent could not receive a signal compared with 0.6 percent in August 2009.



Source: The Nielsen Company www.nielsen.com

www.aja.com

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Ki Pro. Because it matters.

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VIDEO SYSTEMS

Data and weather graphics systems

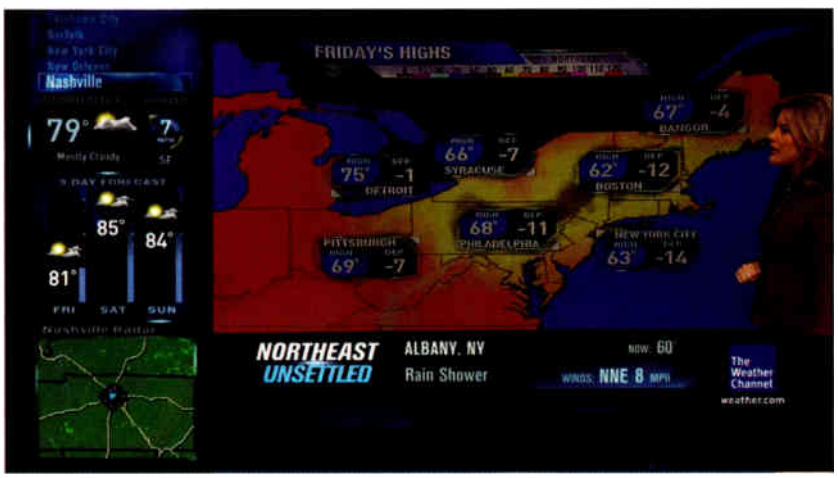
Unique challenges face global weather presentation.

RAN YAKIR

Displaying high-quality television weather forecasts can sometimes present huge challenges to broadcasters. For a start, there is no standard format to follow. Regional differences, both cultural and technical, make it difficult to bolt weather on to many standard graphics systems broadcasters may have already installed.

Before weather graphics systems can generate an easily-understood, informative weather display, they must first access or ingest timely weather data, such as current temperature, humidity, rainfall and wind, as well as future forecasts. Then a designer has to consider how frequently the systems will receive the data and how often they will need to display a new, updated weather show. For a rolling, 24-hour news channel, frequent data updates and real-time rendering would be essential to generate the latest weather graphics.

When investing in weather graphics technology, broadcasters have to consider two main aspects: How well will the graphics system display a memorable weather show that complements the branded look and feel of the channel, and what kind of weather data will be used to drive it?



Differences in weather reporting culture and the climatic nature of each region often dictate the use of various types of weather data.

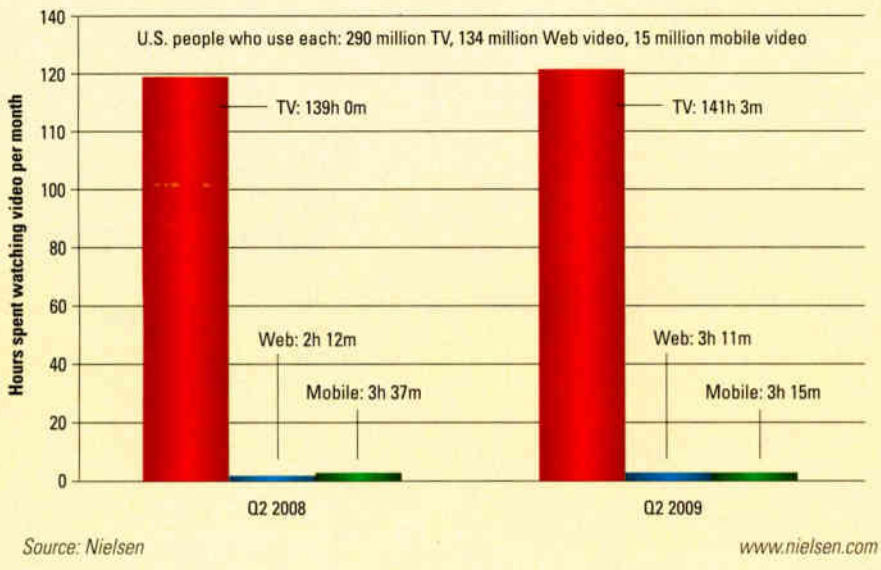
National styles

Typically, broadcasters prefer weather graphics systems that use weather data fed by local meteorological providers who are familiar with the weather issues that regularly crop up in their own backyards: hurricanes and tornadoes in the United States, bushfires in Australia or typhoons in Asia. Moreover, different TV channels have adopted specific weather reporting cultures over the years. For example, in the United States, one can rarely watch a weather report that does not contain a radar display in it, while in France, TV stations always show weather forecasts as zones of similar weather (rain, snow, sunshine, etc.)

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

Consumers watch the most video on the TV screen

People watch about 141 hours and three minutes of TV per month.



INGENIOUS

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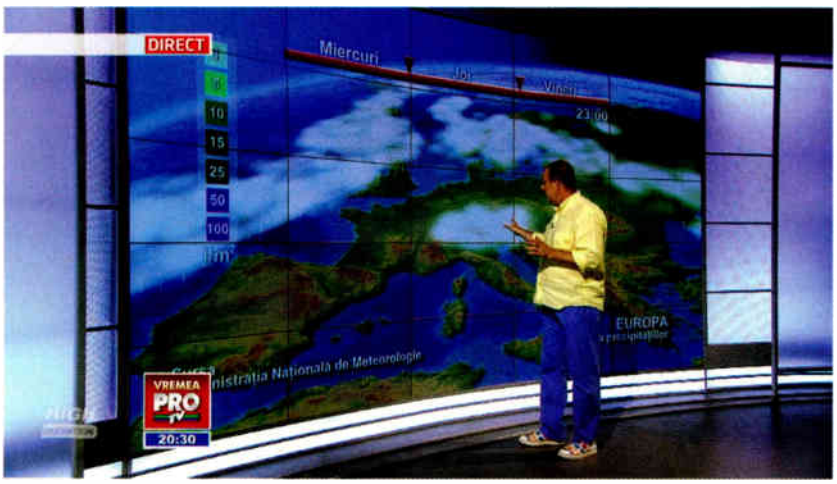
DOLBY

animating over a map of the country.

Broadcasters that break with a long-established presentation style may do so at their peril. For example, this proved to be the case for the BBC in the UK, when it introduced an animated, tilted perspective of a 3D map in its weather report four years ago. This was a major departure from the network's previous 2D overhead map view, which was an electronic version of a magnetic map board with stick-on weather symbols. Right away the network was bombarded with angry calls from viewers, which eventually led to questions being asked in the House of Parliament. Some complained that the change in style was confusing. Others said the new 3D fly-over display made them feel airsick, and the Scots felt the design was insulting to Scotland, which, being at the far end of the tilted map, now appeared "smaller."



The modern real-time weather graphics system has evolved to be consistent with other broadcast graphics so forecasts can be integrated directly into newsroom systems and workflows. Shown here are Vizrt weather graphics in use at Pro TV Romania.

Weather data interpretation

The differences in weather reporting culture and the climatic nature of each region often dictate the use of different types of weather data. This is not to say broadcasters in different regions use only region-specific data. A lot of the data used by weather systems, such as measurements or forecasts, comes from common sources such as the National Oceanic and Atmospheric Administration (NOAA). However, commercial weather data vendors often create their own value-added, region-specific weather data products.

Accurate measurements are at the core of weather forecasting: Measurements could be taken by weather stations, measuring temperature, wind speed and direction, barometric pressure, etc.; but they are also taken by weather radar and weather satellites. Combining these snapshot measurements tells us the weather conditions in the past and the present. This information is fed into complex numerical models that forecast what the weather is likely to be in the future.

The most common way of forecasting weather is by using a grid. Weather conditions are forecast for the areas represented by each rectangular cell in the grid. The finer the grid, the smaller the rectangular cells, and this smaller sampling area gives a more accurate weather forecast for every point within the grid cells. However, the finer the grid, the more cells it contains, and therefore, the greater the computing power required to analyze and process the raw data.

A popular gridded weather forecast product is the Global Forecast System (GFS), produced by NOAA and distributed freely over the Internet. Many weather data providers use this product at the core of their basic offering. GFS calculates roughly 200 weather parameters (such as pressure, temperature, humidity, precipitation, cloud cover, etc.) at a grid resolution of one degree (70mi at the equator).

Because a 70mi x 70mi area is large enough to be affected by different weather conditions, GFS is not considered to be an accurate weather predictor. Therefore, various organizations have established finer resolution computational models for specific regions or the entire world. It is common to find forecast models at quarter-degree resolution or even at 0.5mi to 1mi resolution for each grid cell, depending on the forecast area and on the computational power available.

The hundreds of weather parameters in gridded forecasts are used to show a large variety of the weather displays on TV. One of the challenges for broadcasters is to differentiate themselves by presenting this data in a way that will not only be informative and well understood, but also dynamic and branded. For example, a rainfall forecast display could show amoeba-like blue blobs moving slowly over a 2D map, but it could also be visualized using animated raindrops falling on the relevant areas on a map branded with the station ID.

The importance of climate change and its effects has put the topic of weather firmly on the agenda of mainstream news. Having a style of presenting weather news that is consistent with other news and after it, with the forecast, is now part of a channel's branding strategy. In a similar way, weather presenters find themselves taking on the role of weather news correspondents to explain breaking weather news phenomena around the world, on top of predicting whether it will be safe to hold a barbecue during the coming weekend.

Changing the weather picture

The challenge for a provider of weather graphics systems is to give

broadcasters the creative freedom to display complex data in various memorable ways and to match their weather reporting to their news reporting style. This statement may seem a given, but it is not always so. Traditionally, TV weather departments have operated as autonomous islands within the station, often with manual data entry and unique graphics needing long rendering times.

However, today the modern real-time weather graphics system has evolved to be consistent with all the other branded broadcast graphics and to integrate directly with newsroom systems and workflows. For a channel to do less would be to miss out on an opportunity to have a direct and beneficial impact on the lives of its audience. When it is done well, sponsorship opportunities (where they are legal) generate new revenue streams that can be further segmented into themed weather reports — relating to sporting events, snow reports, home improvement, holiday travel, beach conditions and so on.

Today the modern real-time weather graphics system has evolved to be consistent with all other branded broadcast graphics.

Another challenge is to assist the weather presenters in their storytelling by giving them new ways to interact with the display. In addition to the wired or wireless clicker that controls the report sequentially, some of today's weather systems support an intuitive touch interface over blue screen or backdrop video walls. The weather talent can press virtual buttons to move the show forward, or even zoom in and out of areas on the map. Multi-touch screens are becoming a natural evolution, even though this trend is in its early stages. Control of virtual reality weather 3D animations based on tracking body movements or hand gestures is now a reality and will soon be rolled out, perhaps tying nicely with audience acceptance of stereoscopic 3D displays.

Integrating high-resolution weather data formats to give a variety of branded displays and automating much of the sequence and content of live on-air forecasts are unique challenges for the highly specialized, global weather graphics industry. BE

Ran Yakir is head of Vizrt research and development, weather and maps.

Emergency broadcasts

Avoid a fine by following these FCC guidelines when providing emergency information.

BY HARRY C. MARTIN

The commission has issued a new public notice reminding TV stations and other video distributors of their obligation to make emergency information accessible to those with either visual or hearing impairments. As stations in the hurricane and fire danger zones have learned from past experience, there are no exceptions to this requirement, and no excuses will be accepted. The latest public notice makes clear that this policy applies in areas well away from the zones directly affected by the emergency conditions.

Dateline

- Dec. 1 is the deadline for noncommercial TV stations in Colorado, Minnesota, Montana, North Dakota and South Dakota to file their biennial ownership reports.
- Dec. 1 is the deadline for TV stations in Colorado, Minnesota, Montana, North Dakota and South Dakota to electronically file their broadcast EEO midterm reports (Form 397) with the FCC.
- Dec. 1 is the deadline for TV stations licensed in the following states to place their annual EEO reports in their public files: Alabama, Colorado, Connecticut, Georgia, Maine, Massachusetts, Minnesota, Montana, New Hampshire, North Dakota, Rhode Island, South Dakota and Vermont.
- The previously-announced Nov. 1 deadline for submission of biennial ownership reports for all commercial TV stations has been suspended pending Office of Management and Budget approval of the FCC's new ownership reporting form.

Defining emergency information

Section 79.2 of the rules requires that all video distributors make emergency information accessible to those with visual or hearing disabilities (the latter by closed captioning or other visual means). Emergency information means information about a current emergency that is intended to further the protection of life, health, safety and property. To meet this requirement, video distributors must provide critical details regarding the emergency and how to respond to the emergency.

This provision allows for no exceptions or exemptions, even in cases of news that is breaking quickly. Importantly, the rule reaches not only scripted presentations, but also ad lib statements made in the course of live coverage. Fines more than $20,000 have been assessed even when the omissions were relatively small and infrequent, particularly in the context of extended, days-long coverage. For example, a station that warned people to take precautions against inhaling smoke was fined $20,000 for failing to include a visual presentation, by captioning or otherwise, to reach the hearing impaired.

The message is clear: All emergency information aired by a station — which includes information about what areas are affected, evacuation routes and methods of taking shelter in place — must be made available both visually and aurally, without exception. The substance of even an offhand remark, if it contains any relevant information, must be conveyed in a way that makes it accessible to the visually and hearing disabled.

How to provide the info

The method of providing this information can be somewhat crude, such as holding up a handwritten board or reading information aloud. Any crawls must be accompanied by an aural tone to alert visually impaired viewers to tune to another information source, such as the radio. However, network affiliates in the top 25 markets are required to arrange for closed-captioning services.

Additionally, depending on affiliation and market, some stations are allowed to use the electronic newsroom technique (ENT). Such stations must make sure their ENT systems caption nonscripted materials; if the systems do not caption such materials, the station must still make sure that all emergency information is disabled-accessible in some manner.

Geographical requirements

The recent public notice also underscores the wide geographical range of the requirement. The absolute accessibility requirement applies not only to areas of actual danger, but also to those that might be logical evacuation areas. Along these lines, the concept of emergency information includes, for example, where evacuees from the danger zone may obtain relief assistance.

The commission also reminds us that some national events might be of local interest and subject to the requirements of Section 79.2, regardless of the lack of any actual local impact. The FCC does not, however, provide any guidance to stations on how to determine when such an event might fit into this category. BE

Harry C. Martin is a member of Fletcher, Heald and Hildreth, PLC.

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Broadcast monitors

How close are we to the ideal flat-panel display replacing the CRT?

BY ALDO CUGNINI

LCD displays have rapidly displaced CRT monitors, first for computer users and then for consumer TV viewing. The same evolution is now taking place for the most challenging application of video displays — in critical viewing environments, such as for television and film production and distribution. How close are we to the ideal flat-panel display replacing the CRT?

LCD state of the art

Two technologies define the flat-panel industry: LCDs and plasma display panels (PDPs). Manufacturing and yield issues generally segregate displays by size; while LCDs run up to 82in and higher, PDPs are comparably less expensive for the larger sizes and more expensive at the smaller end. Because most critical video evaluation is done on monitors of less than 24in, essentially the entire application has gone to LCD displays. In addition, PDPs rarely come with signal monitoring features like waveform displays, now common in LCD production monitors.

Economy of scale, driven by the consumer electronics business, has caused a widespread shutdown of CRT production lines. Professional CRT monitors can still be found, but no new monitors have hit the market in quite some time. This means the industries formerly served by CRTs are increasingly moving to flat-panel technology. Also, California's Legislature has adopted a RoHS (Restriction on the use of certain Hazardous Substances) Law, limiting the use of lead in displays. While it is not expected that federal or widespread state laws will soon follow, the writing is on the wall, and manufacturers are fleeing from CRT production.

Economy of scale, driven by the consumer electronics business, has caused a widespread shutdown of CRT production lines.

Broadcaster needs

In 2008, the EBU revised its Tech 3320 document, "User requirements for Video Monitors in Television Production," which provides an excellent set of recommendations on the technical characteristics of video broadcast monitors. While this document specifies numerical values for many parameters, we'll concentrate here on important qualitative characteristics for monitors.

