Omneon Makes HD Easy PAGE 9 ADVERTISEMENT

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# Taking it to the Streets

## Chicago broadcasters get up close and personal with viewers

by Craig Johnston

CHICAGO

Stations spend no end of effort and money trying to connect with their audience. Consultants do studies, anchors make appearances, promos are produced and billboards go up. And if what Chicago is seeing happen, street-side studios may be the next arrow in the connect-with-the-audience quiver.

All the network morning talkshows, with their softer content, use street-side studios. But to have a hand-waving downtown crowd as the background for a local affiliate, hard-news show has been slow in coming.

"For local broadcasters, it is an attempt to develop a strong sense of community and connect with viewers," said Jerry Gumbert of TV news consultant company Audience Research and Development. "It's a solid concept because most people still want to be on TV."

STREETS, PAGE 8

SPECIAL REPORT

# Seeking Clarity on Indecency

## Broadcasters fear this chill may last

by Sanjay Talwani

WASHINGTON

Bristol, R.I., founded in 1620, claims the longest-running Fourth of July parade in America. This year, WPRI of Providence will again televise the parade, but the station knows that things happen when huge crowds gather in the sun and alcohol is involved.

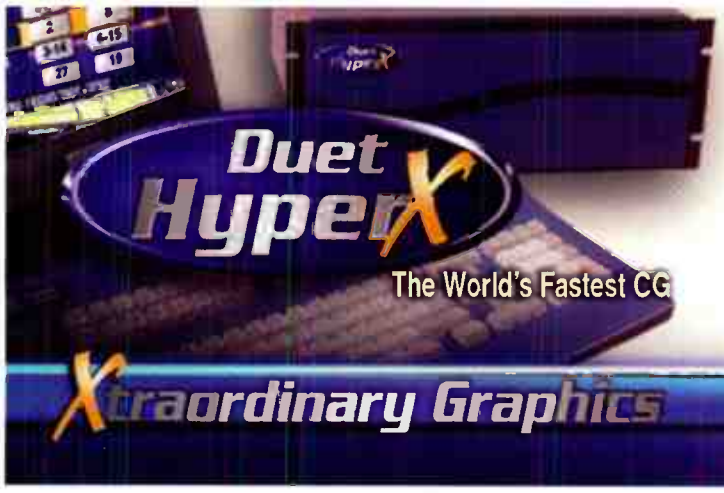
In a move that's more and more common, WPRI will run the Independence Day event through a five-second delay. It's not a practice broadcasters are particularly happy about, but many say wild overreaching by the FCC and a climate of extreme sensitivity to indecency have made such steps necessary. And broadcasters think things may get worse for them before they get better, because Congress could pass the toughest new anti-indecency laws in years.

Instead of having to put the Fourth of July parade on delay, broadcasters say they'd prefer some bright-line rules from the FCC about what they can and cannot show.

"There is just enormous uncertainty among broadcasters on just what gets fined and what doesn't," said NAB spokesman Dennis Wharton.

Complaints from the public rose from 111 in 2000 to more than 1.4 million in 2004, many of them provoked by L. Brent Bozell's Parents Television Council, which did not respond to requests for comment. In addition, broadcasters are troubled by FCC actions such as its assessment of $1.18 million in fines for an episode of "Married By America." That includes

INDECENCY, PAGE 14

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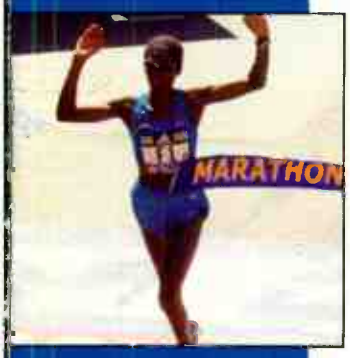

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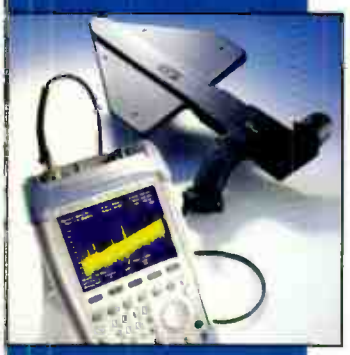

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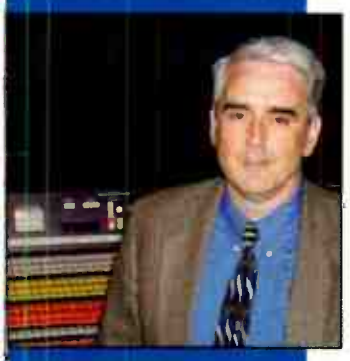

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Comcast's "digital media factory"

**CONTRIBUTING WRITERS**

**NAME:** Bill Hayes

**COLUMN:** Digital Journal

What is datacasting? At IPTV, we have defined datacasting as the delivery of digital content that is not traditional broadcast content or content that is targeted to a specific audience. We have been experimenting with datacasting for some time as a methodology…Page 12

**NAME:** Doug Lung

**COLUMN:** RF Technology

As I've written before, I felt there was a great need for easy-to-use equipment for monitoring 8-VSB transmissions and ATSC streams. There was no shortage of DTV and 8-VSB test equipment at NAB this year. Prices were low enough. There is now no excuse for not…Page 24

**NAME:** Dave Moulton

**COLUMN:** Inside Audio

Alert readers may recall that last month, I wrote about the state of audio for home theater, as observed from the retail showroom floor. I said it seemed unlikely that more than about half of home theater installations are hooked up and working correctly, considering…Page 28

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## FROM THE EDITOR

# Keeping it Clean

What is indecency? And who decides what's indecent? What is the proper punishment for a broadcaster who airs indecent material?

In this issue, we present a special report on the indecency, but don't expect our report to answer those questions, though. What we are providing is a comprehensive overview of the issue, what network and station executives are saying in response, where things stand legislatively and what manufacturers are providing in the marketplace in response to indecency concerns.

By now we've all heard the arguments about indecency; about how it will lead to government censorship and a more timid media skittish about crossing any lines. In 2003, we reported on the FCC's decision in the Golden Globes case in which U2 lead singer Bono uttered the "f-word" in on national television. The fact that the FCC found that the incident did not violate its indecency standards was a wake up call to the proponents of stricter broadcast standards, yet the vast majority of the media reacted with little more than a shrug. Several months later, the infamous Janet Jackson incident brought the issue to the forefront and the rest is, as they say, history.

It didn't help that all of this happened during an election year, especially one in which divisive politicians went out of their way to paint the country in hues of blue and red. There was plenty of blame to go around, but thinly veiled attempts to manipulate the FCC's filing process along with threats from politicians to jail broadcasters were particularly insidious and only helped to fan the flames.

Impossible as it may seem, we need to take politics out of the indecency argument. When all is said and done, who better understands their local community than broadcasters? Local television and radio news is still the primary way citizens get their informationm and there's usually nobody better in touch with their community than the news staff of the local broadcast station.

Part of the solution has to involve technology, both on the part of the viewer and the broadcaster. Embrace the V-chip and promote the use of the technology to your local viewers. Years ago, broadcasters fought the implementation of the V-chip along with the associated television ratings but now we should see it as an important part of the solution. It's not enough to tell viewers to turn off the TV set if they don't like what they see; that's a cavalier attitude that doesn't take into account the reality of family life in 2005.

New versions of A/V delay devices are back in vogue; in this issue we provide an update on the solutions that have come to market to address broadcasters' concerns. They may be an added expense that broadcasters in the middle of a digital transition may find hard to justify; however, in view of the potential half-million dollar fines looming over our heads, they could be just the kind of insurance broadcasters are looking for right now. ■

Tom Butts
Editor
*tbutts@imaspub.com*

## LETTERS

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

### It's Up to Us

***Dear Editor:***

In this, the seventh year of an eight year schedule to convert broadcast television to digital, the number of homes that have tuner-equipped DTV units remain negligible. Broadcast-only homes were fully 30 percent of all TV homes in 1998 and today are less than 15 percent. They have been given short shrift in the great transition debate and most will be lost with the cessation of the analog service. Will the end of broadcast television be far behind?

Broadcast-only homes should be the basis upon which a competitive DTV service is built. HDTV, multi-channel including interactive services, delivered in cooperation with the telephone companies would not only stem the erosion of broadcast-only viewers but would attract homes tired of paying for cable. (Comcast has just announced a loss of almost 30,000 basic cable subscribers while making record profits).

Only the broadcasters can drive a successful transition. But they must do so in a unified way in order to interest the TV set manufacturers and gain Capitol Hill support.

Free TV is an important public policy issue and a viable, competitive broadcast service is critical to drive down cable rates.