Most monitors have no trouble achieving a satisfactory peak luminance level. What is more important is how other parameters such as gray scale, color temperature (white point) and color saturation track at different levels of luminance. Surprisingly, some professional LCD monitors come shipped with "contrast" and "brightness" presets that greatly compromise the gamma and gray scale tracking, as seen in Figure 1 on page 22.

In fact, LCD display panels inherently have this S-shaped transfer characteristic, and some monitors arrive from the factory with the peak luminance set rather high, resulting in this undesired transfer characteristic. Thankfully, most monitors operate in an environment with subdued lighting, allowing operation at lower peak luminance levels, where the gray scale performance of the display is usually more linear; black level and gamma are consequently improved.

FRAME GRAB *A look at tomorrow's technology*

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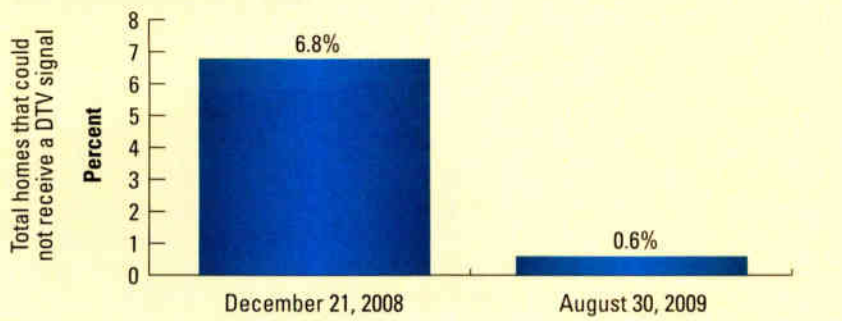

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Contrast is a term that manufacturers and dealers have abused. By definition, it represents the ratio between two luminance levels on a display, usually at minimum and maximum video input levels. However, contrast can vary depending on how it is measured. Simultaneous contrast (also called static contrast) describes the ratio of the brightest white to the darkest black that a display can produce within an image. ANSI defines this as the ratio between the averages of multiple 100 percent-white level boxes in a checkerboard and the averages of 0 percent-black level boxes in that same checkerboard.

Some manufacturers, however, will instead publish the sequential (or on/off, or dynamic) contrast, which is determined by measuring the output difference between a 100 percent-white level signal and a 0 percent-black level signal. This measurement will usually provide a contrast figure that is orders of magnitude greater than the more-meaningful simultaneous contrast.

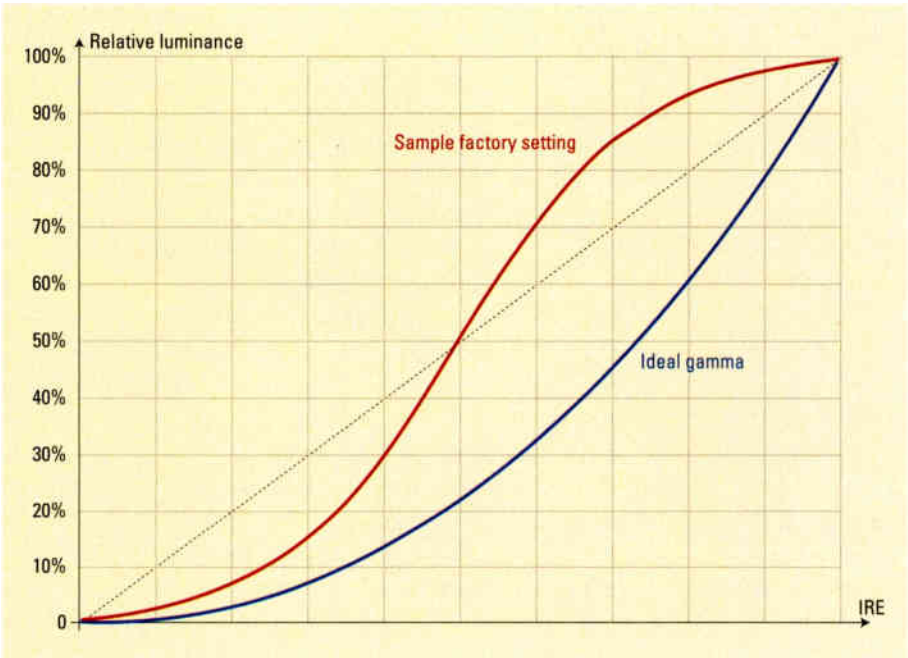

Figure 1. Gamma curve can vary with monitor settings.

LCD monitors have come up short of CRT performance for black level, due to the combination of the liquid crystal attenuation characteristic and the constant illumination of the cold-cathode fluorescent lamp (CCFL) light source. One solution to this is in the use of variable CCFL illumination, but this usually improves only the sequential contrast (and black level); LED backlight units can similarly improve this. Through some proprietary techniques, a simultaneous contrast ratio of 15,000:1 is now possible, though at a price premium. Nonetheless, a 1000:1 contrast ratio can be provided at a reasonable cost, and can be satisfactory for many applications.

Other shortcomings of LCD displays include a variation of performance with viewing angle, and motion blurring due to lag in the liquid crystals. The former — which can affect off-axis contrast, black level, color balance and saturation, and can be worse with wide-color-gamut displays — remains an area of needed

improvement. Motion blurring, however, has been greatly reduced due to evolving design improvements.

LCD monitors can provide interesting new features. Many pro LCD displays now support numerous color spaces (gamuts), including emulation of handheld devices (such as the iPod), often by the use of LED backlight units. However, standards for the mapping of wide-color-gamut signals in the broadcast environment still don't exist, as well as a standard for the handling of out-of-gamut signals. Some monitors, however, provide a mode that will indicate out-of-gamut colors. Because all LCD displays are progressively scanned, some form of deinterlacing and scan conversion must take place to display interlaced video. LCD monitors should thus have a mode that emulates interlace artifacts. In addition, displays should present images at the frame rate of the source, or optionally, at some integer multiple thereof, such as the 72fps display of 24fps material.

Users expecting the highest performance — and taking steps to maintain it — will want to test and set up their own monitors. The EBU Technical specification Tech 3325 "Methods for the Measurement of the Performance of Studio Monitors" provides insight into how to do this. The document also describes new test patterns to support the methodology. Similarly, SMPTE began a study in 2004 with the intent of identifying new standards for new reference monitor technologies. A subsequent working group convened in June 2008 to define the specifications needed to achieve interoperability between content and reference or quality control monitors. Scheduled to complete its mission by the end of 2009, the group will also define relevant measurement and calibration procedures.

For those wishing to test and maintain monitor performance using off-the-shelf tools, tristimulus colorimeters are available, together with automatic software for performing monitor measurements and calibration adjustments. These include low-cost devices that are temporarily mounted onto a monitor display, as well as contactless devices that use optics to measure display output.

Other display technologies remain elusive. The much-heralded field emission display (FED) is a flat-panel display that uses individual electron emitters (like the electron guns used in a CRT) to generate each RGB group of pixels. The surface-conduction electron-emitter display (SED) is similar to the FED, and shares its positive traits, but uses a single emitter for each column of dots instead of the individual dot emitters used in the FED. These displays share many qualities of the CRT, especially high contrast and low black level. While the technologies originally looked very promising, sharp falls in LCD prices — together with technical, economic and intellectual property issues — have brought development of FED and SED devices to a near standstill earlier this year. The optimistic news is that at least one panel manufacturer has announced plans to continue development of SED technology.

LCD monitors are now available that enable critical monitoring in many applications; the catch, however, is that high performance still comes at a premium price. Nonetheless, displays can be acquired at competitive prices, which provide excellent performance — provided the user takes the time to properly set them up. Having the requisite knowledge can turn an otherwise weak performer into a useful quality assessment tool. BE

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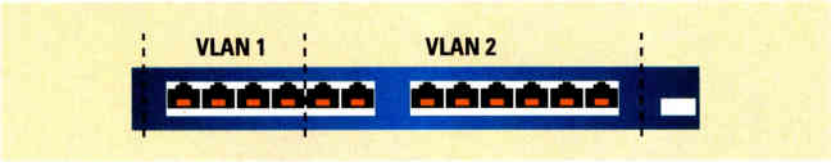

Figure 2. In this switch configured for two VLANs, ports 1-4 are assigned to VLAN 1. Ports 5-12 are assigned to VLAN 2.

Engineering webcast given by myself and Neville Wheeler and Robert Welch of Cisco in March 2006.

• *Ethernet switch ports are configured for a specific VLAN.* As shown in Figure 2, each Ethernet switch port is assigned to a specific VLAN on the switch. VLANs are an all-or-nothing approach. Once a switch is set to use VLANs, every port on the switch must be assigned to a VLAN.

• *Hosts (servers) are isolated by VLAN.* Typically, servers are assigned their own VLAN. This allows the network administrator to keep server traffic separate, moderate network loading and orchestrate network traffic paths in complex, heavily loaded networks.

• *Each VLAN is a broadcast domain.* As mentioned earlier, each VLAN is a broadcast domain. Ethernet networks rely on a broadcast address — an address that is monitored by all hardware on the same network. Messages sent to this address are read by every client on the same network. On large networks, the broadcast traffic can become so great that it significantly impacts overall throughput. VLANs reduce broadcast traffic on a network.

I have seen two cases where network hardware has failed in such a way that the card sent a stream of continuous broadcast messages. The volume of messages was so high that it swamped the entire network. These failures are known as broadcast storms. A properly engineered VLAN will contain broadcast storms to the VLAN itself rather than propagate these messages across the entire facility.

• *Each VLAN is a different subnet.* The number of available Ethernet addresses on a VLAN can be controlled by the network administrator. Subnetting is an involved topic. To learn more, search for subnet tutorials on the Internet. Also, most basic networking books contain chapters on network addressing and subnetting.

• *Inter-VLAN communications requires routing.* Communications between different VLANs requires that the network administrator specifically allow it. This is a built-in security feature of VLANs, which is especially valuable to the broadcaster. Unless you specifically permit it, computers on an office VLAN will not be able to communicate to any on-air, news or production systems. Remember, this is being done at the physical switch port

level. No matter what a hacker tries, if his or her computer is plugged in to an office jack, it will not be able to see the mission-critical networks.

• *First line of defense includes MAC filter, rate limiting and port speed.* To further protect your on-air and mission-critical systems, you can use VLANs combined with media access control (MAC) address filtering to prohibit access to networks not only by port, but by MAC address of the client machine. A MAC address uniquely identifies a specific network interface card on the network. You can search my previous *Broadcast Engineering* network tutorials at *www.broadcastengineering.com* for more information about MAC addressing. To keep VLANs from overloading switches, limit the maximum overall bit rate on the VLAN and limit port speeds as well. This will keep one client from crashing your switch or network by oversubscribing the available bandwidth on the network.

• *IEEE 802.1q trunk connections between switches extends VLANs to other switches.* For curious readers, IEEE 802.1q protocol is used behind the scenes to build VLANs across multiple switches. Without a protocol such as 802.1q, VLANs would be limited to a single switch. 802.1q-compliant switches add a tag after the MAC address to identify which VLAN owns the packet. The tag is used by the destination switch to deliver the packet to the correct port(s) on the switch, but the switch removes the 802.1q tag before it delivers the packet to the port.

VLAN issues

VLANs require a deeper understanding of networking technology than you might find in the typical office environment. That said, I have been impressed by the caliber of network engineers in many broadcast facilities. If you are reasonably comfortable with network technology but have not yet worked with VLANs, you will find the topic interesting and not hard to grasp. The benefits of VLANs for broadcasters outweigh the added knowledge needed to implement them.

VLANs require that everyone who maintains the network be familiar with the technology, because it radically alters the behavior of network switches. Someone who is not familiar with VLANs may plug a piece of equipment into a switch port and then waste hours if not days trying to figure out why the equipment will not work properly. BE

Brad Gilmer is president of Gilmer & Associates, a technology and management consulting company.

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Testing audio consoles

Comprehensive testing can ensure reliability and avoid costly downtime.

BY ADAM LIBERMAN

The drop in the number of attendees at the recent IBC show is another reminder that it will be quite a while before the broadcast market returns to what might be called business as usual. In the meantime, it's likely that it will continue to prove difficult to make investments in new equipment and to upgrade infrastructure.

In this climate, key pieces of equipment, such as cameras, routers, switchers and sound mixers, should get comprehensive and regular testing to ensure their continued reliability as they get older. Audio consoles (mixers) in particular are complex devices to test properly due to the many possible input and output combinations and thus the many potential failure points.

Only comprehensive testing can ensure the high degree of reliability that is essential to avoid costly downtime and maintain delivery of high-quality audio. Whether all analog, analog with digital outputs or all digital, the main principles of mixer testing remain the same. Mixers with digital signal routing and processing, however, can be much faster to test.

When to perform testing

There are three basic occasions when comprehensive mixer testing should be performed. The first is as part of a regular preventative maintenance program, performed at least yearly and even more often under heavy use. Many times problems will be spotted here that haven't already been reported, due to the difficulty of identifying issues and taking adequate notes during the pressures of production.

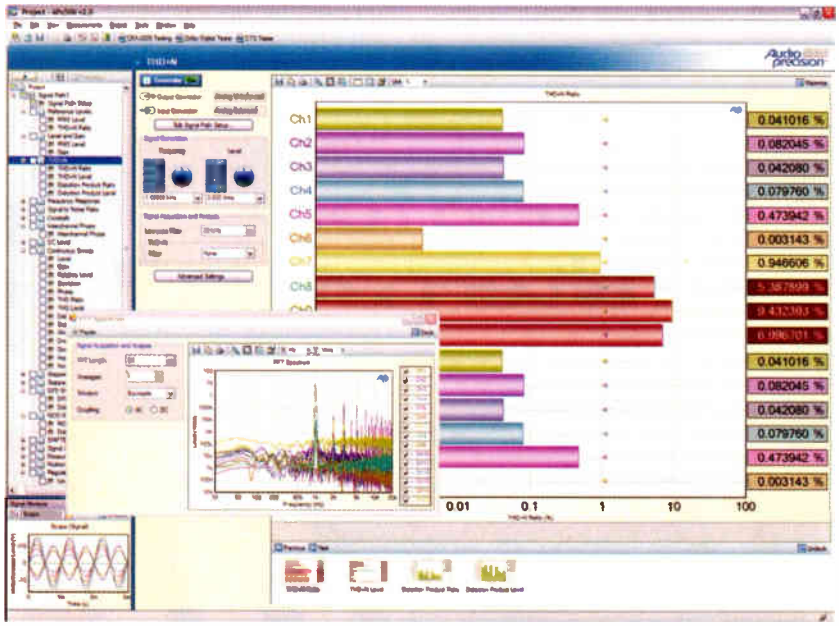
The second case is in preparation for a special event, where reliability is imperative. This is especially important in the case of remotes, where a completely stocked service shop will not be accessible.

The third case is during repair, both before and after service is performed. The preservice test is important to quantify and verify reported problems, and to look for other problems that may not have been initially reported. This is an important cost-saving measure; having to open the mixer up again to fix problems that were missed the first time is costly and a waste of limited staff resources.

Mixer testing can conveniently be broken down into four separate areas: audio performance, mechanical functions, features and routing.

Audio performance

Every input channel and every output bus should be checked for good audio performance. Testing the inputs and outputs in isolation is not always possible nor the best route to take because it bypasses the mixing bus. So, first test channel one routed through the main stereo output, and verify that the combination meets the manufacturer's specifications. If it does, you can now check the audio performance of every output using channel one as your source and every input using the main stereo outputs.



When checking THD+N, silence all channels except the channel under test by putting their faders to zero, muting them and turning them off if possible. Here, Audio Precision's APx audio analyzer interface shows THD+N on 16 channels at once.

Equally important is to run a post-test after the mixer is repaired and it has been fully reassembled. This verifies proper performance before it is put back into service. There's always that chance of leaving something disconnected inside, or of having a potentiometer or switch fail during re-assembly. These things will get caught during the post-test.

planting the seed...

Outfitted with dual DM2000's, Record Plant Remote's "The Lounge" digital truck has been busy making waves at numerous live recording events across the country.

We caught up with Kooster McAllister, Owner and Chief Engineer of Record Plant Remote, to gather his thoughts on his Yamaha gear. Here's what he had to say...

"Coming from an analog background, having a lot of faders in front of me is comforting. All 96 tracks can be viewed and accessed on just two layers. Having the two consoles tied together make the DM2000s perform as one large format digital desk. It also gives me the added functionality of being able to call up effects, routing, auxes, etc. from either center section making it easy to get around quickly.

In my line of work where you only have one chance to capture a live moment on stage, you must be able to count on your equipment not to fail. These consoles have withstood being bounced down the road from gig to gig and have always come through for me.

Most importantly, they sound great. Orchestral recordings I have done with them sound simply amazing."

— Kooster McAllister

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A basic set of tests will characterize performance and alert you to any problems. Start with a 1kHz tone to check input gain, output level and meter calibration. Then check frequency response. Modern audio analyzers use a log swept sine wave to measure frequency response. Not only can this be extremely rapid (less than a second), but also it allows you to measure total harmonic distortion, our next test item, at the same time. Some advanced analyzers have the ability to measure individual harmonic components of the distortion as well, which can help in pinpointing faulty components in a circuit.

Noise in a mixer builds up when multiple channels are on, so when checking total harmonic distortion plus noise (THD+N) and signal-to-noise-ratio, silence all channels except the channel under test by putting their faders to zero, muting them and turning them off if possible. Noise should be checked with a line level input to measure system noise, and with a mic level input to measure equivalent input noise on the mic preamp.

Maximum overload level should be reviewed to make sure the mixer can capture the full dynamic range of the audio signal. Poor overload level could indicate failure in the audio path or in the power supply. An analyzer with a regulation feature can automatically zero in rapidly on the overload point, saving the time of finding it manually.

A common mode rejection ratio (CMRR) measurement will instantly alert you if a balanced input has one side down. Some analyzers have the IEC CMRR test built in, making it easy to add it to an automated test routine.

On a digital mixing board, do all the same tests, but also make sure the sample rate is correct and that jitter is low. You'll need a dual-domain analyzer for this — one that can test any combination of analog and digital inputs and outputs.

Multichannel audio requires multichannel analysis. The APx585 multichannel audio analyzer from Audio Precision has eight simultaneous analog outputs and inputs.

Mechanical functions

The most common failures on mixing boards are mechanical. Faders, potentiometers and switches can all become intermittent and dirty. The best way to test faders and level potentiometers is by listening to a 1kHz tone while sliding or rotating them through their travel. Check that there are no dropouts or crackles and that there's no sound in the full off position. While this part of the testing can't be fully automated, making it part of the test routine assures that nothing gets missed.

Having an audio analyzer that can generate a multitone stimulus signal is a great advantage for testing EQ pots.

Changes in EQ can be easily heard in the multitone signal as the pots are rotated, while at the same time the audio analyzer can quickly update the on-screen frequency response graph.

Features

The features include everything else — overload indicators, phantom power, compressors, echo or reverb, and effects. Each of these should be checked as part of a systematic test routine. Phantom power should be checked on every microphone input, measuring between pin 1 and both pins 2 and 3. This will assure that all the pins are connected.

Routing

Routing includes assignment of channels to output buses, auxiliary sends, monitors, solo and tape return. On an analog mixer, every possible combination of input and output must be reviewed, because the audio for each combination goes through its own unique set of switches, connectors and circuit board traces — all of which can potentially fail. For a 16-channel board with four main outputs and four aux sends, that's 128 signal paths to check.

On a digital mixer with digital routing, only 16 input paths and eight output paths will need to be looked at. You can use a 1kHz tone to check that the level is correct and distortion is normal.

Automation and record keeping

It would be time-consuming and costly to do these comprehensive tests manually. Fortunately, it's possible with a modern high-quality audio analyzer to automate the process. This not only saves a great deal of time, but it reduces the chance of error. Time can further be saved by using a multichannel analyzer or a two-channel analyzer with auxiliary switchers. Automation features are useless, however, if they're too hard to implement.

An ideal analyzer interface allows nonprogrammers to create sophisticated automation sequences without writing any code. For more complex automation, it's important that the instrument's API is accessible through a popular platform such as .NET to ensure connectivity with other applications like LabVIEW.

Conclusions

The benefits of a comprehensive, systematic and fully documented audio mixer testing regimen cannot be overstated. More viewers than ever before are watching programs on HDTVs and listening on their home theater surround-sound systems. In light of today's tight economy, it's vital to keep existing equipment in top condition and to deliver the best sound possible at the lowest cost.

To carry out the comprehensive and rapid automated testing discussed above, you'll need to have a modern, dual domain audio analyzer with easy-to-use automation and reporting capabilities. Its expense will be returned many times over in saved downtime and reduced labor costs. BE

An ideal analyzer interface allows nonprogrammers to create sophisticated automation sequences without writing any code.

Adam Liberman is an audio engineer and service specialist, as well as a technical writer at Audio Precision.

Broadcast archives

Can storage keep up with an ever-growing amount of produced content?

BY DAVID AUSTERBERRY

With the inception of file-based productions, a broadcaster's archive has become more of an issue than ever. When programs were supplied on videotape, they were kept for the duration of the rights window and then returned to the production company or removed from a transmittable area. After transmission, commissioned material was sent to a climate-controlled warehouse to sit on a shelf for perpetuity.

The management of the warehouse ranges from a card index of tape and shelf numbers to a comprehensive solution with bar codes and a database. Tapes are checked out if a series is to be aired again, or if the content is needed as archive material in a new program.

When the case is made for the investment in an archive for files, a number of questions are raised. What is an archive for? Is it a repository of assets to be mined in the future, or is it for disaster recovery? What should be archived, and what should be trashed? What file format should be used? And finally: What storage medium should be used — data tape, spinning disks or just outsourcing the storage?

With the inception of file-based productions, a broadcaster's archive has become more of an issue than ever.

The simple answer is that you should balance the cost of buying and running the storage against the value of the assets.

The archive

An archive can serve several functions. For the newsroom, it's an essential pool of material for creating background stories to explain current events. However, news ages very quickly, and a skilled news archivist will ensure that only what is essential is archived. Add to that, most news clips are short and do not require the same amount of storage as long-form programs. It makes sense to manage a news archive as a standalone system, separate from the program archive.

As program production moves to tapeless formats, a file archive will replace the videotape library as the broadcaster's main repository of program assets. For a small station, it can be a backup for the disk storage. For larger broadcasters commissioning their own programming, it is a permanent repository of their assets. For any broadcaster, it can form part of their disaster recovery (DR) strategy. Data tapes can be shipped out to a remote site, or for those with deep pockets, a second tape library can be installed at the DR location. The issue here is not technological; it's a business decision.

A typical archive consists of a large RAID array for nearline storage, backed by a tape library system. The disk subsystem stores work in progress — in post or waiting for transmission. The post and transmission departments can pull files from the nearline to high-performance storage for editing and playout.

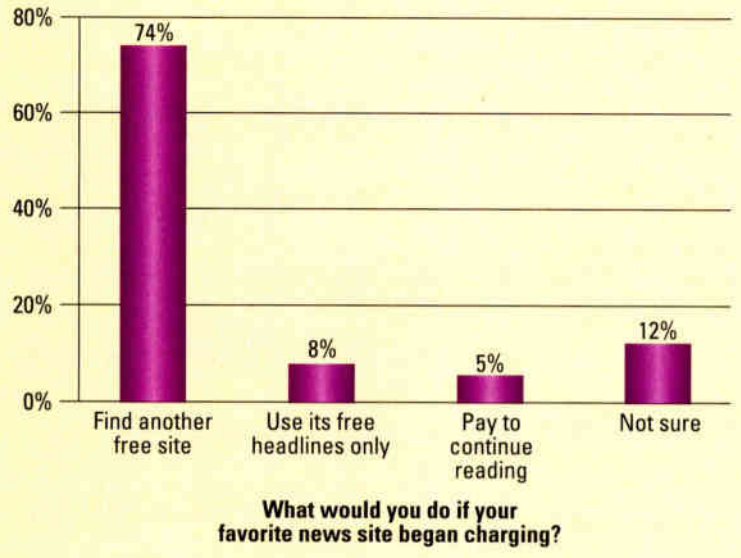
The technology

A file-based archive is just part of a larger system and could be

FRAME GRAB *A look at the consumer side of DTV*

Stats show people won't pay for paid content online

74 percent would find another free Web site before paying.



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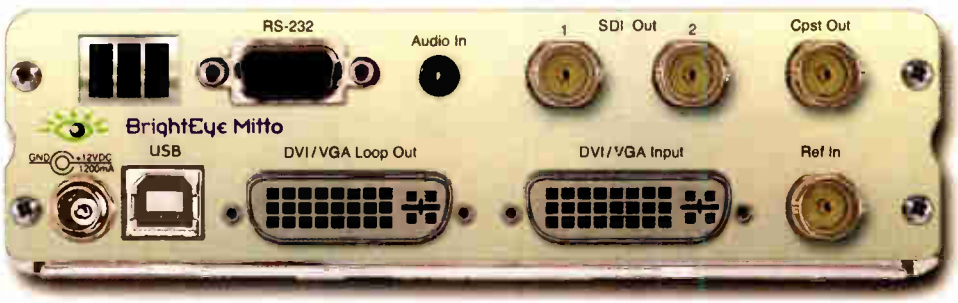
Bringing progressive images from the desktop into the interlaced world of video used to be a compromise between sharp details versus interfield flicker. Mitto's advanced filtering satisfies both of these seemingly contradictory requirements. The result is that the output looks as good, or better, than the original and passes the most stringent testing.

A broadcaster came to us and asked that we build an HD scan converter for them. When we brought the prototype to them for testing, they were ecstatic at how good the output looked.



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considered a service to the media asset management (MAM). (See Figure 1.) The file archive sits at the bottom of the storage hierarchy and provides the lowest cost-per-byte at the expense of performance (time to restore an asset). The archive management application sits between the media storage and the digital asset management (DAM or MAM).

Archive manager functions

In simple terms, the archive manager can be thought of as managing the data tape library. To get the optimum performance from a tape drive, a large managed buffer is required so data can be streamed at maximum right speed to the tape. Most libraries have multiple drives, and the archive manager can prioritize read/write operation to best serve broadcast operations. For example, a late schedule change may mean a file must be restored urgently for playout.

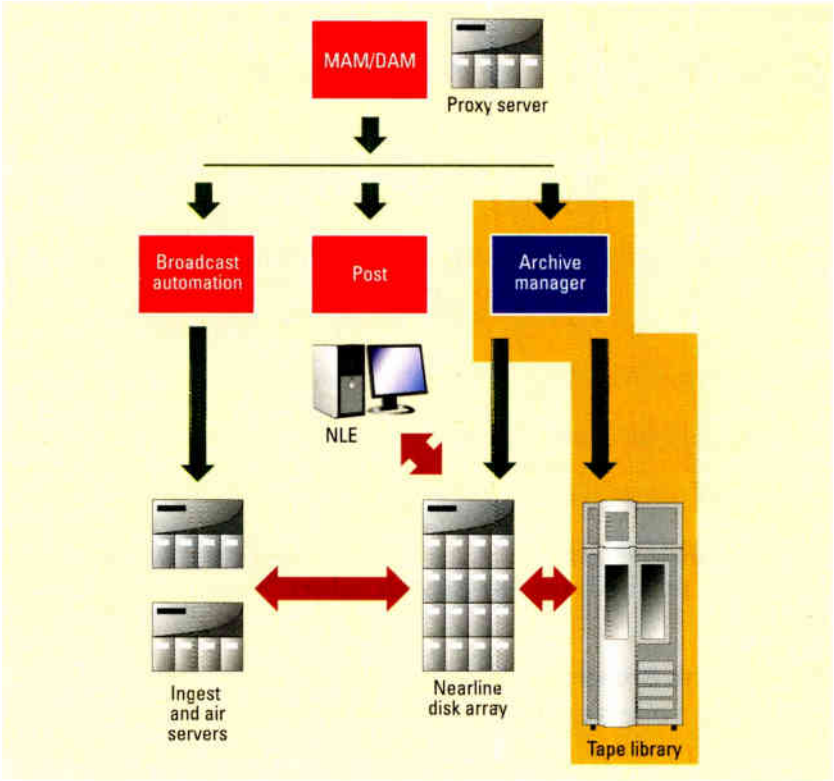
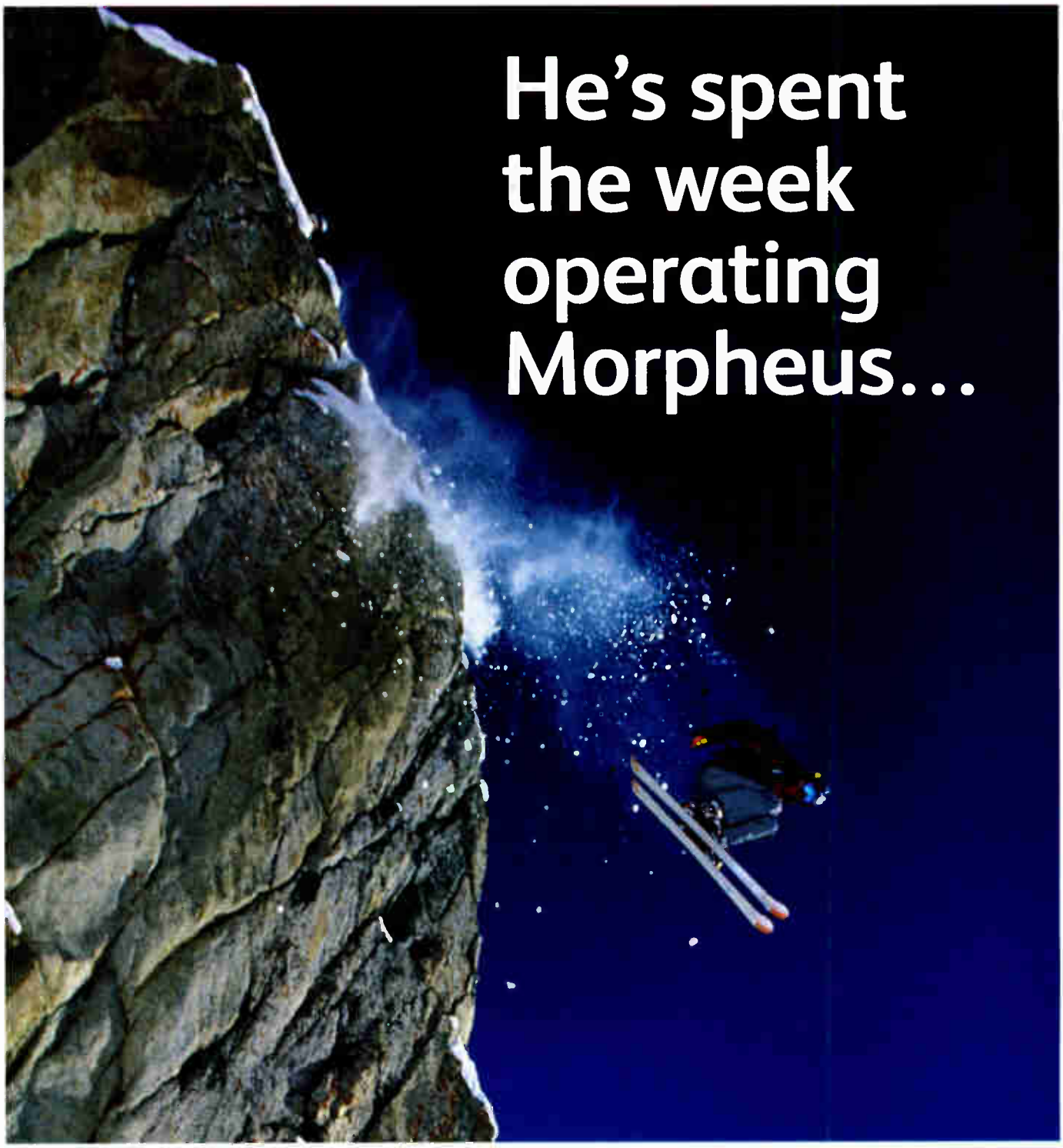


Figure 1. The archive controller directs data flow between disk and tape, and manages the tape library.



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Flexible device management ensures that resources can be dynamically deployed where and when most needed.

At the core of Morpheus is the unique MediaBall™ technology, this allows complex sequences of events to be packaged together, instantly providing simple presentation for the operator and easy manipulation within a schedule.

Maximizing revenues from advertising requires outstanding flexibility from an automation solution. Morpheus supports last minute schedule edits, allowing commercials to be changed literally seconds before air.