***John D. Ball***
***Vienna, Va.***

### Gobbledygook

***Dear Andy Ciddor:***

As usual, I enjoyed your recent article ("Specious Specifications: Works of Fiction," May 4). Ain't it the truth!

I always get a laugh when I wade through the marketing copy for some of the hyped lights. My all-time favorite is for a certain manufacturer of fluorescent lighting fixtures that used the gobbledygook description of sustained plasmatic dispersion of chromatic luminous energy (or something close to that phrasing). Apparently it wasn't good enough to say they were fluorescent fixtures. It's the same company that proudly claims that they invented fluorescent lighting for the television industry (somewhere I've got a photo from the 40s or 50s where they flooded the set with fluorescent light to get their 500 fc levels without roasting the talent).

Keep up the good work.

***Bruce Aleksander***
***Houston***

### Some Get it, Some Don't

***Dear Dave Moulton:***

I liked your article about the Super Bowl. Glad you enjoyed the sound. We worked really hard out there to get it right from the PA to the pre game to the crowd so that HD viewers would have a great experience.

I have to agree with you on the consumer setups. Some people get it and some people don't. The geeks seem to have it figured out again. With the high turnover of sales forces in most stores, it is next to impossible to train them effectively. $125 for two guys to install it? A bit steep considering that they probably are getting closer to minimum wage, not $50 an hour or more.

Hurry up and get your set so you can watch the NFL this fall. Most of it should be HD and 5.1. As for rooting for the Pats, not me. But, you go right ahead!

***Jim Hilson***
***Dolby Labs***
***San Francisco***


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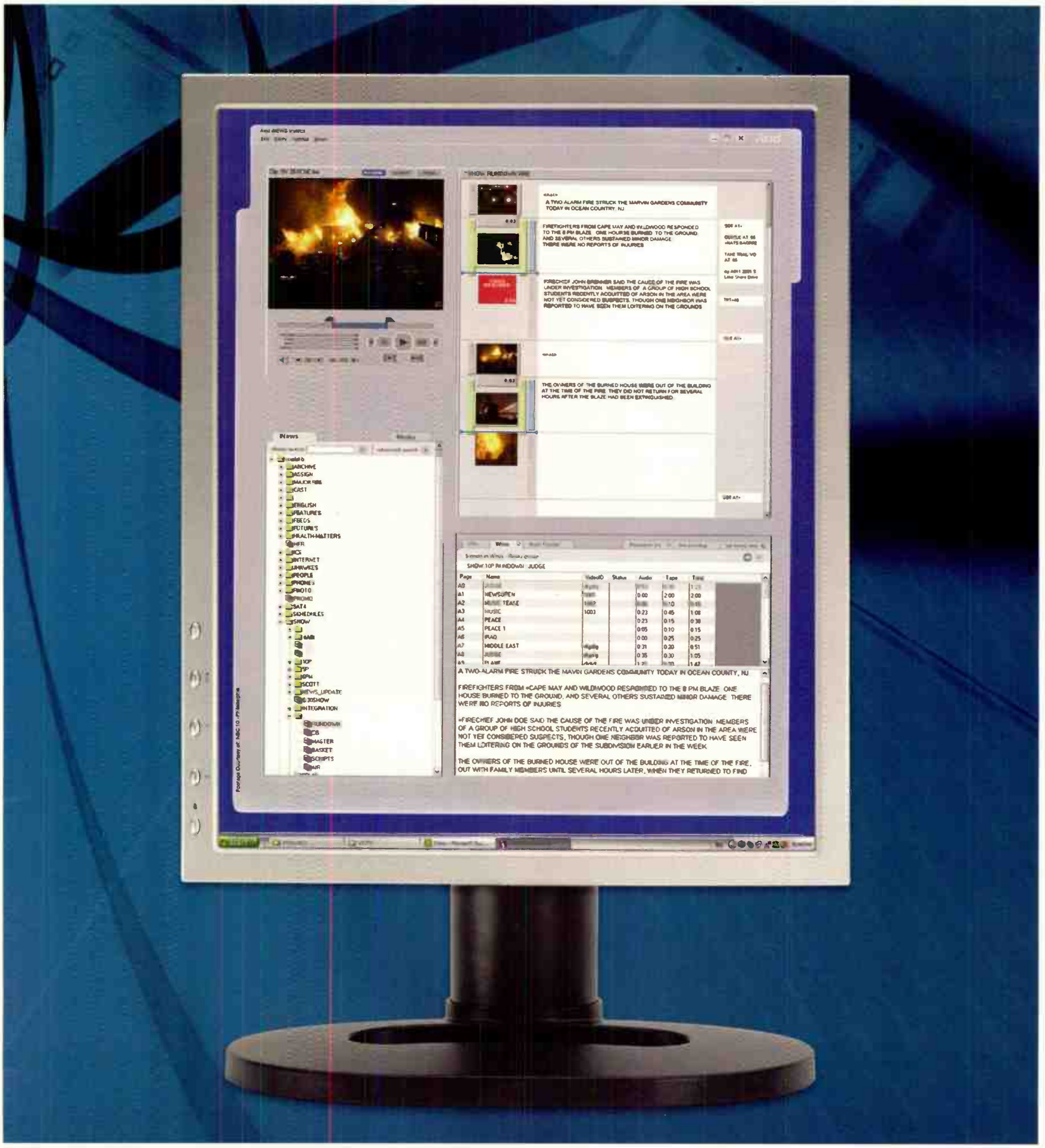


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World Radio History

# Comcast Paves Path to Multipurpose Media

## New ingest facility aims to be one-stop 'digital media factory'

**by Andrew Morris**

LITTLETON, COLO.

High-definition and standard-definition video, video for cell phones and PDAs, video for VOD—when stored as a digital media asset, a single video element can be used and reused for all these applications.

Comcast Media Center (CMC), a Littleton, Colo.-based network origination and production facility, is developing methodologies and building facilities for the ingest, storage and reuse of media assets. Currently CMC not only provides standard-definition delivery of well over 75 cable networks and four HD cable networks but also supports VOD distribution and delivery of video to mobile devices such as cell phones.

"We effectively have a digital media factory at CMC where we are developing the ability to take one form of content and repurpose it," Dave Higgins, CMC vice president engineering and transmission operations. "We can ingest standard-definition content for a linear standard-definition cable channel and then stream that same content for a broadband application or to a cell phone."

"This approach offers a fairly low-risk way to launch an HD channel," said Higgins. "We are planning on marketing this service to clients who are developing an HD strategy. This solution can also support established media companies who plan to launch an HD offering and require a service-based solution without building an HD infrastructure."

### FROM VOD TO SD & HD

Higgins believes that CMC will have clients that will want to build up a library of assets. Such a client might start with investing in VOD content, including HD content, while building a library to support a full-time standard-definition channel that would ultimately upgrade to an HD linear channel.

*The IDOC control room handles six SD or HD channels.*

The Pinnacle Media Server system offers 2.5 TB of mirrored storage. That storage is expandable, and an additional 120 TB of storage is available with a Front Porch Diva archive system employing both a Network Appliance R200 disk array and StorageTek L700E data tape robot.

This server/storage infrastructure allows CMC to "look at the life cycle and value of a media asset across years," said Higgins. "We anticipate ingesting more and more content as HD, and we will maintain those media assets as HD in order to build a legacy of content that can be reused when appropriate as HD, SD or low resolution, low bit-rate video for handheld mobile applications."

### DEVELOPING DIGITAL WORKFLOW

CMC is also developing tools to support "remote ingest." This refers to the delivery of digital media assets by clients directly to CMC's storage and server systems.

Instead of a workflow that includes the delivery of videotape to CMC via Federal Express and the attendant manual quality assurance and ingesting of that tape to server, Higgins envisions a fully automated digital delivery and integration workflow. This will include quality assurance, registration of content, verification of metadata and the distribution and composition of production elements, all within the digital domain.

In this new paradigm of multipurpose, multi-use media assets, Higgins sees IDOC as an edge device that leads to terrestrial or satellite video distribution.

IDOC launched on June 1. "We have had many inquiries for the use of IDOC for both HD and SD origination. We have lots of potential clients," Higgins said. ■

### IDOC IS KEY

Key to CMC's plan for building the infrastructure that supports multiple uses of media assets is its new Integrated Digital Operations Center (IDOC) facility, a master control operation that supports six HD or SD channels.

IDOC is designed so that the six channels can be either HD or SD and all six channels can be operated from a single operator position. With more complex production, additional operators can be deployed up to the point in which each of the six channels has its own dedicated operator.

"The concept behind IDOC was to build a room that supports the next generation of media assets," said Higgins. "IDOC is a highly automated environment with plenty of monitoring and alarming that allows multiple channels of operation by one operator. It is equivalent to an accordion where we can expand and contract the functionality of the room to flexibly support our clients' needs."

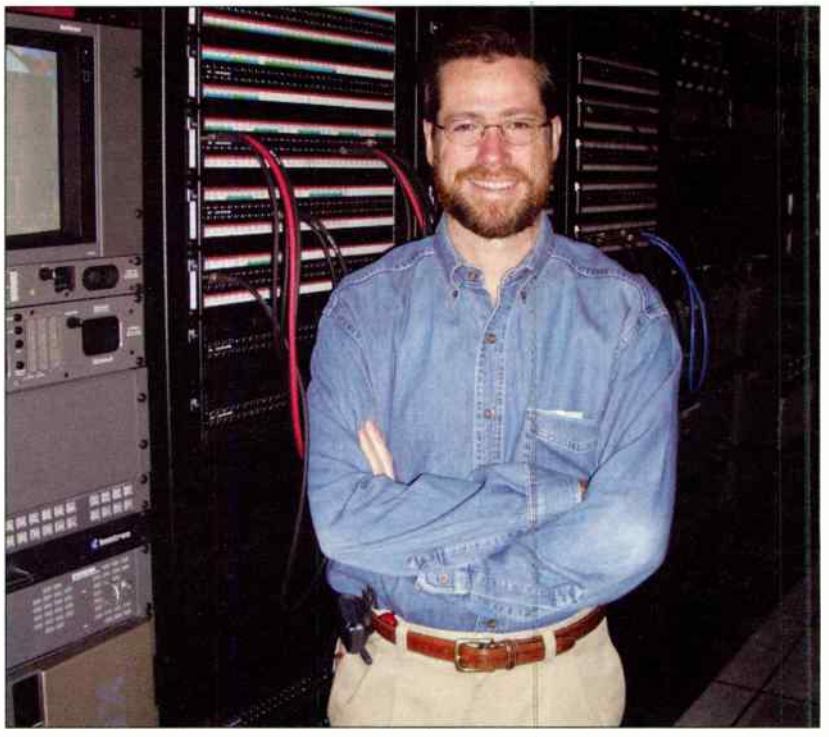
CMC foresees customers who want to get their feet wet with HDTV but do not want to make the commitment of building their own HD facility. A customer can outsource the Master Control operation to CMC, which has the ability to integrate commercial and interstitial material as well as add branding and a variety of sophisticated graphic elements.

**"The concept behind IDOC was to build a room that supports the next generation of media assets."**
**—Dave Higgins, CMC**

To support the varied production requirements, IDOC is outfitted with Imagestore master control switchers and PresStation control surfaces from Miranda, an Omnibus Colossus automation system, Pinnacle Mediastream 8000 video servers, a 256x256 HD/SD Trinix video router from Grass Valley and VertigoXmedia's graphics platform.

"We recognize that production and master control operations have become more and more complex with sophisticated graphics, tickers, bugs, squeezebacks and overlays. That is why we designed and built IDOC to support all those increasingly complex and sophisticated production elements in an efficient a manner as possible, said Higgins."

IDOC is supported by an adjacent live events room that allows CMC operations to work with live remotes and also a tape room for the ingest and digitization of tape content.



*Dave Higgins of CMC in front of the IDOC support racks*



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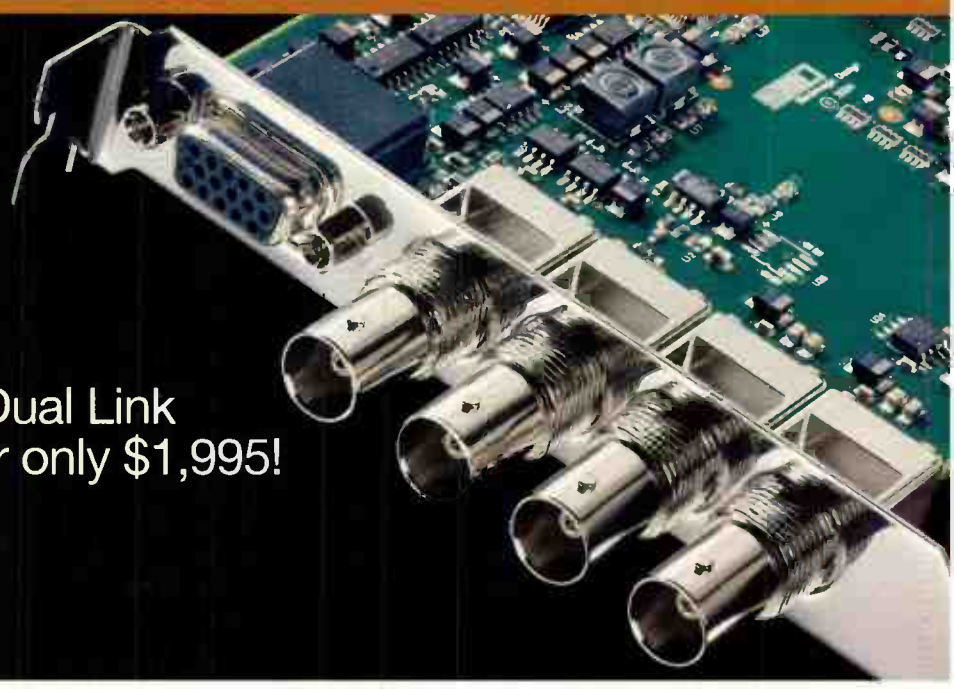

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World Radio History

## Call to Ditch Tuner Mandate

**WASHINGTON**

House Judiciary Chairman James Sensenbrenner (R-Wis.) rolled out legislation last month to kill the DTV tuner mandate. His "TV Consumer Choice Act," would eliminate the FCC requirement that manufacturers put digital tuners in TV sets.

In a letter to constituents, Sensenbrenner said, "Imagine sitting down to watch the Wisconsin Badgers in a bowl game on New Year's Day 2007 only to find that your TV no longer works.... If some advocates have their way, all analog signals will cease on December 31, 2006 to pave the way for digital television. Unless you're willing to shell out as much as $950 for a new digital TV, you could be out of luck."

Sensenbrenner got his $950 figure from the Consumer Electronics Association, which has railed against the tuner mandate from the word "go."

Sensenbrenner introduced similar legislation a few years ago, but it was never enacted.

### Broadcast Dissed

The chief of the Consumer Electronics Association went on a verbal rampage against broadcasters in May. In a letter to House Commerce Committee Chairman Joe Barton, Gary Shapiro argued for a hard analog shut-off date on the premise that so few people rely on OTA signals.

"...If the cut off occurred today, less than 13 percent of the population of 110 million TV households would not have access to a broadcast signal through cable or satellite," he wrote. "Though they could certainly start subscribing."

The National Association of Broadcasters shot back that the government's own estimate of OTA reliance, from GAO testimony on Capitol Hill in February, is 19 percent—"more homes than are located in the states of Texas, Florida, Michigan, Mississippi, Montana, Alaska and Hawaii, combined," said NAB chief Eddie Fritts in his own letter to Barton.

Shapiro had already raised the ire of broadcasters at the annual meeting of the Advanced Television Systems Committee (ATSC) in Arlington, Va., where he said their medium was dying and alluded to pulling out of the organization, according to sources who attended.

The CEA later released a statement summarizing Shapiro's remarks at the meeting. It made no mention of pulling out, but instead leveled criticism at the adoption of E-VSB as a standard.

"The recent activities to develop enhanced-VSB standard have been a disappointment and a misguided endeavor," he said. "We strongly believe that standards should be created and decided upon by consensus, which did not occur in the development of E-VSB."

Mark Richer, chief of the ATSC, said, "due process was followed, including the consensus recommendation from the specialist group. Period. It passed the required threshold in the technology group, and it passed the two-thirds level in the membership."

Several sources said Zenith (owned by LG Electronics) pushed standardizing E-VSB because it could prolong the life of its VSB patent portfolio.

Richard Lewis, senior vice president of technology for Zenith said the company is offering the use of E-VSB for free with any 8-VSB license, (8-VSB demodulators are necessary for digital over-the-air reception). When the 8-VSB patent portfolio expires in 2016, the E-VSB licensing program would then kick in. Lewis said E-VSB patents are pending, but "if and when they are" awarded, they would run to about 2022.

"E-VSB patents have no effect on 8-VSB patents," he said. "There's going to be an 8-VSB program and an E-VSB program. People will be free to license one of those or both. During the life of 8-VSB, there will be no patent fees on E-VSB. After that, there would be an E-VSB program."

*Deborah D. McAdams*

Federal Frequency

## Streets

*CONTINUED FROM PAGE 1*

There's that old saying that the three most important factors for a successful retail store are location, location, location. Gumbert said the same goes for a street-side studio. "Location is everything, and unfortunately many stations in America are located off the beaten path or in unsafe neighborhoods."