As a fully scalable solution, Morpheus can effortlessly grow in line with future business demands regardless of the system's complexity.

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Automation

A powerful and scalable database engine is the driving force behind Morpheus, configured to provide resilience and redundancy on many levels. From this central core, known as the Eventstore, applications and services are run to provide the most flexible automation system available today.

Operators are presented with a consistent and common user interface removing the need for detailed understanding of the technology. Clear, easy-to-understand icons show users the status of the overall system at a glance.

Device Management enables automatic substitution of devices in the event of failure or loss of connectivity which greatly reduces the need for human intervention. Dynamic resource allocation ensures all devices are operated at optimum capacity, providing highly cost efficient inventory management.

Whatever the device, content or workflow Morpheus Automation can manage it efficiently, effectively and reliably.

Media Management

In the broadcast industry the value of media is realized through the capability to deliver that media wherever, whenever and in the format that is required.

Using state-of-the-art technology, Morpheus manages the acquisition and movement of content throughout the enterprise. Complete flexibility enables content to be sent to a wide range of delivery platforms including linear broadcast, web, mobile and VOD.

Morpheus manages the acquisition and movement of content throughout the enterprise.

Content and metadata can be ingested, moved and delivered as the enterprise demands. Interfacing to external business workflow tools and scheduling systems on both a local and remote basis is handled transparently, ensuring all elements of the operation are synchronized and status aware.

Wherever your system content is needed, whatever platform it's needed on, Morpheus will deliver to meet your deadline.

Meeting Business Needs

The design philosophy at the core of Morpheus is to reduce ownership costs. Building on the premise that automation systems need to evolve to accommodate the demands of new services and delivery platforms, a standard set of rules have been applied to cover common functionality. As a consequence, development costs to add new facilities are kept to a minimum and time to market is dramatically reduced.

Morpheus minimizes disruption and costs associated with integrating new delivery methods or physical devices. With Morpheus there are no fiscal surprises. In addition Snell's world class dedicated support teams are there to assist, providing a broad range of services, including 24 hour coverage, on-site support, spares, remote diagnostics and in-depth technical advice.

The combination of a fully scalable, reliable and resilient device independent architecture, complemented by world class support, ensures Morpheus provides users with future-proof automation that is resilient and highly cost effective.

Operations staff can manage more channels

- Lower personnel & operating costs

Commercial revenues increase

- Sell & present commercials close to air-time

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Automation & Media Management

An index maps files to tapes in a directory. The manager can group content files to suit the operations. One group of tapes could be used for spots, one for series and one for movies. Content can be grouped to single tapes, so they can be removed from the robot to store on a shelf.

Beyond the basic tasks related to store and retrieval, the archive manager can perform background checks on the integrity of drives and data, and preemptively migrate content to current drive formats and fresh media.

The archive manager can perform background checks on the integrity of drives and data, and preemptively migrate content to current drive formats and fresh media.

DAM

DAM means that most production processes can use a low-resolution proxy of the broadcast asset. The proxy is stored on a regular RAID array using generic low-cost IT storage. Today's IT networks can easily handle the demands for proxy viewing with a properly designed switched infrastructure.

A typical process flow is shown in Figure 2 on page 40. Original content is ingested and stored in the archive in the highest resolution chosen by the broadcaster. From this, versions can be made for transmission. These may be edited and segmented. Legacy material may need processing — including scratch removal and noise reduction, deinterlacing, and color correction — to clean up the picture. This processing can be applied to a copy, leaving the preservation master untouched for improved image rescue techniques in the future. The processed copy becomes the transmission master.

The key components of any archive are two processes: data movement and transcoding. The data movers receive commands from the DAM and broadcast automation to copy files from tape to nearline, or move files from nearline to tape.

No single file format fits all applications. The archive must be the highest quality, but for editing,

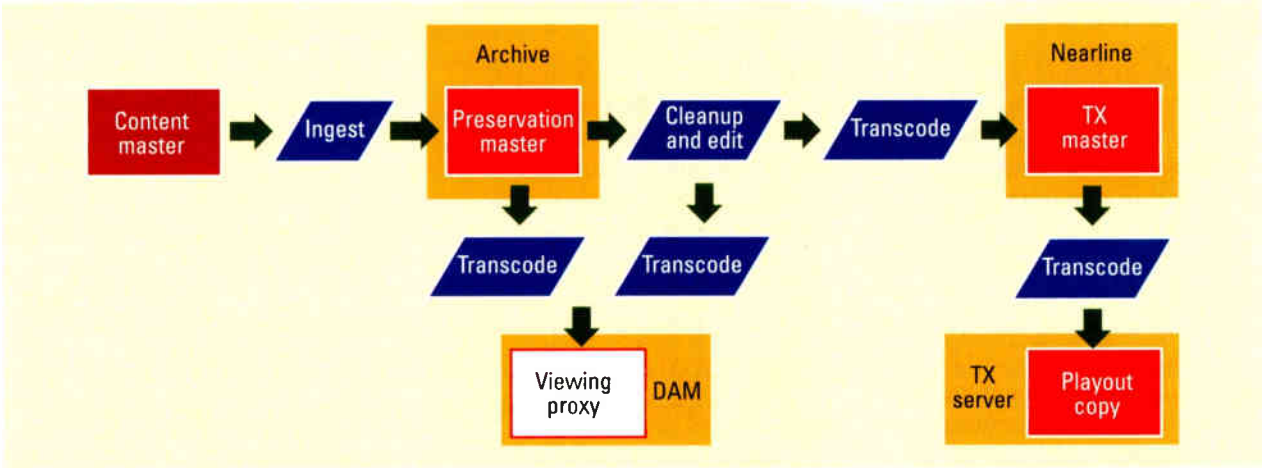


Figure 2. Content must pass through several transcode stages to meet the demands of production processes.

a format like Avid, DNxHD or Apple ProRes may be more suitable. For the playout servers, a lower bit rate, long-GOP format is more appropriate. Using the right format for the job maximizes visual quality while optimizing hardware costs. To service this need for different formats, the archive management must include transcoding. This may be integral to the archive management, or it may call on a transcoding service.

Any transcode will introduce artifacts, so the workflow should be designed so that transcoding upward in bit rate and resolution is avoided. Each videotape dub dropped a generation in quality, and 10 dubs from shooting to playout were not unreasonable. The number of transcode steps in a typical file workflow can be minimal compared with videotape, so quality stands to improve. (This assumes that too much compression is not used.)

Partial restore

This is often cited as a differentiator between *video* storage and generic IT systems. First-generation LTO had a transfer rate around 15MB/s. A one-hour program stored as 50Mb/s MPEG is about 20GB. Restoring files from a tape archive takes about 20 minutes. If you needed a three-minute clip for a promo, tying up a tape drive for 20 minutes was not efficient. With LTO-4 offering 120MB/s transfer rate, it's not such an issue. The entire program can be restored to disk. If a promo is being made, it will be aired in the near future anyway and will have to be restored from tape in its entirety.

Partial restore is still a valid concept for large HD files. These may be stored at 200Mb/s or higher, and a 120-minute movie is a large file to store even for two weeks on the disk array. A similar reasoning can be applied to HD sports content. Once the game has been aired, all that may be required in the future are highlights; partial restore is ideal for such applications. The move to 3GB/s, even with mezzanine compression, only exacerbates the issue.

The medium

Although many technologies from the mundane to esoteric have promised replacements for magnetic storage, they remain just around the corner. Optical storage is still limited to 50GB per disk, so the conventional disk drive and data tape remain at the heart of any storage subsystem. Solid-state drives are finding applications in acquisition and playout, but it is still in the early days for mass storage.

Tape libraries come in all sizes, from an auto-loader with a capacity of 10 tapes up to enterprise libraries with capacities of tens of thousands of slots.

The front end of an archive today is a disk array. This technology has evolved from parallel-connected disks, SCSI and IDE/ATA to the current serial technology, SAS and SATA. A RAID subsystem can provide backup against disk failure. These arrays provide cost-effective storage for work in progress and smaller archives.

For longer-term and low-cost storage, data tape is the most popular option. Again, the technology is constantly changing and improving. Technologies like DLT have been replaced with LTO. The next-generation LTO-5 stores 1.6TB, about 70 hours of 50Mb/s video. The LTO cartridge is about two-thirds the volume of 3.5in hard drive, so the storage density is about double (a 1TB drive). Hard drives need more space around them for cooling and disk controllers, so with current technology, the tape store will take up less floor space.

Energy efficiency

Energy use has always been a cost factor with archives. Videotape and film both need climate control. For a long-term tape archive, the U.S. Library of Congress recommends 50 degrees Fahrenheit and 20 percent to 30 percent relative humidity (RH). For film, it recommends 37 degrees Fahrenheit and 20 percent to 30 percent RH.

Spinning disks draw power, so they need additional cooling. For a deep archive, why keep the disks spinning when they are not in use? This is the principal behind a massive array of idle disks (MAID). Unused disks spin down until they are needed. In a typical MAID array, only 25 percent of the disks are spinning. Not only does it reduce power consumption, but also it prolongs the life of the drives.

Data tape libraries use power for the robots and drives, but far less than an equivalent capacity disk array. The data tape has the same environmental requirements as the videotape, not too hot or humid.

You can prove anything with statistics, but the generally held view is that tape is the lowest energy user.

Summary

An archive can serve serveral functions. It can form part of the backup strategy, it can be used for DR, just as a program, or all three.

Each broadcaster has a different set of technical requirements and will place its own value on its assets. Storage technology is getting cheaper, but production creates ever more content. New formats like HD, 2K and 4K plus UHDTV in the future just increase the file sizes for a given program duration. Today's optimum solution will be wrong in two years. So choose something, and expect to migrate! BE

Editing systems

NLE systems are the linchpin of a production workflow.

BY ED CASACCIA

Today's job description for a professional editor has changed significantly to include a variety of tasks that go well beyond cutting and splicing images and sound together. The technology required to do the job has also evolved over time and continues to enable new capabilities and improve productivity.

Nonlinear editing (NLE) software has certainly matured over the years, with real-time processing, multiformat timelines and even shared-storage editing no longer a novelty. These features are now standard fare on most editing software packages, whether they are on a Macintosh or PC platform.

However, to accommodate the needs of today's highly competitive post-production environment, NLE software has gotten smarter in how it manages files (and metadata), and it must enable editors to get even more involved in the content creation process. Editors also have to be able to work on all platforms, Mac and PC, with equal competence.

In addition to handling all flavors of SD and HD files natively on a timeline, editing systems have to become more integrated into the production workflow. This means an editor is now handling graphics templates and preprocessed audio files along with the video clips.

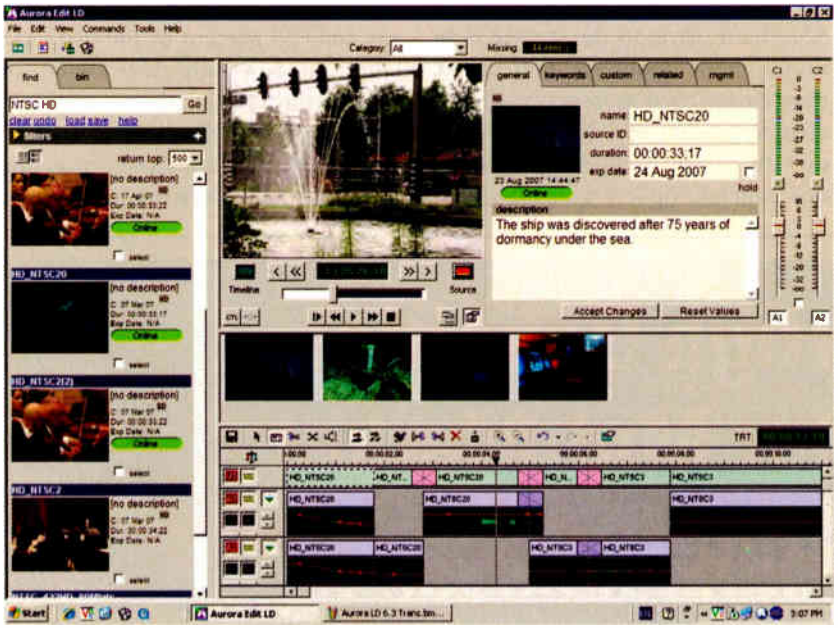
The fundamental values of shared-storage editing — collaborative workgroups and faster time to air — are always going to remain so an editing system that does that well and allows other third-party technology to be seamlessly integrated into a production environment is critical. All editors on the network must function equally at all times, with no bottlenecks in connectivity or delayed access to media.

Frame-level asset description

Along with numerous advantages, shared-storage environments bring a number of challenges. With thousands of clips or assets on a centralized server, how do you locate exactly the right one when you need it? Editing software must include an asset management or database file system organization that first allows you to browse low-res clips to find the one you need, and then allows you to retrieve that clip immediately. If it's late-breaking footage coming in from the field, you have to be able to begin working with it as soon as it is ingested into the network.

This means not only simple asset management searches, but also the ability to locate a clip using frame-level asset description. This makes the logging process much faster and clip searches much easier. Reporters can make logging notes out in the field and attach them to a specific clip. Editors back at the station can then use those notes to find and position a clip within the story. Leveraging this metadata makes editors' jobs easier and gets the story to air faster.

This concept also means more than just finding the clip; it's finding what's in the clip down to the frame level. Clips in news are very short, so finding a clip is half the battle, but for longer-form material, like a live sports event, finding a three-hour clip is only a small piece of the puzzle. You have to find a specific segment of that game within the three-hour telecast. That's more of a challenge, but it is a feature an increasing amount of editors are requesting.



Grass Valley's Aurora Edit system has a low-definition proxy version that allows a person to edit stories with 2-D effects, graphic imports and EDIUS/Final Cut Pro EDL exports for finishing.

Tight MAM integration

The best way to achieve this level of functionality is to extend the organization's media asset management system to content acquisition, even if this is in a camcorder on a

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The Grass Valley Aurora Edit system provides the benefits of nonlinear technology, including instant random access, multiple levels of undo, a real-time transition effects preview option and the ability to quickly make new versions of existing stories.

remote assignment. This is emerging technology, and it's tricky to do, but the rewards are invaluable to editors asked to produce more content all the time. The key is to get editors involved from the beginning of the content creation process. As videographers are shooting the segment in the field for that night's newscast, they should be thinking about how to deliver that footage to the editors in a way that is most useful to them.

Likewise, when editors receive the footage, they should be able to immediately know where to look to find out what's on the clip, how much of it to use and where in the story it should go. By taking advantage of the incorporated metadata — referencing both the clip and specific places within the clip — there's very little guesswork involved. A forward-looking editing system should allow this metadata to remain attached to the clip for its entire life cycle.

Real-time editing

It is also crucial that any editing software is able to process effects in real time. It doesn't mean you put it on the timeline and then go back to a clip and hit "play." It should allow you to do an edit automatically, without marking in and out points.

Some NLEs on the market today are actually slower to use than tape-to-tape editing systems. Where's the convenience and speed we have come to expect with nonlinear editing?

The widest possible variety of compression types must also be supported natively in any useable NLE, because you often don't know what type of footage you're getting from day to day. Newer formats such as AVC-Intra and JPEG2000 will have to share equal space on the timeline with DV and MPEG-2 (and MPEG-4) material. NLE systems and software should be agile enough so users don't have to worry about preconverting or transcoding before they begin working.

Of course, the use of advanced codecs like AVC-Intra and JPEG2000 require more powerful workstation processing, so today's dual quad-core processors will eventually give way to faster CPUs. Future workstations — and the use of GPUs instead of dedicated ASICs — will certainly have to be up to the task. More hard drive storage and usable RAM will continue to be important as well.