WLS, the ABC O&O in Chicago recently announced plans to build a new street-level studio; WBBM, the Chicago CBS O&O also plans to build a new facility that will include news and weather facilities that will be visible to the street.

*Ellee Pai Hong anchors the morning news at WMAQ.*

A year and a half ago, NBC O&O WMAQ deployed its street-side studio in downtown Chicago. In the location game, the station seems to have hit the ball out of the park. "I say without question we have the best location in town" said Frank Whittaker, vice president of news for WMAQ.

"If you went around Chicago and said 'what is the best location to put a street-side studio, what backdrop do you want that says Chicago?'" Whittaker asked. "You would pick where we're at. We have the Wrigley Building in the background, the Michigan Avenue Bridge... It is downtown Chicago, right on Michigan Avenue. I don't think you can beat it."

To get that view, however, the station had to venture a block away from its home in the NBC Tower to the nearby Equitable Building. It offered two walls of floor-to-ceiling glass and a large plaza outside. WMAQ's studio control room remains back in the NBC Tower, which is where the program is switched and where the robotic cameras are controlled.

"[We] had long cable pulls underneath the street to Michigan Avenue that come up through the building," said Jan Jaros, director of broadcast operations and engineering. In addition to the news talent at the street-side studio, it is staffed with a prompter operator, a stage manager, a handheld operator for outside and beauty shots, as well as a stagehand for lighting.

"Lighting was a major challenge given the outside views," said Jaros. There is gelled, bulletproof glass to shoot through and ever-changing lighting conditions outside. "From 5 a.m. in the black of midwinter to 6 p.m. with the bright west sun in midsummer, you have the full gamut of lighting issues.

"We have been combining lights with several different gel strengths with shades that one stagehand could manipulate during a commercial break to try and get the correct look on-air for all kinds of weather and daylight issues." The weatherman does the forecast from outside on the plaza, where the robotic cameras and the handheld cameras can follow him.

### PRACTICING DISCRETION

Whittaker pointed out that there are more than just technical considerations when doing a newscast from a street-side studio. "There will be times when we're doing a very serious story, and if you had people waving in the background, it could be distracting. We have shots we can take that don't show the plaza right behind us."

The anchors take the two-minute walk outside from NBC Tower over to the Equitable Building in good weather, and they can take a slightly longer tunnel route when it's inclement.

"[The Equitable] Building has its own security, and we have our own security as well out there," said Whittaker. "It's mainly outside just to protect the camera and to make sure if we're outside with the weathercaster doing weather, somebody's coming up behind them, the security person's there to get that person out of the way or keep them from getting into the background."

Even with the FCC indecency crackdowns, the station doesn't use a delay system. "There are some barriers so people can't get too close to the window," he said, and if we saw something was developing or something was happening that we didn't want to put on the air, there are plenty of other camera shots that we could take where you don't see that going on."

The ratings would suggest WMAQ's street-side gamble was worth it. "We saw a spike in the ratings in the morning, and then in the afternoon we started doing our afternoon 4:30 and 5 o'clock news out there last November... we noticed an increase in the ratings then too.

"We think, right now, it's a differentiator for us," Whittaker said. "It's a way to connect to our viewers that others can't. Obviously our competitors must agree." ■



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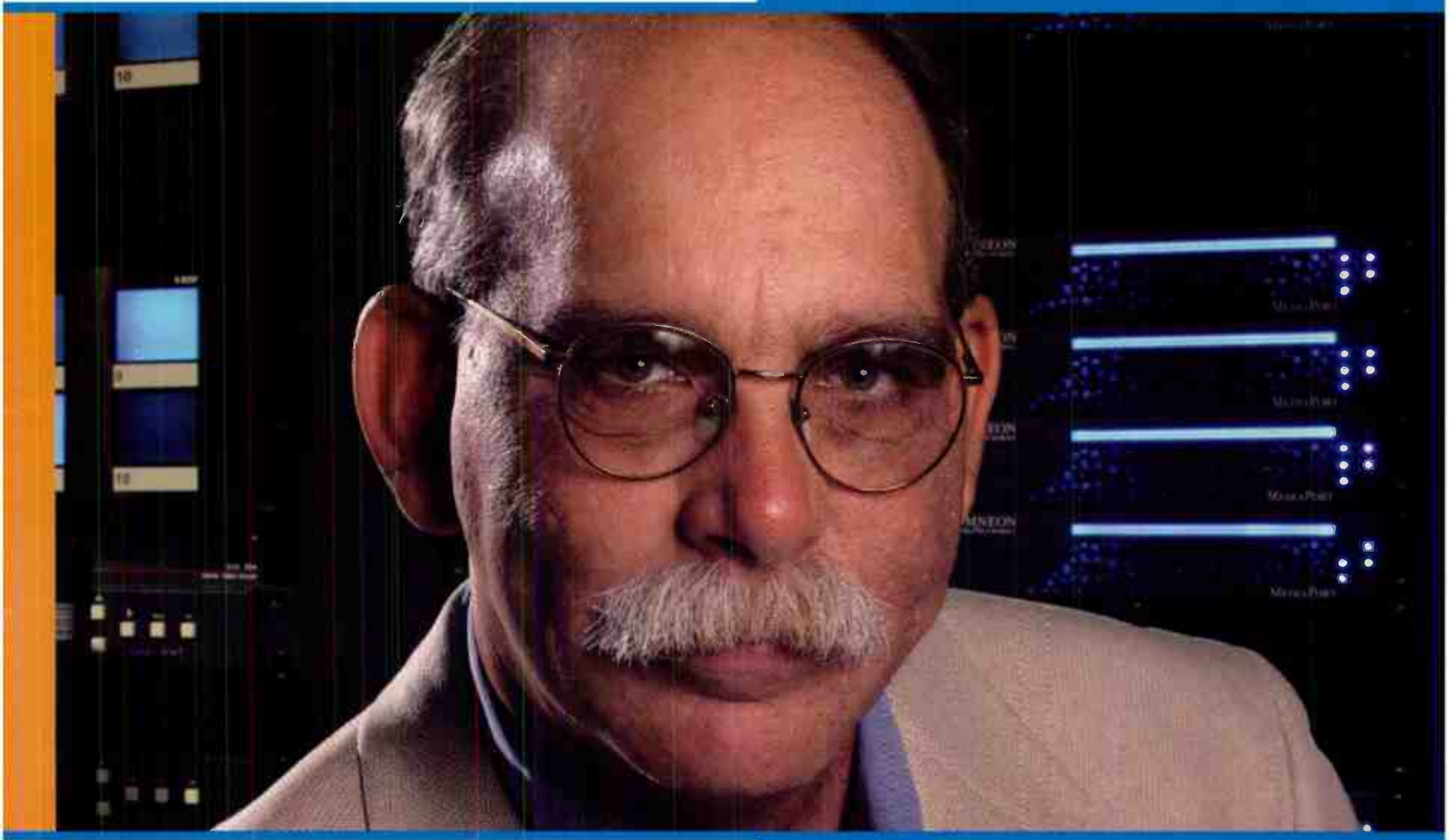

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# A Race to Get RF Right

## Microwave technologies are put to the test during marathon, cycling events

by Susan Ashworth

SAN FRANCISCO

Are there challenges in covering a marathon? Oh yes.

Opportunities? Well, not so much opportunities, as flat-out exasperations.

In fact, the ins and outs of covering a complicated, multisite event like a marathon is a formidable task, rife with a unique mix of inconvenience, futility and frustration. It's also one of the more exciting sporting events to cover, offering an inventory of episodes that a broadcaster is unlikely to find anywhere else: buck-naked runners, power-walkers in feather headdresses and a rollerblading Elvis. And that's just in San Francisco alone.

Covering an event like a marathon is a challenge unlike any other, say those who've done behind-the-scenes duty. Broadcasters are without the luxury of pre-wired fiber drops and secure camera positions. They must worry about operating frequency and logistical planning. And, perhaps most frighteningly, broadcasters must be constantly concerned about the possibility of interference.

"During a marathon we have to work with a whole city or an area that is much larger than, say, a football field," said Jim Malone, vice president of Total RF, a manufacturer of RF solutions based in Bensalem, Pa.

As a result, it is much trickier to pull off a successful broadcast in that kind of environment, he said.

"The toughest thing is getting the signal back through the surrounding terrain," said Casey Shearer, director of engineering for Carlisle-Pa.-based RF Central, a developer of RF technologies.

"You've got to worry about the possibility of interference, the chance that you might be denied access to a property that's crucial to reception, and balance the logistics of your operators so that overtime is not an issue," Malone said.

And all this in a short period of time. "It takes a dedicated crew and committed client to make this kind of remote pick-up work," Malone said.

The same roadblocks are in place for covering a cycling event, said Dan McIntyre, vice president of Billerica, Mass-based Microwave Radio Communcations (MRC). MRC has been involved in marathons over the years as well as cycling, which McIntyre believes has an even higher degree of complexity.

"Cycling races often cover wide geographic areas that include cities, countryside and mountains," he said. "And the speed of cycling, versus running, puts more demand on the TV coverage crews."

### THE BIG RACE

When it comes to on-foot marathon races, two of the biggest marathon challenges are the New York City and Boston marathons, the latter of which was held in April. In addition to providing transmission services for on-course vehicles at the Boston marathon, Total RF provided a communication system for directors and IFBs to cue talent, and also set up a network of fixed links to bring audio and video signals from the race course back to the receive site at the Prudential building in downtown Boston.

Photo Credit: CJ Gunther/EPA/Landov

*Catherine Ndereba of Kenya crosses the finish line of the 109th Boston Marathon.*

In the past, the company had used helicopter relays to hover over each vehicle and send video and audio back to a receive site. But in an effort to eliminate helicopter relays, this year the company used an arrangement of terrestrial receive sites. Using Hertz man-lifts that hoisted the antennas up on the air, Total RF mounted directional antennas to cover the course in sections. The company worked with equipment from manufacturers that included Tandberg, Link, Harris, Sagem and Motorola, among others.

"Each lift site had a certain section to cover, and would then send the traffic to the production center at the finish line," Malone said. The system was similar to cell phone towers placed at intervals along a highway. "We built this tower system and network over the period of three days using 125-foot man-lifts, one 80-foot man-lift and the Prudential building," he said.

Mounting all the individual antennas and testing them was a real challenge, he said. "It was a first-time scenario and many unknowns were waiting for us. All our measurements for line of sight via the topo maps looked good but you never really know till you try it."

The bottom line, he said, is that "we had no helicopters to relay traffic and had to be weatherproofed for fog and low cloud cover, which typically happens in Boston."

### CYCLING AROUND

Dealing with access and interference concerns was also an issue during the ongoing coverage of European cycling on VRT, a public broadcaster in Belgium. The broadcaster has used analog and digital equipment from MRC for years, and MRC is now in the process of implementing a digital system that includes cameras and transmitters for three motorcycles and a helicopter. During most of the races that VRT covers with MRC equipment, the central receive site is a production van, which in turn has a microwave backhaul, McIntyre said. As in most marathon and cycling race events, the truck and portable transmission tower are located at the race finish line.

"The motorcycles transmit to the helicopter, which has three separate receivers and three transmitters for relaying all three signals simultaneously to the production truck," McIntyre said. "Also, the helicopter had a camera with a separate transmitter to the production truck or aerial shots."

According to McIntyre, the three motorcycles are tracked by GPS so the production truck knows where they are at all times and can dispatch the appropriate motorcycles to desired locations along the race route.

After the new digital system is up and running, VRT will be using digital COFDM/MPEG Strata microwave radios. In other situations, MRC camera-back Reporter digital transmitters have been used for both hand-carried and motorcycle-mounted cameras.

### OLYMPIC-SIZED HURDLES

RF Central provided RF technologies for all the coverage of the men's and women's marathons at the 2000 Olympic Games in Sydney. According to RF Central—the former microwave division of Winemiller Communications—the company helped build an RF communications network that included analog RF equipment that communicated to a lead truck and three BMW-K75 motorcycles. The setup included four microwave relay helicopters and two helicopters with Wescam cameras—including a high-lying fixed-wing aircraft way up in the sky at18,000 feet, due to the fact that the race went past the end of the Sydney runway, said Jeff Winemiller, general manager for RF Central.

If you think covering a marathon is hard enough, imagine the challenge of covering the race while incoming aircraft are landing over your runners. "On the coverage of the men's race, the helicopters were told to stop and wait for an incoming aircraft," Winemiller said. "This forced into action our airplane at 18,000 feet to provide coverage for five minutes, which it did flawlessly."

Winemiller said RF Central used three receive sites: Two in town to receive the helicopters, while the plane was tracked from 20 miles away from town. The three feeds were sent over fiber to a central point, and the best-quality picture was sent to production for distribution to the broadcasters. Winemiller said RF Central also provided coverage for the other Olympic events, including the triathlon, mountain bike event as well as the equestrian and cycling races.

RF Central and its microwave partner Gigawave also had 49 wireless handheld cameras in Athens for coverage of the 2004 Olympics.

Back in the United States, RF Central also worked on the 2004 New York City marathon, in which the company provided a fixed link from 78th to 66th Streets on First Ave. Setting up a camera on a platform at 78th, the signal was transmitted down to 66th via a microwave link to feed video and audio to the production truck at 66th. From there the feed—as well as video from other cameras—was sent back to the main TV compound using fiber, said RF Central's Shearer.

Happily, the company—and other RF manufacturers—have found new success via digital.

*This 18 GHz DS-3 link provided by Total RF was used at the 11- and 18-mile points for the Boston Marathon*

"This year we used digital 5.8 GHz COFDM on the link, as compared to analog, which had been used every year before that," Shearer said. "The digital preformed much better than analog every has in those tough city conditions.

"Digital has greatly helped with [interference issues], allowing [a signal to get through] in conditions in which analog may only poorly work or not at all."

Broadcast Microwave Services (BMS) has also seen success with digital, having seen its Helicoder digital helicopter system used in marathons such as the Bay to Breakers race in San Francisco, as well as its Carry Coder II portable camera system and new Truck Coder II digital ENG truck system. ■



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World Radio History

DIGITAL JOURNAL

Bill Hayes

# Datacasting in the Real World

## After years of false starts, the technology is still in search of a market

JOHNSTON, IOWA

What is datacasting? At IPTV, we have defined datacasting as the delivery of digital content that is not traditional broadcast content or content that is targeted to a specific audience. We have been experimenting with datacasting for some time as a methodology to deliver rich media content to schools and first responders; just last year we worked with Rockwell Collins on a methodology for datacasting to mobile devices for emergency services. Those tests concluded last summer and we were successful in demonstrating that data can be transmitted and received in a moving vehicle. We also did tests with schools located at the extreme edge of our Des Moines coverage area to send data to edge servers for use in classrooms. Those test also concluded successfully. No surprise there really; in the world of DTV everything is datacasting.

**I have yet to see a business model where datacasting becomes a profit center.**

*Disney's Moviebeam uses the PBS analog signal to send movies to a receiver.*

### IN SEARCH OF...

So then, what is datacasting really? At this point I am inclined to believe that datacasting is a solution in search of a problem. Think about the companies that have come and gone in an effort to capitalize on the promise of datacasting. I'm sure many of them blame their failure on the slow rollout of terrestrial DTV stations. But there are certainly a number of other problems that also contributed. One of the earliest datacast companies was Geocast. Although it was initially considered by many as a sound investment, the company was never able to clearly define what its product was or what it would cost and as a result, the company filed for bankruptcy. Geocast didn't die alone; there were a few others as well.

Of course datacasting didn't start with DTV; television stations have been doing datacast work with federally mandated closed captioning, which has been the most successful foray. There was also the short-lived teletext service. PBS has been a long time player in the analog datacast world with National Datacast Inc., a for-profit subsidiary of PBS, which provides national datacasting svices. Disney has been partnering with National Datacast Inc. for its Moviebeam datacast service, which uses technology from Dotcast to transmit programming via the PBS analog signal. Recently, Disney announced that it is suspending the service while it retools and looks for potential partners for its next phase, which is expected to be an HD version of Moviebeam.

*The biggest datacasting success stories have been in the local schools.*

### THE EDUCATION MODEL

So I am still left with the question of what datacasting is and perhaps the more pertinent issue of does anyone want or need it? The only truly successful terrestrial datacast service to date is closed captioning and it is driven by federal rules, not by market forces. It meets a very real need for a segment of the viewing audience but really, how many stations would implement it if it weren't for the federal requirement? How many set manufacturers would have included it in televisions without federal requirements? I have yet to see a business model where datacasting becomes a profit center.