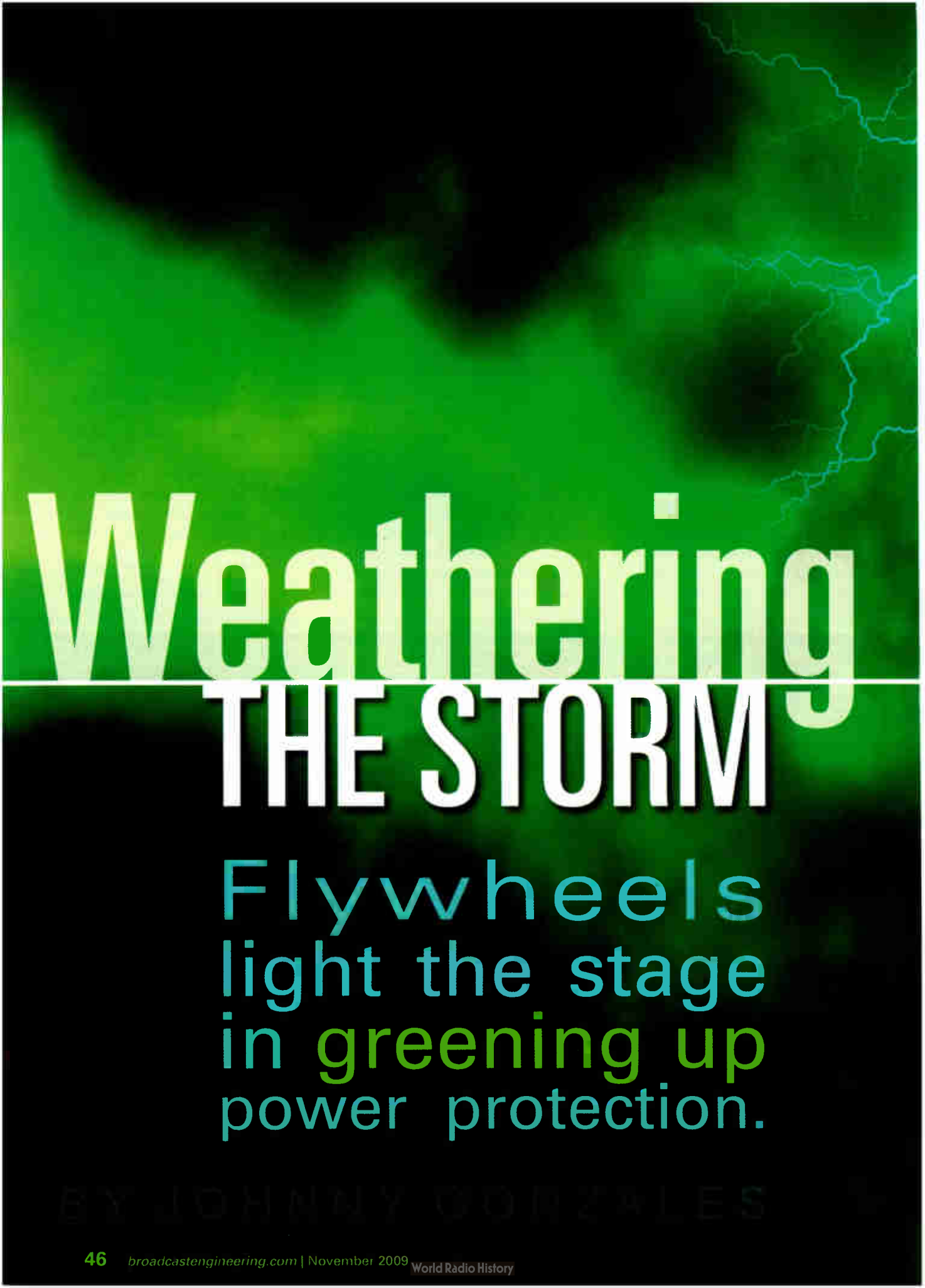
The same goes for aspect ratios. The conversion to DTV in the United States has not made all 4:3 material go away. Quite the opposite is true now and will continue to be so for a long time. In fact, many editors in the industry over 40 years old will probably be working with a mix of 4:3 and 16:9 content for the rest of their careers. Aspect ratio agility has to be just as well developed as codec agility. Both formats must coexist on the same timeline, without conversion and in both low and high resolution, to be useful. The NLE software has to allow users to use aspect ratio conversion at certain times and not at others, and it has to do that for users without editors spending time rendering or even thinking twice about it.

Nonlinear editing is not solely about editing anymore. And because virtually all of the processing is now software-based, new features and functionality for nonlinear editing are now available at low cost.

Today's editors are being called upon to be more than just editors, so the tools they use must benefit the entire workflow, not just one single task. Editors have become the linchpin of the overall production workflow. The editing software now includes its own transcoding engine and other capabilities that used to be performed with specialized boxes.

In the end, that's good news for everyone, because both money and time are saved in the process. BE

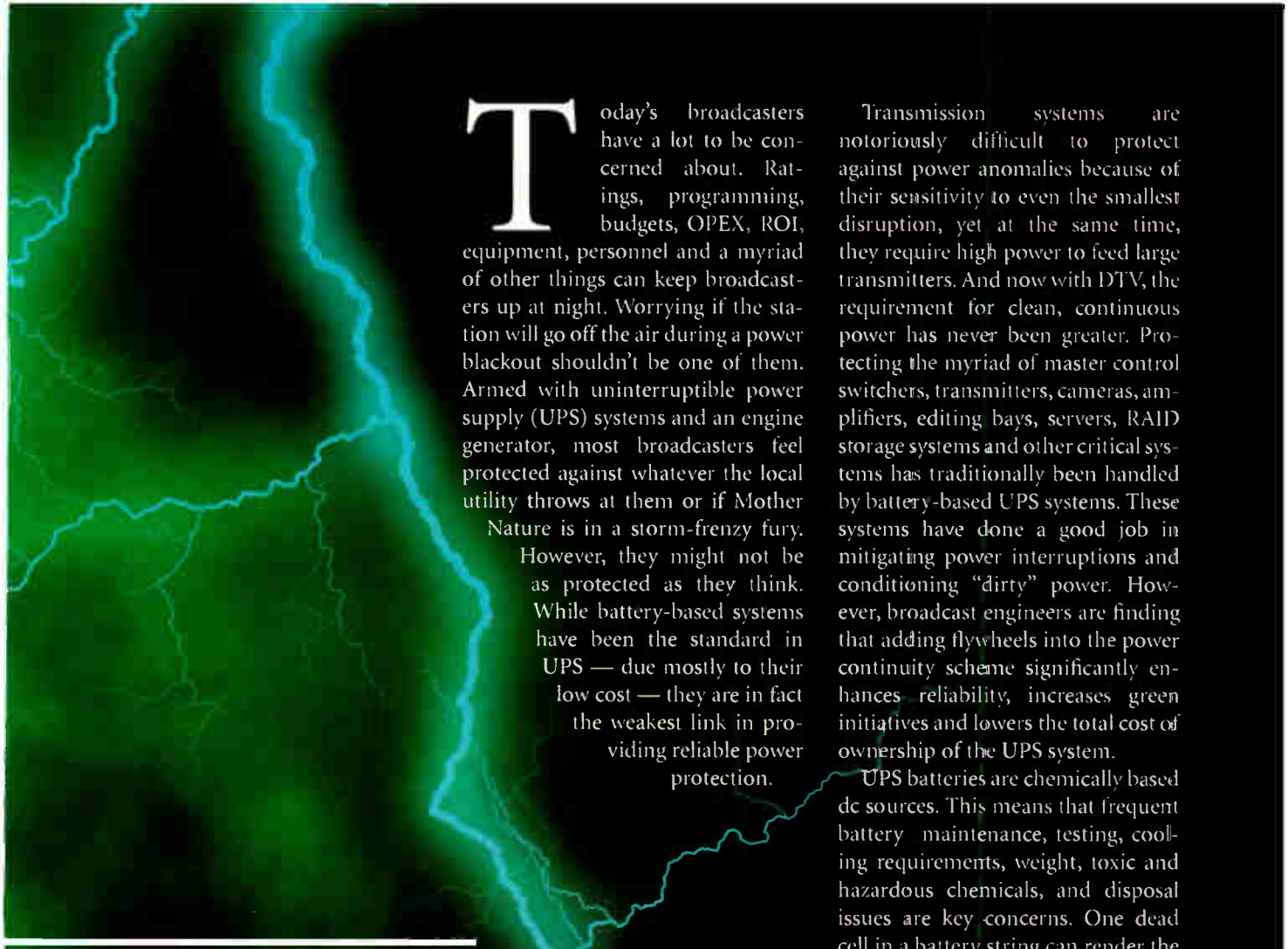
Ed Casaccia is director of servers and storage product marketing for Grass Valley.



Weathering THE STORM

Flywheels light the stage in greening up power protection.

BY JOHN WOMACK



Today's broadcasters have a lot to be concerned about. Ratings, programming, budgets, OPEX, ROI, equipment, personnel and a myriad of other things can keep broadcasters up at night. Worrying if the station will go off the air during a power blackout shouldn't be one of them. Armed with uninterruptible power supply (UPS) systems and an engine generator, most broadcasters feel protected against whatever the local utility throws at them or if Mother Nature is in a storm-frenzy fury. However, they might not be as protected as they think. While battery-based systems have been the standard in UPS — due mostly to their low cost — they are in fact the weakest link in providing reliable power protection.

Transmission systems are notoriously difficult to protect against power anomalies because of their sensitivity to even the smallest disruption, yet at the same time, they require high power to feed large transmitters. And now with DTV, the requirement for clean, continuous power has never been greater. Protecting the myriad of master control switchers, transmitters, cameras, amplifiers, editing bays, servers, RAID storage systems and other critical systems has traditionally been handled by battery-based UPS systems. These systems have done a good job in mitigating power interruptions and conditioning "dirty" power. However, broadcast engineers are finding that adding flywheels into the power continuity scheme significantly enhances reliability, increases green initiatives and lowers the total cost of ownership of the UPS system.

UPS batteries are chemically based dc sources. This means that frequent battery maintenance, testing, cooling requirements, weight, toxic and hazardous chemicals, and disposal issues are key concerns. One dead cell in a battery string can render the entire battery bank useless — which is not good when you're depending on the power backup system to perform when you need it most. Every time the batteries are cycled, even for a split second, the more likely they will fail the next time they are called upon.

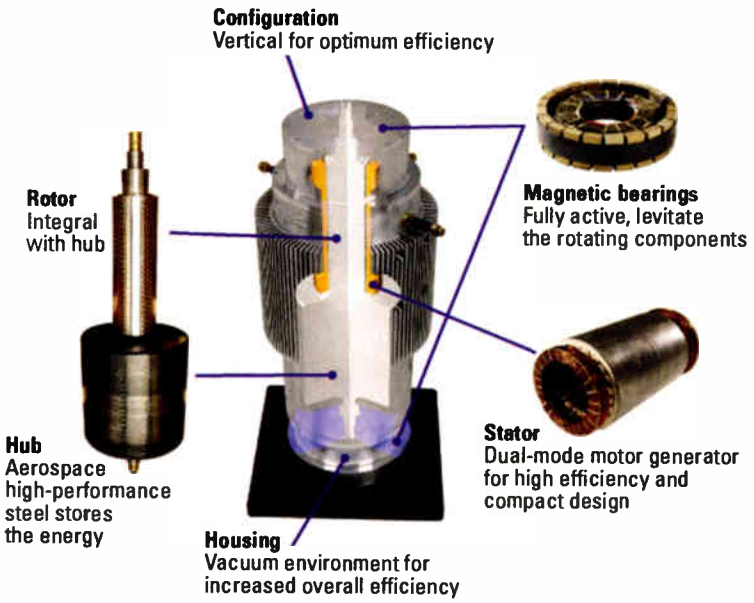


Figure 1. This illustration of a flywheel shows how an electrical input spins the flywheel rotor up to speed, and a standby charge keeps it spinning 24/7.

Clean energy storage

Flywheel technology stores kinetic energy in a quiet, spinning disk to provide a reliable and predictable source of DC power. With recent advances that have made it more compact and able to support higher power applications, flywheel technology has emerged as a reliable, environmentally friendly power protection solution that stores energy mechanically instead of chemically — greatly enhancing dependability.

A flywheel system can replace lead-acid batteries and works like a dynamic battery that stores energy kinetically by spinning a mass around an axis. And it is designed for high-power, short-duration applications. Electrical input spins the flywheel rotor up to speed, and a standby charge keeps it spinning 24/7 until called upon to release the stored energy. (See Figure 1.) Technology used in the flywheel allows the flywheel hub — formed from aerospace-grade steel, a high-speed permanent magnet motor/generator and contact-free magnetic bearings — to levitate 100 percent and sustain the rotor during operation. The elimination of bearings for normal operation combined with zero rotor hub metal-to-metal contact eliminates maintenance concerns such as bearing replacements and or oiling/greasing of bearings. Higher reliability and improved availability is the end result. What this means is a more reliable backup power solution. The flywheel can charge and discharge at high rates for countless cycles without degradation throughout its 20-year life — unlike traditional batteries. The amount of energy available and its duration is proportional to its mass and the square of its revolution speed. In the flywheel world, doubling mass doubles energy capacity, but doubling rotational speed quadruples energy capacity: $E = KM\omega^2$ (where K depends on the shape of the rotating mass, M is the mass of the flywheel and ω^2 is the angular velocity.

When used in conjunction with a UPS system, flywheels provide uninterrupted DC ride-through power and voltage stabilization during brief utility power disruptions and brownouts, preserving the battery array for only longer-term outages. (See Figure 2.) Most backup generators require six to 10 seconds to come online and to connect with the UPS via the automatic transfer switch. Some flywheel units can provide up to 300kW of instant ride-through power and voltage stabilization for more than 20 seconds (or other combinations of power and time) — more than enough time for the vast majority of electrical disturbances. Flywheel units can be paralleled for additional power capacity, run time and/or redundancy.

Proper sizing

Depending on the growth of the broadcast station, normally the sizing of UPS systems and flywheels is done based on actual load. Most engineers size the UPS at 30 percent to 40 percent larger than the actual load to allow for growth. Once the UPS is sized, the flywheel needs to be sized to the UPS. All UPS ratings are based on kVA and kW numbers; the rating used for power applications is the kW rating. When this kW number is established, this will be labeled as the full load kW rating. For example: A 275kVA UPS with a power factor (pf) rating or capability of 0.9 results in a 248kW output rating for the UPS (kVA x pf). Real work loading on a UPS is typically

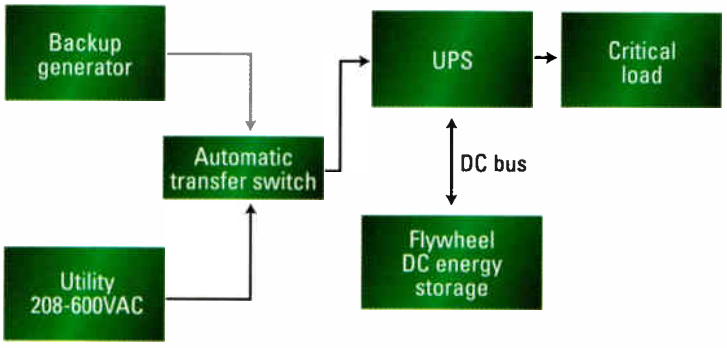


Figure 2. When used in conjunction with a UPS system, flywheels provide uninterrupted DC ride-through power and voltage stabilization during brief utility power disruptions and brownouts.

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Model 1

Number of flywheels	UPS output power rating (kVA)											
	40	60	80	100	120	160	225	275	450	550	750	1100
1	99.8	67.0	50.3	40.3	33.6	21.9	11.7	6.4				
2				80.0	65.0	48.8	34.8	26.6	11.3	6.2		
3						72.3	51.5	42.2	23.2	16.8	8.5	
4	Run time in seconds							55.6	34.1	26.1	16.0	6.0
5										34.8	23.0	11.7

Model 2

Number of flywheels	UPS output power rating (kVA)											
	40	60	80	100	120	160	225	275	450	550	750	1100
1	99.8	67.0	50.3	40.3	33.6	25.6	17.4	11.7				
2				80.0	65.0	48.8	34.8	28.6	16.8	11.4	6.1	
3						72.3	51.5	42.2	26.1	21.5	13.9	6.2
4	Run time in seconds							55.6	34.1	28.0	20.8	11.1
5										34.8	25.8	17.1

Table 1. To make it easier to size flywheels, most manufacturers supply customers with runtime charts.

80 percent or less. Our 275kVA example (80 percent loaded) would require 207kW of DC power or support from the flywheel. This is the rating used to size the flywheels to assure proper power rating and proper amount of run time requirement. Most flywheel manufacturers have made it easier to size flywheels by supplying users with run-time charts.

As illustrated in Table 1, using two flywheels of Model 1 will achieve 26.6 seconds of run time, and using two flywheels of Model 2 will achieve 28.6 seconds of run time. In either case, it exceeds the goal of meeting a 20-second run-time requirement as a minimum. This makes for a solution that fits the needs of most broadcast stations.

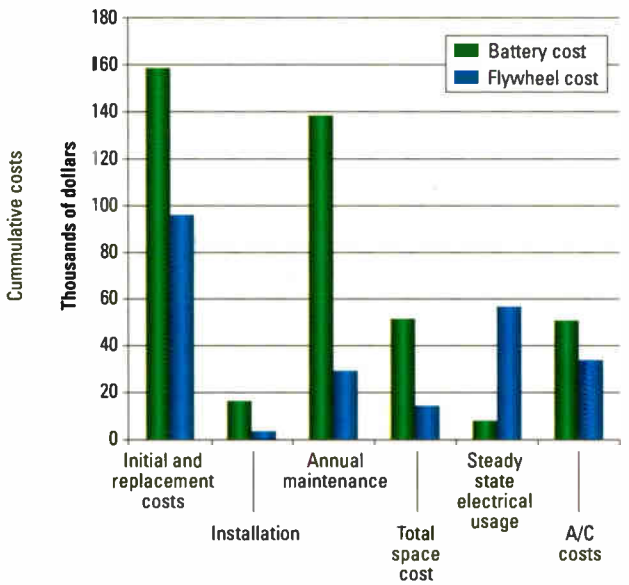


Figure 3. This life cycle cost comparison shows some advantages of flywheel technology over battery systems.

Do you know the state of your UPS batteries?

Batteries have a limited number of discharge cycles they can provide during their expected life. While this cycle life may be adequate in some applications, there are instances where a battery bank may be heavily discharged frequently, sometimes several times per day, caused by short-term power interruptions lasting for a few seconds or less. Every time the batteries are used (cycled), even for a split second, the more likely it is they will fail the next time they are called upon. Even testing the batteries shortens battery life, and just one cell in a battery string can render the entire battery bank useless.

According to EPRI, "Batteries are the primary field failure problem with UPS systems." Predicting when one battery in a string of dozens will fail is next to impossible even with regular testing and frequent individual battery replacements. The reality is that proper battery maintenance is often overlooked. Broadcast engineers need to consider: Are the batteries fully charged? Has a cell gone

bad in the battery string? When was the last time they were checked? Bottom line: Without properly operating batteries, no battery-based UPS system can do its job.

By replacing the batteries with flywheels, the premium cost of battery maintenance on an annual basis for the life of the batteries is eliminated as well as the replacement of the batteries every four years.

When comparing the life cycle cost of batteries with the life cycle cost of flywheels (See Figures 3 and 4), it's clear which technology has a larger cost savings over the life of the technology. What most engineers have discovered is that the flywheel has been favored over batteries due to the cost savings, with an ROI in three to four years. However, it is important to know that it's not an either or situation, as the flywheel can be used with or without batteries. When used with batteries, the flywheel is the first line of defense against damaging power glitches since it absorbs all the short duration discharges, thereby reducing the number and frequency of discharges, which shortens battery life. Because UPS batteries are the weakest link in the power continuity scheme, flywheels paralleled with batteries give engineers peace of mind that their batteries are safeguarded against premature aging and unexpected failures. When the flywheel is used just with the UPS and no batteries, the system will provide instant power to the connected load exactly as it would do with a battery string.

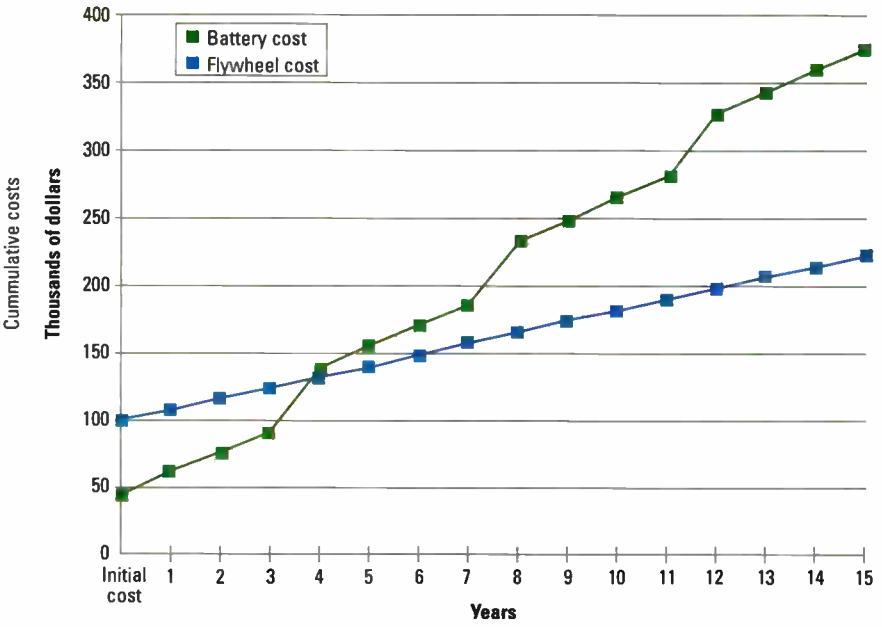


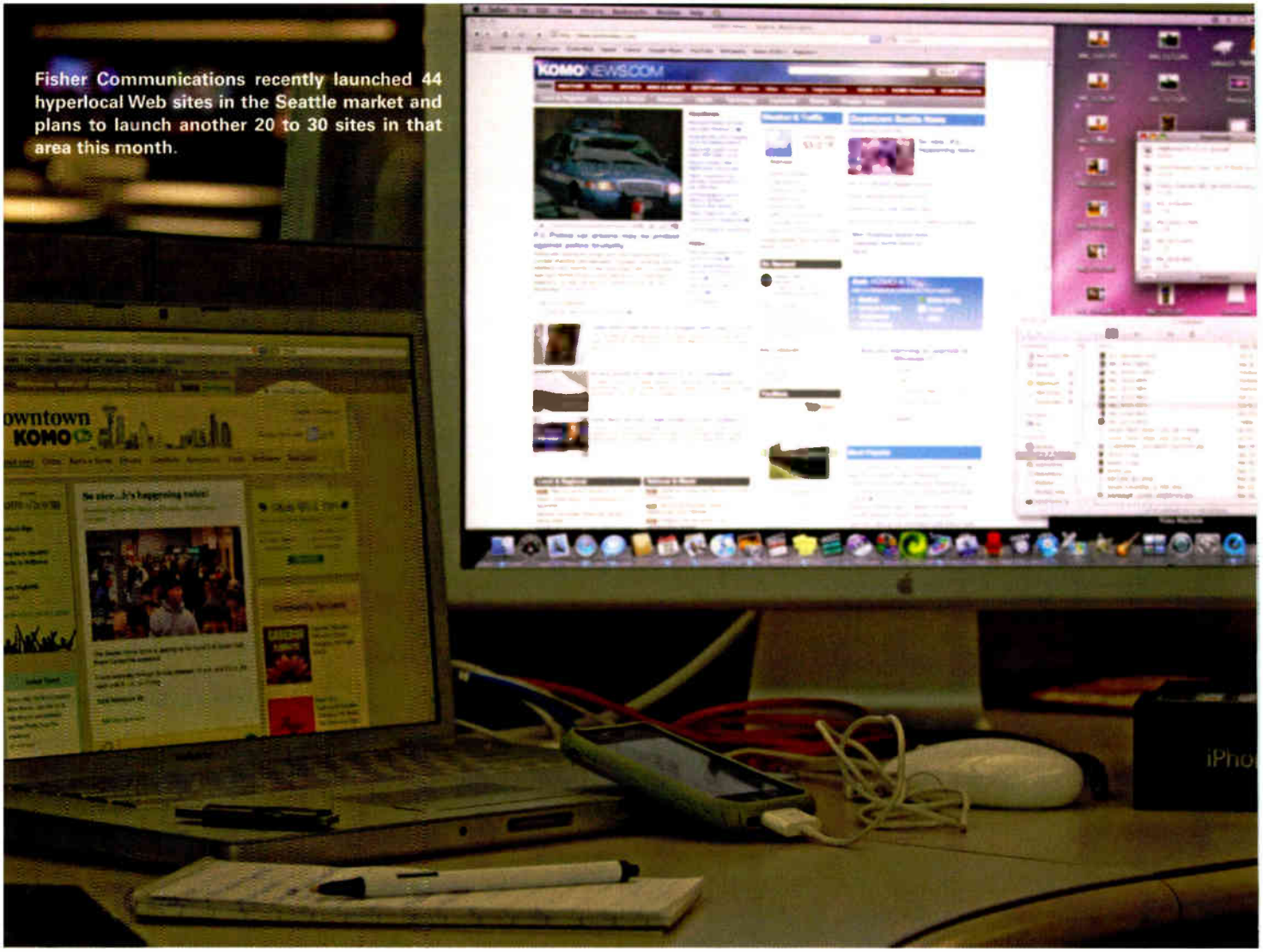
Figure 4. The life cycle cost comparison between batteries and flywheel technology shows that batteries cost about $150,000 more after 15 years.

However, if the power event lasts long enough to be considered a hard outage (rather than just a transient outage), the flywheel will gracefully hand off to the facility's engine generator.

Flywheel technology has advanced greatly. According to a 2006 Federal Technology Alert by the U.S. Department of Energy, "Flywheels appear poised to replace or supplement batteries as a backup power supply in UPS systems. Although the initial cost of a flywheel is typically greater than batteries it would be replacing or supplementing, its longer life and simpler maintenance will often result in lower life-cycle costs."

Broadcast engineers need to look at ways to maximize the availability and performance of battery systems, including ensuring the battery is properly prepared before load testing, proactively monitoring batteries and considering alternate power sources, such as clean flywheel technology. Only when a greater level of attention is given to the DC source selection can engineers continue to keep critical production and transmission systems performing to specifications and minimize the risk of downtime to operations. BE

Johnny Gonzales is regional manager for VYCON.



Fisher Communications recently launched 44 hyperlocal Web sites in the Seattle market and plans to launch another 20 to 30 sites in that area this month.

HYPERLOCAL NEWS

Neighborhood content adds depth to TV newsrooms.

BY ANGELA SNELL

It's no secret that this year's global economic meltdown has affected TV advertising sales, while production costs have soared. In the meantime, media companies are pressured to provide consumers with news that's relevant and in a format they can consume on their own time. If the content doesn't match viewers' needs, a broadcaster will lose them.

Additionally, what little money advertisers do have to spend, they expect to use on targeted ads that reach the right demographic of viewers. This situation has created a perfect storm for local TV broadcasters, but there may be a solution. Fisher Communications and DataSphere think they have a home run, and it's called hyperlocal news.

What is hyperlocal news?

In mid-August, the local Seattle TV station KOMO-TV launched 44 neighborhood Web sites that support the news station's main site. The neighborhood, or hyperlocal, sites offer viewers specialized local news content, as well unique opportunities for advertisers. From a content standpoint, the station restructured its newsroom in how it captures and posts content. On the technology side, it teamed with DataSphere, which provides its LocalNet ad sales force and technology engine.

"We think the hyperlocal drive is where our industry is going," says Troy McGuire, vice president interactive and news, Fisher Communications. "To be able to drive people to their neighborhood news, along with the big stories of the day, that's a very powerful way to deliver content."

At the home page *www.komonews.com*, visitors can customize the news content they receive through a widget, which allows them to select a specific neighborhood. For example, if a user selects the Ballard neighborhood, he or she will receive news about Ballard in the righthand corner of the home page. Clicking on the link to "Ballard News" or "More Ballard News" will

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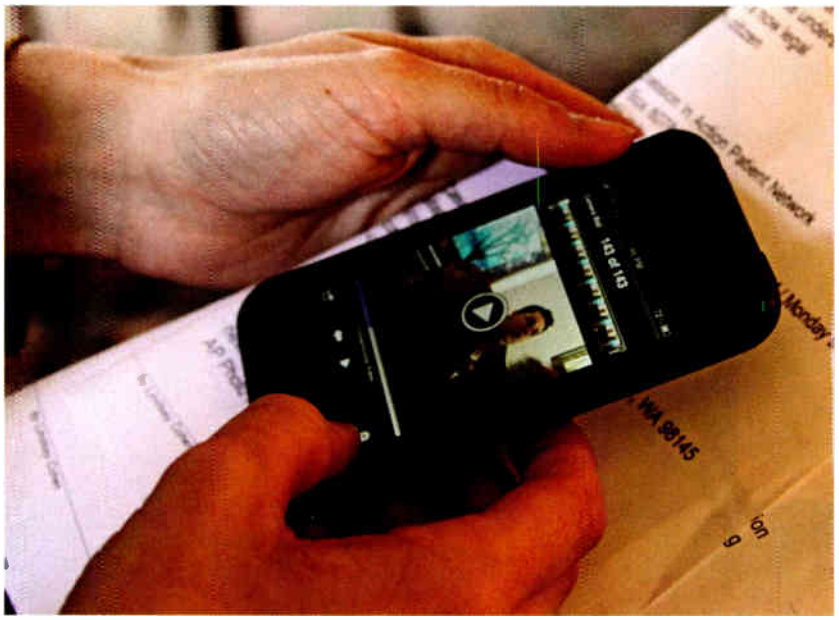
bring them to *ballard.komonews.com* —a hyperlocal site devoted entirely to Ballard neighborhood news. Not only do visitors receive specialized news on the KOMO home page, but they can also use the individual neighborhood hyperlocal site to find out more about what's happening in their area, such as news, events, restaurant openings and sports activities.

The home page enables visitors to customize news by refining it down until they find the content they're looking for. For example, a search for "sports" can be refined by sports team, city, county, news staff and type of sport. The technology is intuitive; it suggests additional similar stories or videos based on the content currently being viewed.

This is not only beneficial to the user, but also to advertisers because it provides targeted demographics. Once someone visits the home site and defines a neighborhood, the technology tracks that person's clicks on the site and continues to serve them by providing targeted content and ads throughout their experience.

Satbir Khanuja, CEO of DataSphere and formerly employed by Amazon.com, says, "Technology has reached the point where you can apply content discovery in the scale of Amazon and Google."

The goal is to connect users with the right piece of content in as few clicks as possible. This is done by personalizing the home page, recommending related articles and making sure information is easily discoverable through search engines.



KOMO-TV in Seattle gave its reporters, photographers and anchors Apple iPhones so they can take pictures and upload news in the field.

McGuire says, "If we can get people not only using our sites to check out what's going on, but also participating in it, then that's a home run."

For the staff to buy in to the new workflow, the technology needed to be easy to learn and use. The station purchased 80-plus iPhones, outfitting every reporter, photographer and anchor. Reporters can take photos with the iPhone, and the images are immediately ingested. Rights management technology allows content to be published through a fast lane to the appropriate neighborhood site. So if a reporter is driving, he or she can take a picture and send it via e-mail as opposed to going into the station, logging into a self-service portal and uploading all the content. This process eliminates any friction in the pipeline flow of content, enabling information to get posted on the Web site without delays. One über content management system distributes content out on an algorithmic basis, so the station can eliminate duplication of effort and streamline the entire workflow.

The broadcaster now posts news to the Web on the neighborhood level early in the day. The conversation between the station and the community starts on the neighborhood hyperlocal site and continues throughout the day until the 6 p.m. newscast.

The TV station also relies on key community members to post content. For example, KOMO made a deal with local real estate agents because they're ingrained in their community. Most of the agents drive around all day in the neighborhoods, and they all have cameras. They're able to provide the hyperlocal sites with non-real estate user-generated material, such as events going on in the area.

Because the Web sites tie the audience to a geography or topic, the station creates appropriate matchmaking with local advertisers.

"If we can get people not only using our sites to check out what's going on, but also participating in it, then that's a home run."

A new content distribution model

KOMO receives a massive amount of daily incoming content, but its previous distribution techniques didn't enable all of that content to get published or broadcast. The hyperlocal sites are now an outlet. The station hired producers to aggregate all content that comes into the assignment desk. In addition, the broadcaster now publishes user-generated content.

KOMO's producers aggregate all content that comes into the news desk and upload it onto the hyperlocal sites.