In all of the models and experiments we have done, datacasting is a means to improve a service to a specific group or groups, but there is no significant revenue associated with it. As an example, the K-12 schools in Iowa are divided among regional area educational authorities (AEA's). Among the functions of each AEA is the storage and distribution of media assets such as videotapes of educational programs. Typically, a teacher will—in planning a lesson—go through the catalog of assets and find particular programs that would be beneficial in the classroom. They order the asset from the AEA and it is delivered to them by a van in a few days to a week or more. The advantage of this system is that each school doesn't have to purchase the material and store it. The disadvantage is the time lag in getting the asset and the cost of delivery. Enter datacasting. If these VHS-quality videotapes were digitized, they could be sent via digital broadcasts to a school and recorded for use the next day, thus reducing the length of time to get the material as well as the cost of delivery and would also allow for more dynamic teaching opportunities. Of course broadcasting this content in the clear would be a copyright issue; however, if the material was sent as an IP data stream to an addressable receiver/decoder attached to an edge server at the school, problem solved. The school gets the material and all the DTV sets ignore this unreferenced stream of meaningless data. Not a real money-maker for IPTV but it helps fulfill our mission of education and improves the learning experience.

### SIX OR ONE HALF DOZEN...

Not so fast! It turns out that in the opinion of some attorneys, this would still be considered an unauthorized broadcast of copyrighted material. That is kind of mystifying in light of the fact that this is essentially what an IP streaming service does, the only difference is that the transmission medium is the Internet and not over the air broadcasts. But since the signal radiates through the air, it is considered "broadcast" even though only one receiver in the state is authorized to decode it. So yet another datacast model grinds to a halt, but not because of technological limitation.

The technology for datacasting works. In reality, DTV in all forms and flavors is datacasting. We have proved that you can datacast to a stationary user. We have proved that you can datacast to a mobile user. What we can't seem to prove is that the services we can datacast are wanted nor are the services that are wanted allowed to be datacasted. I sincerely hope that some day I will be able to legally implement the service we have designed for schools, but I fear before the wheels of justice sort this out, there will be broadband connections available to the schools and the ship will have sailed and sadly schools will end up spending their limited resources on a service that we wanted to give them. And as for those for profit entities, especially you Moviebeam subscribers, don't think of it as the service being discontinued... think that they are still sending you 0's; one day soon they may turn the 1's back on. ■

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



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SPECIAL REPORT

# Indecency

CONTINUED FROM PAGE 1

fines of $7,000 for 169 Fox affiliates—even the many whose actual viewers did not make a single complaint to the stations or FCC.

Lawyers say that only a few dozen individuals may have generated the 159 complaints the commission says it received about "Married by America." Ten came from Belgrade, Mont., a town of 5,500 with no over-the-air reception of any Fox affiliate, according to broadcasters' filings.

"The fact that the commission would consider these complaints is a disturbing trend," wrote Jonathan Lichstein, attorney for Sunbelt Communications Co., which owns about 16 stations. "The commission has established a new and dangerous procedural standard... A licensee could be subject to forfeiture even if the licensee is not named in a complaint filed with the commission.

"Are we going to be penalized for other people's actions?" Lichstein asked later in an interview.

So far, the FCC has yet to collect the fines and broadcasters have grumbled about filing a big lawsuit to take a shot at the FCC's newfound bravado. But the ruling stands for now, as does a fine on NBC for the utterance of the f-word on a broadcast of the Golden Globe Awards in 2003.

In addition, critics of television programming are going after more than just f-words and brief nudity. PTC has launched complaints against "Friends," "Scrubs" and "The Simpsons." (The FCC denied the complaints.) About a third of all ABC affiliates skipped "Saving Private Ryan" out of fear the FCC would find it indecent. It didn't, but broadcasters point to the incident as a low point in self-censorship caused by a lack of clarity from the commission.

*Emmis TV President Randall Bongarten*

"Specificity and clarity [from the FCC] would make it easier," said Emmis TV President Randall Bongarten. "It is, of course, impossible because one must consider context and intent, and that inevitably involves judgment and opinion."

## NO CHANGE AT THE TOP

Broadcasters think this chill may last. Kevin Martin, the new FCC Chairman, brings a record and reputation for toughness on indecency; Bozell gave him a ringing endorsement. On the Democratic side, Commissioner Michael Copps has criticized some FCC actions for not going far enough. In Congress, the House passed "The Janet Jackson Bill" by a huge margin and sent it to the Senate. The House bill would raise the maximum fine per incident from $32,500 to $500,000, and bring a license revocation hearing after three violations—what broadcasters call a "three strikes" law.

The chilled atmosphere "will continue for some time, especially if Congress approves an increase in the possible fine," said Lichstein. "If something is borderline, people are going to give it a second look."

FCC officials did not return phone calls seeking comment or have refused to speak on the indecency subject.

Some backlash has arisen against the anti-indecency juggernaut, not just among liberal groups and civil libertarians, but also on the right. A group of conservative and small-government groups have joined up with NBC and Fox parent News Corp. to create TV Watch, a coalition promising to fight back against "groups pushing regulators and lawmakers to reinforce their critique of television with the government's help," said TV Watch Executive Director Jim Dyke, a former communications director for the Republican National Committee.

Armed with polls he says show Americans overwhelmingly opposed to government interference in television viewing rights, Dyke said the new coalition seeks to put balance in a debate he said has been dominated by only one side. "Everything's on the table" as far as possible educational and outreach efforts, he said. Three prominent Republicans in Congress have thus far blessed the effort.

NAB, favoring self-regulation by broadcasters instead of a heavy government hand, has formed a committee on "responsible programming," co-chaired by Gary Chapman, CEO of LIN TV and David Kennedy of Susquehannah Radio, with an eye toward adoption of a code of conduct this summer. The cable industry has already announced an indecency outreach initiative it claims will cost $250 million.

Meanwhile, broadcasters grumble that with cable, satellite and the Internet providing far more troublesome fare, broadcasters are being singled out because they're an easy target, with old indecency rules being enforced as the rest of the world changes. "In any event, with so many media through which the consumer can receive entertainment and information, the government is engaged in an act of futility," said Bongarten, of Emmis. "Did we learn nothing from Prohibition?" ■


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World Radio History

SPECIAL REPORT

# The Importance of Being Decent

## Broadcasters adjust to changing FCC standards

by Robin Berger

HOLLYWOOD

Recent FCC investigations and Congressional moves to increase penalties for indecency have scared the hell out of broadcasters and program producers.

The FCC defines indecent speech as "language that, in context, depicts or describes sexual or excretory activities or organs in terms patently offensive as measured by contemporary community standards for the broadcast medium."

### ABC

There are no standards specifically set for video images, said Jerald Fritz, senior vice president for Legal and Strategic Affairs for Allbritton Communications' TV stations. But the networks also take the heat for offensive imagery.

"Via our contracts, the network [ABC] would end up paying for us," said Fritz. "They would indemnify us for any fine we got because of programming that they sent us," said Fritz. "I suspect all the networks have some indemnification clause."

Syndicated programs are another matter, however, and cause for greater concern, he said.

"Because we see the advanced descriptions, we can look at [content] beforehand to make sure that it will pass our standards," he said.

Stations have the prerogative of pre-empting programming but can't re-edit it.

"There were several people who were talking about doing that with Saving Private Ryan—to edit out all the 'f-words' and the network said 'no you can't do that'—and the owners of the copyright told the network it couldn't do that," said Fritz.

### PBS

PBS has persuaded creators to shoot alternative takes for its edgier broadcasts. And, in contrast to the commercial networks' policy of providing one version for national distribution, PBS sometimes provides two alternatives. Both efforts were made for "Dirty War," which ran on PBS a month after its Jan. 24 debut on HBO.

"We talked to HBO and the BBC, which produced it, and they took other angles, so there was no sense that you were missing anything," said Jacoba Atlas, senior vice president and co-chief of PBS Programming. "The same with the 'f-word'; they simply took another take."

Despite these efforts, she said, "A lot of our stations chose not to play a version with the saltiest language in it."

Standards and practices departments make suggestions on scripts, rough cuts and, at times, the final production.

Broadcasters have generally excised indecent language from prerecorded material by one of three techniques: They bleep or drop the offensive audio; they cut the offending scene, insert a cutaway and come back to the action; or they can use audio dialogue replacement (ADR).

ADR involves consulting the copyright owners and often the directors, plus original actors, who may have to be called first to record the new lines.

"Most actors [are] too busy to come in and only get paid scale," said Chuck Filliettaz, founder of Culver City, Calif.-based 2G Digital Post, which is employed by the studios to customize movies for various venues (see "In Praise of Unsung Editors," TV Technology, April 18, 2005). If an actor can't make it, he said, "we go out and find a sound-alike."

Cutting, blurring, pixelating and reconstruction are generally used to rectify offensive video on prerecorded programming.

Live productions tend to rely on time delays, generally ranging from 5 to 10 seconds.

*NBC has been running PSAs from "The Today Show" Host Katie Couric on how to use the V-chip.*

**"The cardinal rule is not to violate audience expectations."**
**—Alan Wurtzel, NBC**

But pixelation, for example, wasn't enough to preclude a record $1.2 million fine levied last October against the 169 Fox stations that ran a particular episode of the network's reality show "Married By America" in April 2003.