If you build it, they will come

After three months, the initial results are positive. The sites are receiving increased traffic, and people in the community are participating in posting news.

On the revenue side of things, the hyperlocal sites have opened up a new set of advertisers that the station would ordinarily never do business with. For example, a local dry cleaner might not be interested in advertising with a local TV station because it will end up attracting eyeballs that will never do any business with it. But the dry cleaner is interested in advertising on the hyperlocal sites because of the matchmaking between the advertiser and the user at an appropriate neighborhood level.

Khanuja identifies four things a broadcaster needs in order to be successful at hyperlocal news. First, the station must have a brand that creates a positive feeling amongst users as well as advertisers. The second key is content — the bread and butter of broadcasters. The third step is working with a partner that can provide a technology platform offering content discoverability and segmented monetization. If Web site visitors can't connect to the right kind of content quickly, they'll leave the site. Since employing search and discovering on KOMO's Web site, the search-related news has gone up by a factor of five.

Lastly, sometimes small- and medium-sized businesses that could be potential advertisers for a local TV broadcaster don't understand how to best market their products. They don't know what it means when a broadcaster asks them to send a jpeg that's 300 x 250 pixels, and many don't even have a Web site. In addition, TV stations often don't employ enough sales staff to reach out to these smaller businesses. Broadcasters may find it beneficial to partner with a technology company that can help with local ad sales.

Conclusion

Fisher plans to extend the hyperlocal concept to all of its markets in the future; the media company is already launching another 20 to 30 sites in the Seattle market this month, with others in Bakersfield, Boise and Idaho Falls coming soon.

McGuire says, "Our mission is still the same. It hasn't changed in 50 years, and it's all about making a better connection with the people that we serve in our community. That's why we embrace the technology and use it to find better ways to get content to them that's relevant to them. That's how you increase viewership on the TV side. We still believe in [TV]. This is a way to build two things at once."

"Our mission is still the same. It hasn't changed in 50 years, and it's all about making a better connection with the people that we serve in our community."

In this rough economic whirlwind, TV stations have an opportunity to reach out to viewers and advertisers at little cost. The change starts in the newsroom with the staff embracing a new workflow and fortifying its online presence. BE

Angela Snell is a production editor for Broadcast Engineering.

Highlights from AES

The 127th AES Convention returned to New York last month. In case you missed the show or didn't get a chance to see everything, read on. We've compiled highlights of the latest audio products, technology and solutions from the exhibition floor.

Audio consoles

StageTec presented the CRESCENDO mixing console to the American market for the first time. It targets the needs of users in broadcast and live venues and fills the gap between StageTec's successful flagship console AURUS and the smaller AURATUS.

StageTec CRESCENDO

CRESCENDO has a depth of 530mm and supports up to 300 audio channels, 128 summing buses and 48 channel strips. It allows users to configure the number of mono, stereo and 5.1 sums, as well as stereo and 5.1 input-channel linking.

Lawo showcased its mc²66 production console, which offers advanced redundancy for failsafe operation,

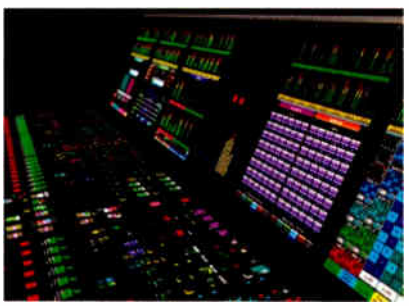
Lawo mc²66

mc² bay server technology, a new control system on the MKII router, real-time DSP data transfer within the HD core and extended frame modularity.

The company also unveiled an enhancement within Version 4.6 of the console's OS: matrix GUI (mxGUI). Optionally available for use with v4.6 and subsequent release versions, mxGUI is a stand-alone application that enables the configuration and operation of mc² series consoles as well as the operation of the Nova 73HD.

Prism Sound introduced a series of SADiE audio recording, editing and mixing products that can run as software-only versions. Key functionalities include a rendering-free editing environment; precision editing to sample accuracy; instant, real-time crossfade engine; multiple playlists; nondestructive editing; and editing and real-time waveform drawing during record.

Calrec Audio debuted its Artemis console, which is based on the Apollo platform. Using a combination of OLED displays, touch screens and



Calrec Artemis

light-emitting knobs, the console's control surface provides instant visual feedback and a flexibility that enables users to reconfigure the desk on the fly. It uses Bluefin2, the next generation of Calrec's Bluefin High-Density Signal Processing platform, giving the console up to 640 channel-processing paths, 128 program busses, 64 IFB/track outputs and 32 auxiliaries.

Fairlight demonstrated its Constellation XCS console, which harnesses the power of the company's Xynergi controller to provide an intuitive tool for recording, editing and mixing.

Solid State Logic displayed its updated Duality SE hybrid analog console and DAW controller, which combines an analog signal path and processing with advanced DAW control within a single hardware surface, and C10HD, which offers many of the benefits of the C100HD but is designed for smaller stations.

Studer highlighted the Vista 5 compact digital mixer. The 32-fader unit consists of 20 channel strips and

Studer Vista 5

12 additional versatile strips for operating output and input channels. Up to 240 channels can be accessed from the desk, and the total I/O capacity may exceed 1700 inputs and outputs, depending on the additional cards and configurations.

Yamaha showed several consoles. The eight-bus IM8 series is available in 24-, 32- and 40-channel models and features low-noise, intuitive operation and single-knob compression. The LS9 digital mixing console is available in 16- and 32-channel versions and features four stereo input channels, versatile bus architecture with comprehensive digital patching capability, built-in USB memory recorder/player and full-console scene store and recall.

Audio control/monitoring

Riedel introduced the RockNet RN.334.MD MADI module and the Version 1.41 update for RockNet's control and monitoring soft-

ware RockWorks. The new version provides both electrical and optical MADI inputs and outputs. The module supports both 56- and 64-channel MADI formats.

Riedel RockNet RN.334.MD

With RockWorks Version 1.41, now routing is also possible in single channels and ports, allowing a connection between any given I/O.

Audio routing

Solid State Logic featured an audio processing card and range of multichannel audio converters. The XLogic MX4 audio I/O and processing card features a 128-channel MADI digital audio interface, multiclient software mixer and DSP-powered processing plug-ins. The XLogic Alpha-Link range is a family of multichannel audio converters designed for studio, live and broadcast applications. Each model features 24-channel AD/DA converter circuitry, and all of the units can be used as stand-alone format converters.

SoundField showed its UPM-1 stereo-to-5.1 audio converter designed to create 5.1 material from older stereo programs.

NTP Technology introduced the Penta 725 series, a compact modular audio router that packs up to 384 x 384 crosspoints into a compact 1RU 19in chassis.

The company also debuted RC-Core, a software application that handles configuration, control and supervision of all router modules in an audio signal distribution system. The app can be used as a stand-alone controller within the NTP 635-300 router or run from standard PC hardware.

Optocore previewed a new digital audio protocol, SANE-Audio Network plus Ethernet. SANE is a fully-synchronous Cat 5 network solution for uninterrupted, real-time streaming. It combines the attributes of AES/EBU and MADI Ethernet, allowing full-scale data transport via a redundant-ring network topology.

Cables and connectors

Among the cables and connectors from Belden was a new line of 50Ω N connectors. The series is designed to match the performance of Belden's RF coaxial cables, which feature ultra-low-loss dielectrics (up to 86 percent velocity) for best attenuation in their respective size categories.

Gepco showed its new fiber-optic cable assembly offerings, including the Neutrik OpticalCon, Amphenol TAC-4 and TAC-12, Lemo SMTPE 304M hybrid fiber camera cables, ST/

SC/LC multimode or single-mode snakes, indoor permanent installation cables and tactical and portable-use cables. The company also showed

Gepco XB201DBM

its XB201DBM X-Band microphone cable. The extra-flexible, high-bandwidth microphone cable features a double braid shield for added noise rejection.

Neutrik XX-HD series

Neutrik introduced the XX-HD series, a heavy-duty XLR cable connector designed specifically for outdoor use. Equipped with hybrid metal/rubber design, the new series is both dust- and water-protected, meeting the requirements of an IP67 rating, by mating it with the related XX-HD cable connector or Neutrik's MPR-HD chassis connector.

The company also showed the opticalCON QUAD, a four-channel version of its solid and ruggedized-protected fiber-optic connector system. Designed specifically for multichannel, point-to-point cabling applications, it's IP65-rated for dust and water protection.

DAW controllers

Euphonix showed its MC Color color-grading surface, which offers control and integration with Apple's Color 1.5. The slimline color-grading surface attaches to the Mac via Ethernet. Its features include an ergonomic design, high-resolution optical trackballs, trackwheels, displays, encoders

Euphonix MC Color

and a host of programmable keys to speed up and enhance the Apple Color workflow.

Intercom systems

Clear-Com offered the latest version of its software-based intercom system, Clear-Com Concert v2.0. The system allows Concert users and those on the traditional Eclipse digital matrix system to communicate over a single network via the Internet, LAN or WAN. Version 2.0 includes a new soft panel, a customizable software panel that resembles a traditional intercom panel and offers similar benefits as well as the look and feel of a hardware counterpart.

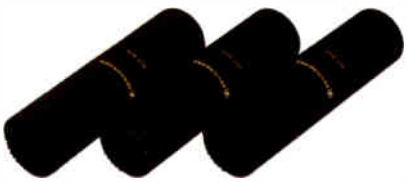
The company also offered its Tempest 2400 wireless intercom system, which operates in a license-free frequency band where it is fundamentally resistant to interference from other wireless devices.

Clear-Com Tempest 2400

Microphones

Sennheiser featured its 2000 series wireless microphone system, which includes handheld and body-pack transmitters with single or twin receivers. The units have a switching bandwidth of up to 72MHz, in which up to 64 compatible frequency presets are available for microphones and up to 32 for monitoring systems.

Sennheiser also showed its evolution 100, 300 and 500 series of wireless G3 receivers. The receivers include a switching bandwidth of 42MHz with 1680 tunable UHF frequencies for interference-free reception and feature one-touch synchronization that enables G3 transmitters to communicate with G3 receivers via an infrared interface. The 500 series provides a high number of presets per frequency bank (32), and six additional banks can be programmed in 25kHz steps; the 300 series also supports a high number of presets per frequency bank (24); and the 100 series offers a number of presets per frequency bank (12), with one additional bank programmable in 25kHz steps. In addition, the company had on display its vast range of MKH studio microphones.



Sennheiser MKH8000

Among other products, Sony displayed its UWPX8/3032 and UWPX8/4244 wireless handheld mic systems. The UHF synthesized wireless mic system package includes a handheld mic and tuner module and features a PLL synthesized system, space diversity reception, tone squelch circuitry and simultaneous operation.

SoundField highlighted its DSF-1 and DSF-2 digital broadcast mic systems as well as new version of its SP200 compact mic. The DSF-1 sys-

tem comprises a SoundField mic and digital control unit. It outputs at 110Ω AES-EBU on XLRs and supports sampling rates of 44.1kHz,

Soundfield DSF-1

48kHz, 88.2kHz, 96kHz, 176kHz and 192kHz; word clock input and output are provided.

The DSF-2 features digital 750Ω AES3id outputs on BNC connectors and outputs stereo left/right (digital and analog), stereo M/S (digital) and four channels of SoundField B-Format called W, X, Y and Z, which is the surround-sound information.

SoundField's SP200 Zephyx Kit includes a specially manufactured SP200 mic with a shorter body fitted into a Zephyx suspension mount. The multicapsule mic can capture audio in 3D and output it in a variety of formats including mono, stereo and phase-coherent.

Recording media

Sony showed a variety of handheld digital recorders. The palm-sized PCM-M10 offers a range of recording capabilities from MP3 to full 96kHz, 24-bit WAV. Featuers include a built-in playback speaker, crossmemory recording, fully adjustable digital limiter, low-cut filter, track mark function, five-second prerecording buffer and A-B repeat capability.

The PCM-DI and D50 both feature built-in electret condenser mics, a frequency response of 20Hz to 40kHz at 96kHz and sampling frequencies of 22.05kHz, 44.1kHz, 48kHz and 96kHz. The D1 supports the WAV format in record/play, analog I/O and optical output. The D50 supports WAV in record and WAV and MP3 in playback and both analog and optical I/O.

Yamaha featured its POCKETRAK 2G compact recorder. The pocket-sized recorder features 2GB of memory, a linear PCM recording mode that can record up to three hours of music and a number of MP3 modes that provide significantly longer record times.

Speakers

Genelec introduced its 8260A three-way DSP speaker. The 8260A features major advances in audio driver technology, integrated with a sophisticated enclosure design, and the company's Minimum Diffraction Coaxial (MDC) mid/high driver technology. This coaxial driver design provides accurate imaging and improved sound quality, both on the acoustical axis as well as off-axis.

At the show from Klein + Hummel were the O 300, which employs a three-way design to make the loudspeaker system extremely precise, and the O 110 compact reference monitor, which features a switchable eight-way, room-matching EQ to compensate for any undesirable room response resulting from placing the speakers near a wall or a corner.

Test and measurement

Prism Sound showed the dScope Series III, a measurement system for analog and digital audio generation and analysis, including digital audio carrier parameters, acoustic transducers and Windows sound devices. The company unveiled three new versions: Analog, Analog Plus and Digital + Analog.

Dolby offered its DP600 Program

Dolby DP600 Program Optimizer

Optimizer, a flexible audio platform designed for professional broadcasting and post production that provides a file-based workflow solution for loudness correction, audio creation, conversion and upmixing.

RTW released a software upgrade that will enable qualified SurroundMonitor 10800X devices to perform loudness metering. The RTW Version 6.0 software, which will be standard on all new 10800X units, enhances the

RTW's 10800X

device's functionality with features including an ITU BS.1770-compliant loudness meter and a quasi-DIN (quasi-analog) bar graph for digital PPM measurements.

Rohde & Schwarz showed its UPV audio analyzer, which is suitable for all interfaces: analog, digital and combined. The unit simultaneously displays multiple measurement functions. It offers a sampling rate up to 400kHz, as well as user-programmable filters for analyzers and generators. Also on display was the company's R&S UP350, an affordable audio analyzer with a frequency range up to 80kHz.

Audio is communication, and the AES Convention allows for face-to-face communication.

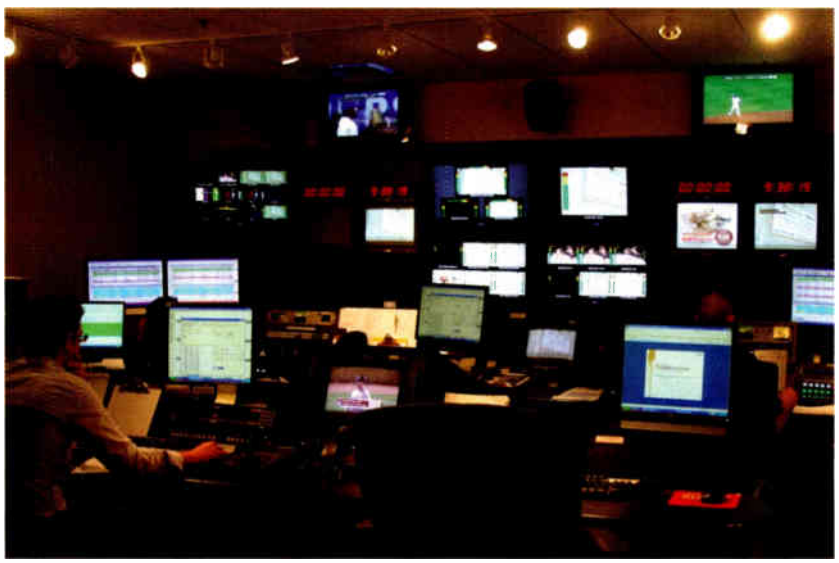
Sonifex featured its Reference Monitor Meters, which offer high-resolution metering of between one and four stereo audio sources, with each stereo source auto-switching between either analog or digital AES/EBU formats with sample rates up to 192kHz accepted. The level of each stereo source is displayed on a pair of multicolored bar graph meters with a choice of 10 accurately modeled scales/responses to suit different applications and local preferences. The company also showed its range of Reference Monitor Controllers, which provides source selection, volume, dim and cut controls for external analog monitors. BE

Harris ADC automation

New England Sports Network automates six channels with Harris.