Precluding live faux pas is even harder.

### CBS

"The most significant change over the last couple of years is that now on live entertainment programming, we

DECENT, PAGE 18

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SPECIAL REPORT

# Decent

CONTINUED FROM PAGE 16

have both a video and an audio delete capability," said CBS Television Network Executive Vice President Martin Franks, whose duties include presiding over the network's standards and practices department. "In the aftermath of the Super Bowl (incident of 2004), we had to be able to delete video as well."

For CBS, this new capability, he said, involves a "fairly expensive technological procedure that requires a great number of person-hours" [see tech section of this special report]. Franks noted that CBS also implemented "refresher training" for its standards and programming staff.

## FOX

According to one Fox executive, Fox "dramatically beefed up its standards and practices departments," putting more S&P staff "on the set" following a "first-of-a-kind seminar for every creative executive on the Fox lot," held days after Janet Jackson's "wardrobe malfunction" at Super Bowl 2004.

Hosted by Rupert Murdoch and CEO Peter Chernin, the event included L. Brent Bozell of the Parents Television Council, Vicky Rideout of the Kaiser Family Foundation, Capitol Hill staff and FCC Commissioner Kathleen Abernathy.

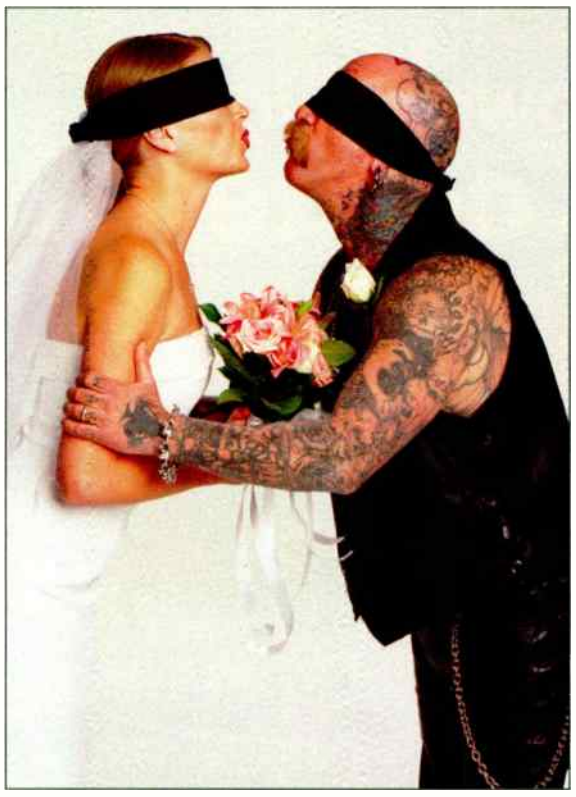
## NBC

NBC released a statement last month indicating that it would ramp up its program ratings to give people a better sense of the nature of what a program's content is.

"The cardinal rule is not to violate audience expectations," said Alan Wurtzel, president, Broadcast Standards and Practices, NBC. New content descriptors are expected to roll out this summer, he said.

To do this, the network will review its policies and step up training for editors regarding the ratings and how to comply with them.

"We're basically taking a whole bunch of old shows and looking at them and trying to arrive at a consensus," he said. His concern is that content analysis "certainly is open to interpretation."



*The FCC has proposed fining Fox Television up to $1.2 million for what it claims was indecent scenes from the 2003 reality show "Married By America." Fox is appealing the decision.*

But network execs believe there are plenty of nongovernmental resources available to protect viewers from offensive content.

"When we make a mistake we hear from viewers, we hear from affiliates, we hear from advertisers. It's a very fast self-correcting mechanism," said NBC's Wurtzel. Over the past year NBC has run public service announcements in which Katie Couric explains how to use the V-Chip, a technology mandated in the late 1990s to allow viewers to block objectionable content. Wurtzel said more of these spots are expected featuring other network talent.

NBC, Viacom and News Corp. have also provided seed money to "Television Watch," an advocacy group that intends to "educate Americans about tools that already exist [to address content concerns] and to broaden the debate," said spokesman Jim Dyke.

Meanwhile, the National Association of Television Producers and Executives hopes to create a forum for content creators and the FCC to bridge the gap between them.

"There are hundreds of conversations all the time but not together at a high level," said NATPE president Rick Feldman. ■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World Radio History

# Stations Seek to Sanitize Signals

## A/V delay boxes help prevent obscenity, fines

**by Claudia Kienzle**

HAMILTON, NJ

At the 2004 Super Bowl, when Justin Timberlake caused Janet Jackson's wardrobe malfunction, that live television moment resulted in controversy, hefty fines for CBS and its affiliates, and calls for tougher laws to discourage broadcasters from letting offensive content slip by again.

Recognizing that punitive fines—potentially in the hundreds of thousands of dollars—could cause their operations to fade-to-black, broadcasters are scrambling to find low-cost audio/video delay boxes that would ensure airing only family-friendly fare, while insulating them from fines.

### ACCOM

"This is a hot topic of conversation among broadcasters," said Jim Barclay, production products marketing manager for Accom, Inc., in Menlo Park, Calif. "After the Janet Jackson/Super Bowl incident, we were approached by broadcasters who asked us to find a simple, effective solution that would prevent profanity from airing during live events. After some research and development, we introduced AirCleaner.

"While delay boxes used to focus on audio, today's delay boxes must be able to delay video, audio or both, in SDTV or HDTV telecasts, at the push of a button. And the process cannot be automated. You must have an operator sitting there, watching the live show, who can take swift action to prevent a profane word or obscene image from going out to the transmitter," Barclay said.

AirCleaner offers a delay of up to 60 seconds for SDTV and up to 11 seconds for HDTV, with up to eight channels of audio in and out. "A 30-second delay can also be split to give two operators 15 seconds of delay each for redundancy," said Barclay. "If AirCleaner had been used during the Super Bowl last year, the offending image would never have aired. The operator could have cut to an auxiliary shot of the crowd or an aerial view." AirCleaner also allows the operator to cut to a shade of black, or blur or defocus the image.

"The issue of profanity delay is largely an American problem," said Barclay. "But our product has applications worldwide as a delay box for correcting audio-video synchronization problems."

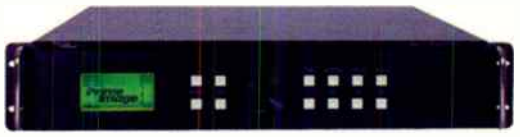
### PRIME IMAGE

"Affiliates that produce their own local news and sports can benefit from the Pipeline," said Bob Kelly, vice president of sales for Prime Image, Inc., in San Jose, Calif.

"For example, after the home team loses the playoff, broadcasters have no way of knowing what disgruntled fans might say or do while their live cameras are rolling. Congress has passed legislation that provides for fines of up to $325,000 per station for each instance of obscenity or profanity should a viewer file a complaint with the FCC."

The SD Pipeline was available prior to the 2004 Super Bowl, but Kelly said the incident "only served to emphasize the problem that already existed. Consequently, we were already well-positioned with a product that precisely fit what the broadcasters were looking for. We did step up our advertising and direct sales efforts in response to the incident."

Relatively soon after the Super Bowl telecast last year, CBS and ABC ordered Pipelines for all their O&Os nationwide. "Many Pipelines were sold to other major networks in New York and Los Angeles; and many groups and individual affiliates stepped up and purchased it on their own instincts," said Kelly.



*The Prime Image Pipeline*

The latest version, called the HD/SD Pipeline, supports 1080i and 720p HDTV, as well as SDTV; it can delay video, audio, or both by about 10 seconds, allowing the operator to cut away to a safe, secondary source; cut to music; or display any graphic so viewers don't switch to another channel.

"This is a solid-state device that doesn't rely on any moving parts, and it's very easy to use," said Kelly. "While the Pipeline has been on the market for 10 years, market demand is relatively high today due to two factors: Broadcasters want to keep their content within the bounds of what the FCC has mandated, and they want to be good corporate citizens providing programming suitable for family viewing."

### PIXELMETRIX

Interest in delay devices spreads across the spectrum, from the networks to the local affiliates, according to Danny Wilson, president of Singapore-based Pixelmetrix Corp.

"While we've seen equal interest from networks and affiliates, local station engineers want this to be the networks' problem because their budgets have been squeezed by the DTV transition," said Wilson. "But top-market affiliates often produce their own live news and sports, which makes it necessary for them to employ their own video/audio delay box and to hire an operator—an added expense—to keep an eye on the live show and a finger on the controls of the delay box."