BY MIKE TESTA

On June 15, New England Sports Network (NESN) launched the 25-year-old regional sports network's sixth market segmenting channel to distribute select NESN programs throughout the country. What makes this channel different from the other five channels that distribute the network's programming to various New England markets is that for the first time in network history, it will not be human-controlled. The plans for this day were laid out back in 2006 when the NESN HD Television Center was designed and installed. The network's rollout of this new automated channel was such a success that plans to automate the entire six-channel network were moved up ahead of schedule and rolled out in early August.



Colin Sheehan, lead master control technician at New England Sports Network, works with Harris ADC automation during a live event.

The need for automation

The original intent of switching to an automated master control was to better manage a growing number of market areas that were becoming awkward to switch by conventional master control methods. It was also putting an increased demand on personnel and resources, especially during the network's live Major League Baseball programming.

The ad sales department was also demanding more from NESN's master control operation due to incremental sales opportunities that required the placement of snipes, bugs and bottom line insertions into network programming. This put a strain on the master control operation workflow and made it difficult to keep track of which products were placed where.

Choosing a system

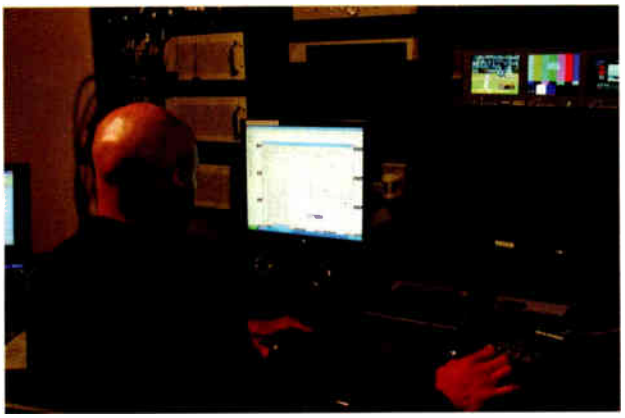
A task force auditioned automation systems big and small. Over the span of six months, the task force evaluated each quote on the merits of functionality and ability to integrate with the current system, as well as ease of use.

Some of the evaluated systems did not have the functionality or the advanced features the network required for dealing with live programming. It was discovered that some automation systems treat live programming as segmented programming; they do not operate well in live programming for extended lengths of time without knowing the specific time ranges. The network's specific challenge was to deal with live programming with no determined end time, such as a MLB baseball game, where one inning could last anywhere from three to 45 minutes.

Ultimately, NESN chose Harris ADC automation because it met key requirements, including ease of integration with both the pre-existing Harris infrastructure and non-Harris systems. Prior to the installation, the network's Harris infrastructure consisted of six NEXIO servers, 16 X75 frame synchronizers, 10 6800+ upconverters, 10 6800+ downconverters and 23 6800+ frames filled with conversion gear, mux/demux modules, and distribution amplifiers. The automation system also uses different "lists" that allow more manipulation of the system for specific instances of live programming.

Install

The installation of the system took roughly two weeks from racking the servers to adding the final connector. Because of the size of the current master control system, RS-232 cables were connected to each device controlled by the system. The automation system would control the following components: NVISION master control switcher, NVISION video and audio router, Harris NEXIO servers, a Sony MAV, and satellite tuners and



Rafael Mejia, NESN production technician, works with Harris Media Client.

receivers. The system would also control a GPI device for the triggering of Q-tones.

The ADC system includes three device servers, two database servers, one transcode server and one application server. Operators interface with the system using one of the six client machines that program the on-air lists or ingest and edit video. This was all strung together with a closed TCP/IP network.

A Harris representative conducted system training, which was completed in approximately one week. It featured specific details on how the network would use the system in its unique way of dealing with MLB programming. Upon first review of the system, new users found that the list system was tough to manage. The lists tend to offer advanced users greater flexibility to program. After further training from Harris, operators were able to manage the transmissions list with ease and were able to manipulate the system at an advanced level.

Flexibility in operational workflow

When asked about which aspect of the automation workflow has the most dramatic effect on day-to-day operations, efficient use of time was the resounding answer. For instance, now operators can multitask in longer intervals than three-minute segments while still keeping an eye on the network and transmission list. In addition, small things like adding bugs and bottom lines during live events are more precise because they are on timers or automatically inserted during specific breaks or programming.

Another time-saver has been the automated ingest of commercial spots. Direct transfer of spots from the network's DG Systems component into automation allows direct ingestion without generation loss or having to reingest media.

Outside taped productions are also easier to ingest. Setting in-points and out-points, logging the metadata and letting automation ingest the tapes minimizes operational workflow. Operators no longer need to sit in front of the logging stations while the show plays out.

When asked about future improvements due to the flexibility of integration, David Desrochers, NESN vice president of engineering, said the facility will soon realize additional improvements from its planned Avid edit suites upgrade that will push shows through Telestream's FlipFactory and directly into ADC automation.

A translation program specifically designed for the network will also allow its traffic department's Wide Orbit traffic management software to talk directly to the automation transmission lists for programming the network. Operators currently program the transmission lists by hand.

Finally, NESN's satellite uplink and downlink will also be controlled by ADC automation when the network completes its uplink and downlink upgrade. The automation system will time events for ingest, move the satellite dish, program the receiver and record events directly to ADC.

A final byproduct of the switch to a fully automated master control was the freeing up of additional resources that have allowed NESN to grow even in the current tough economic climate. The ability for master control operators to concentrate efforts on tasks other than manually switching the six network channels increased productivity overnight following the launch of the new automation system. **BE**

Mike Testa is broadcast maintenance engineer for NESN.

Monitor from your sofa

Long-distance broadcast monitoring and control could be done in real time from your home office sofa.

BY JOHN LUFF

In an ideal world, the master control operator in a TV station could sit anywhere on the planet. He or she would be able to see images in essentially real time, interact with the automation and archive in a Web browser, communicate like the control room was right in front of him or her, troubleshoot problems with hardware, and even replace equipment that has failed. All this could be done from a home office while sitting on the couch with a laptop. Is it far-fetched? Not these days. Let me explain.

Why distance doesn't matter

Modern systems have become incredibly complex even as computers and networking have allowed an array of capabilities no one could have imagined 25 years ago. DTV ratcheted up the complexity considerably in the last few years, with multicasting and ancillary services that make broadcast monitoring and control systems look as much organic as deterministic.

Some modern technologies have in fact simplified systems. For example, modern master control systems often incorporate branding (we used to call it keying) with switching and even clip playback. Such devices allow control systems to address more elements of the program assembly process with fewer control paths. But, of course, that comes on the double-edged sword of increased communication complexity. Other systems make life easier, such as archives that in one view replace shelves and manual filing of physical media.

I would submit to you that all of these systems require monitoring and control from an indeterminate distance away in order to function. Putting the devices in the same room with the operator does not make a dime's worth of difference. The only interaction one can have with them is over a monitoring and control system, and in the case of picture and sound processing equipment, we interact by watching and listening to the effect of our commands. Thus, monitoring and control, along with the local version we sometimes call user interfaces, are critical elements of managing processes in broadcast plants.

Format	Video resolution
SQCIF	128 × 96
QCIF	176 × 144
CIF	352 × 288
4CIF	704 × 576
16CIF	1408 × 1152

Table 1. Common image format resolution

In the case of some software products — for example, playout automation — the interaction may be through a user interface as the primary tool. However, few modern automation vendors build products without the ability to run over a network some distance from the actual computers.

In the case of systems without such Web or remote capability, it is normal and even expected that a KVM switch will interface to a multiplicity of processors. Often it is possible to extend the KVM over networks. If not, you can use remote desktop or thin clients to make distance largely immaterial.

Monitoring the right parameters

A critical element of any remote monitoring and control system is managing bandwidth and latency. Many applications expect a continuous stream of interaction, and extending over long distances arbitrarily may not work if the application times out before acknowledgments are received. One must be thoughtful and cautious when creating a control and monitoring topology. Increasingly, you need to look carefully at networking issues. Opening ports through remote firewalls to support the communications needs of a specific application may be possible, but the IT gurus may become intransigent when you ask for Port 80 (HTTP) to be open to the world.

The bandwidth may also be an issue. The biggest hog of bandwidth is video monitoring. Low-latency video codecs tend to use more bandwidth though dropping the resolution can move the bandwidth needle the right way. Some streaming applications can adapt to available bandwidth — for example, Microsoft Silverlight. By reserving bandwidth in the router for critical applications, you can prevent video from overwhelming other needs.

It is useful to ask what the video is being used for as well. In a remote master control system's thumbnails, every 30 seconds can verify feeds are being delivered to remote cable or DBS services.

A critical element of any remote monitoring and control system is managing bandwidth and latency.

The output of network receivers may require close to 30fps, though QCIF or even lower resolution may suffice for normal situations. If you are troubleshooting a lost or poor-quality feed, it might be useful to have a codec on a small router that can look at outputs of critical paths. Defaulting that router to black and using variable bit rate encoding can throttle the utility path to a low bandwidth and preserve space for other applications. (See Table 1.)

Setting up self or directed healing

There is another class of monitoring that is in many ways even more important. Most modern broadcast devices above a minimum level of complexity include onboard components monitoring their health and operational status. Often that information is gathered by an application written by the manufacturer, or Simple Network Management Protocol (SNMP) applications. In previous generations of equipment, one had to look and listen to determine if a device was operating properly. For a time, some devices featured relay closures to set alarms for power supply failure, or perhaps fan function.

The range of parameters monitored is limited only by the creative energy of the design team and, of course, money.

In modern digital equipment, the range of parameters monitored is limited only by the creative energy of the design team and, of course, money. A frame sync, for example, might sense picture or sound presence, levels, local device temperature and power supply voltage. The data is passed to a frame controller and then to an application for logging, alarming and display on a user interface. If a device fails, or a parameter is out of tolerance, the user interface may send a text page and flash a warning. This enables operators within easy line of sight to see the condition develop. Someone at home for the night, responding only to emergencies, would receive a notice to log on to a remote application and get the full detail before driving in to fix the problem.

Defining true remote monitoring/control

In the end, the intent of many remote monitoring and control systems is to allow systems to be fixed remotely. A routing switcher might disable a failed crosspoint card and activate a replacement. A dead frame sync might be replaced by a routing switcher programmed to have backup paths for critical signals. All of this can be done from an arbitrarily long distance if the system is set to monitor the right parameters, communicate the fault effectively, and allow self or directed healing.

In such a system, a hypothetical master control operator may be in another room, or even another city. I have clients who monitor systems from continental and intercontinental distances successfully using easily deployed tools. That is truly *remote* monitoring and control. BE

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Monetizing archives

Here's a lesson to broadcasters from Hollywood.

BY ANTHONY R. GARGANO

The film industry has perfected to a science the maximization of revenue of its movie libraries. Initially, revenue is generated through a release timeline that schedules the various market releases: theatrical, pay, rental, airline, home, etc. Intertwined with that release schedule is domestic vs. foreign release. The timeline formula is constantly revisited and carefully honed as a function of entertainment value and market forces in an attempt to assure that for any given film, the maximum in revenue is extracted from each of the release windows.

Once that occurs and the film becomes part of the library, revenue generation continues in the form of rerelease. The film industry enjoys its own version of Moore's Law: As technology has spawned new distribution media and viewing devices, the film industry has enjoyed the revenue generated initially from release of VHS to rerelease to DVD and now to Blu-ray and iTunes.

Discovery Channel UK's new "World War II" series consists of black-and-white footage that has been restored, colorized and upconverted to HD.

Broadcast takes a cue

Is the broadcast industry now reading the Hollywood script? Discovery Channel UK has launched a series titled "World War II." This wartime series is comprised of original footage that has been restored, colorized and upconverted to HD. In a project conceived by media company IMG and produced by Nugus Martin Productions (NMP) in London, the 13-week series of hour-long episodes debuted in the UK in early September and in France later that month. Initial ratings show that it has been well received.

The colorizing of the original black-and-white material was done with relentless attention to detail. This happened in part by forming a team whose job it was to ensure that uniforms, ships, tanks and planes were colorized accurately and correctly for that era. NMP reviewed massive amounts of archival footage before finally narrowing down to the 650 minutes of program content ultimately selected for colorization and HD upconversion. Footage came from Germany, Japan and the United States, which further complicated matters as differing frame rates provided a challenge in the digitization process of the footage.

Creatively, it was decided that the key to telling the story and to holding the attention of today's audience was to not overwhelm the viewer with narrative. As a result, there is plenty of space between commentary, allowing effects and the footage to speak for itself. This was no small feat because most of the footage was silent, thereby requiring the painstaking recreation of sound effects.

The key decision was who could transform the film into the visual impact required for the content experience envisioned by the producers. Enter West Wing Studios. With experience in high-resolution colorization and restoration projects ranging from "The Three Stooges" to music videos and feature-length films, West Wing Studios applied its technical and creative prowess to the project. Michael Southard, head of the project for West Wing Studios, was challenged with delivering the restored, colorized and upconverted content. And, that challenge was a significant one in that some of the episodes consisted of a potpourri of scenes from entirely different sources, with varying frame rates, differing film stock and condition ranging from fair to poor to severely damaged.

There were many poignant aspects to this project, but one in particular is best summarized in Southard's words to me. He says, "There were also some emotionally difficult scenes. The West Wing animators in India handled that in their unique way — separating the shots of the death camps and handing them out to the most experienced animators. These shots were then done meticulously, with each person, [or body] in individual clothing and skin tones. The reason was one of respect for the Holocaust victims, and was very important to our production staff."

The broadcaster — in this era of the seemingly impossible: constant pressures on reducing costs and increasing profits while trying to maintain an audience that continues to be fractionalized by the eyeball war of competing media — must remember, it's all about content. There are hundreds of thousands of hours of content in the broadcasters' archives. Are you monetizing yours? BE

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

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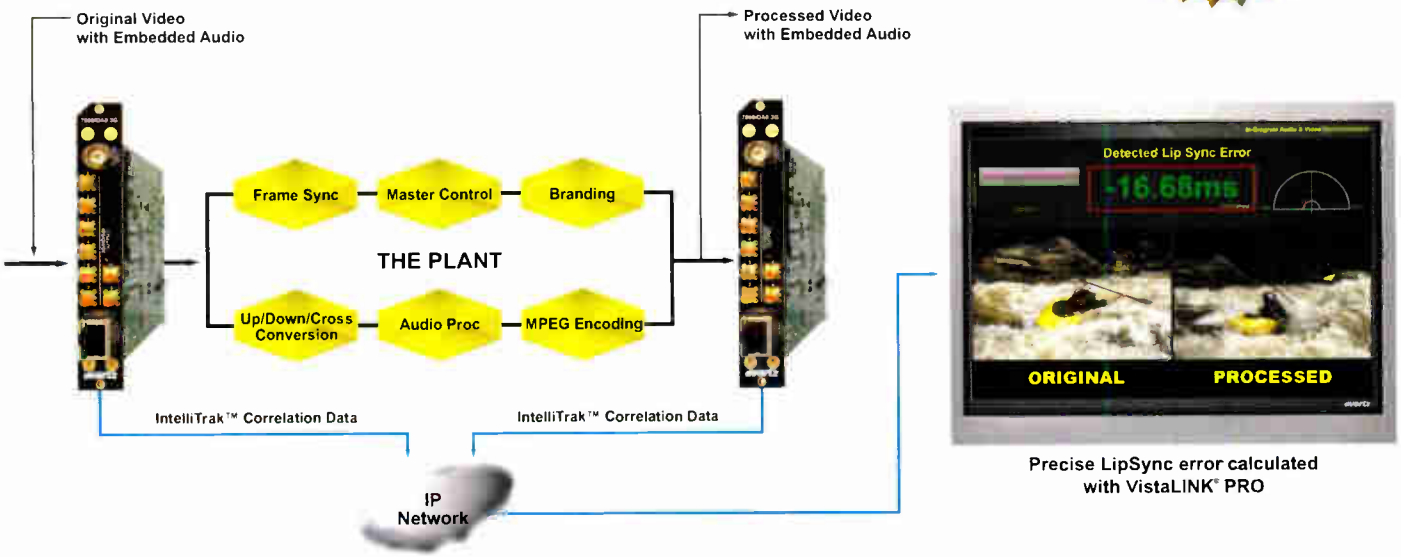

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