*The Pixelmetrix DVShift*

Prior to the Super Bowl incident, Pixelmetrix offered only a multi-hour version of its DVShift delay system, which has ASI (MPEG transport stream) inputs and outputs that make it well-suited to time shifting across time zones.

But, "as a result of the Super Bowl," said Wilson, we introduced a new product line under the DVShift family which had SD and HD inputs and delayed in seconds." Within six weeks of the Super Bowl incident, Pixelmetrix began to promote the fact that its DVShift now offered short-term delays of 10 seconds or 60 seconds for HDTV and SDTV, respectively—just long enough for an operator to cut away to a different camera or shot. DVShift's short-term delay can also synchronize wireless RF cameras with wired cameras so both signals arrive at the truck or master control at the same time for better program continuity.

The multi-hour version of DVShift offers a long-term delay, programmable for hours or days, making it ideal for managing broadcasts across different time zones. "DVShift is used by Danish broadcasters to delay their programming, which is also seen in Greenland. While it's acceptable to air adult shows after 10 p.m. in Denmark, that's the dinner hour in Greenland," says Wilson. "So they use DVShift to delay the entire [MPEG-2] compressed stream—including video, audio, closed captioning and interactive content—which is stored in gigabytes or terabytes of storage. The compressed content is then aired in Greenland after a pre-programmed delay of about four hours."

### HOTRONIC

"Broadcasters are definitely demonstrating increased demand for video/audio delay boxes," said Linda Chang, director of sales and marketing for Hotronic in Campbell, Calif. "Local affiliates want to have a video/audio delay box on their live shows even if they've never experienced an incidence of obscenity or profanity. They don't want to take chances anymore."

As the improved version of the AL86, the AY86 has been serving the broadcast market for three years. "Since the Janet Jackson incident, the AY86 has been a popular unit due to its practical features and reasonable price," said Chang. "In the last two years, we have also seen increased demand from the international market for this video/audio delay unit for live programs."

Hotronic's AY86 Video/Audio Delay system is frame-by-frame adjustable for up to a 7-second delay; or for up to a 20-second delay. The AY86 supports SDI digital and analog formats, along with four channels of AES/EBU audio. In the event that objectionable video or audio occurs, the operator can mute or cut the audio, and cut away to a secondary source or graphic. "The up to 20-second delay version was purchased by CCTV (Central China TV) which uses the system to filter out objectionable content," said Chang.

### DOREMI LABS

The Doremi V1-MP2 is a video disk recorder that uses MPEG-2 video compression. It features composite, S-Video, YUV and SDI I/O for SDTV, and it can operate as a VTR replacement.

*The Doremi V1 HD videodisk recorder*

The V1-HD model supports HDTV, and both models provide up to eight channels of digital audio (AES/EBU) or six channels of analog audio.

"This product came out before the Super Bowl incident, but we took advantage of that fact in our marketing and, as a result, sales went up. We definitely saw a surge in calls from our resellers and major market stations that do live news, sports, and events," said Ramzi Shakra, marketing director, for Doremi Labs in Burbank, Calif.

"Previously, we promoted the product's broadcast time zone delay of 1 to 12 hours; but after the Super Bowl, we stressed the short-term delay, which can be as little as one or two seconds."

With many of these delay systems priced under $15,000, vendors say that this relatively small investment can be easily justified if it prevents a fine and viewer disapproval. ■



World Radio History

# Cable-Tec Explores IP, Bandwidth issues

## SCTE show looks to 'Texas-size' progress in broadband technology

by Gary Arlen

SAN ANTONIO

What has bloomed in cable technology in the past 10 weeks? Some people may be asking that question as they head to the Society of Cable and Telecommunications Engineers' annual Cable-Tec Expo in San Antonio, June 14-17 (*www.expo.scte.org/index.html*). The event, which is expected to attract more than 10,000 engineers—about the same size as last year—and nearly 400 exhibitors, comes barely two-and-a-half months after the National Cable and Telecommunications Association (NCTA) convention, which also offered a sizable dose of broadband technology.

"Our emphasis is on converting that technology," says SCTE President John Clark, as a way of differentiating this event from the NCTA convention, which also focused heavily on public policy and programming. "Implementing and deploying in the field" is SCTE's focus, Clark says, reciting his group's mantra, "All engineering, all the time."

"Cable engineers are increasingly asked to fine-tune the bandwidth management" at their systems, Clark adds, pointing out that "quite a few cable engineers now define their jobs as bandwidth management." The avalanche of video-on-demand (VOD), voice-over Internet Protocol (VoIP) and HDTV—all of which are covered in Cable-Tec workshops—is part of SCTE's focus on bandwidth issues.

Clark predicts that the "IP Implementation" sessions, which are intended to help engineers handle the conversion from radio frequency to Internet Protocol, will be "very heavily attended." It is a new topic on the SCTE roster. Like several other sessions, the IP workshop will be offered twice to allow more engineers to attend it. Among the workshops in this cluster are ones dealing with "The Big Transition: RF to IP Engineer," "From HFC [Hybrid Fiber/Coax] to IP in Three Easy Steps" and "10 GbE Networks."

### TEXAS-SIZED PROGRESS

SCTE's overall conference agenda leans heavily toward developments that affect cable's digital direction. Conference Chairman Mike LaJoie (who is also executive vice president/chief technology officer at Time Warner Cable) says that SCTE received 195 proposals from the industry's technical community, "an all-time-high number," and well above the 176 abstracts submitted last year. The society selected 40 proposals to be developed into full papers that will be presented during Cable-Tec's 20 technical workshops, LaJoie said.

The self-congratulatory official theme of the SCTE event, "Broadband Progress Big as Texas," paves the way for the conference workshops to delve into a vast array of topics, reflecting cable operators' aggressive move into bandwidth-driven opportunities.

The workshops focus on topics such as commercial services—bow toward the cable industry's accelerating effort to reach enterprise customers (especially small- and mid-sized business firms) with its data and voice networks. Other sessions are clustered into categories such as customer premises environment (which will look at HDTV, DVR and VoIP situations), digital networks, home networking, the "Triple Play" for smaller systems and network security.

> "Cable engineers are increasingly asked to fine-tune the bandwidth management."
> —John Clark, SCTE

*Nearly 400 exhibitors and 10,000 attendees will discuss the latest broadband technology at Cable-Tec expo, June 14-17.*

### HDTV, VOD & DVRs

Cable's implementation of HDTV figures into many of the workshops and exhibits at the San Antonio conference.

"HDTV [involves] the efficient bandwidth management of digital networks," says Clark. He expects considerable attention to consumer equipment from vendors, which means that engineers attending Cable-Tec Expo will be exposed to the newest devices they may face at cable subscribers' homes.

Clark acknowledges that the "DVR in particular has an impact well beyond cable engineering... and what it does to the future of cable." He expects it to be high on SCTE attendees' checklist.

"Now that you have the rapid growth of sophisticated systems that offer both DVR and VOD, the viewer adapts permanently," Clark says. "It all goes back to bandwidth management to increase capacity of the pipes to offer robust VOD offerings that consumers are going to want more and more.

"It's a challenge to the vendors to get all those tuners into reasonably priced boxes," Clark says, pointing to the value of VOD plus DVR. "It's not an 'either-or'; it's a 'both-and.'"

### DON'T FORGET WIRELESS

Wireless technology is also high on SCTE's agenda, with several workshops devoted to home network and other implementations. One session will examine the work now under way at CableLabs (the industry's technology research unit); another session will focus on "Implementing Wireless Plant Extension into the HFC Network."

Clark says that the attention to wireless technology is needed because of greater connectivity in cable's environment. A session called "A Place for Wireless in Our Wired World" focuses on WiFi hot spots and mesh network, including the ways they can be integrated into—or compete with—cable infrastructure.

Technology vendors are planning to unveil some new devices at Cable-Tec Expo, supplementing their rollouts at the recent NCTA convention.

Motorola will introduce a new Cable Modem Termination System, an addition to the company's BSR/CMTS product line. The new Motorola BSR 2000 supports DOCSIS 2.0 and is differentiated by RFSentry functionality, which includes an extra receiver port to enable Advanced Spectrum Management. It can handle emerging revenue-generating services such as VoIP, virtual private networks (VPN) and multimedia services. Support for wireless broadband applications is included in the platform.

Scientific-Atlanta's new Digital Content Manager (DCM) is designed to help operators handle digital simulcasting, HDTV and switched digital broadcasting offerings. The DCM uses a new chip that lets it provide expected capabilities like digital stream processing, decoding, transrating and demodulation—at 10 times the performance and at 1/10th the cost, according to S-A. The company will also show its new GainMaker 1GHz platform, which expands band-

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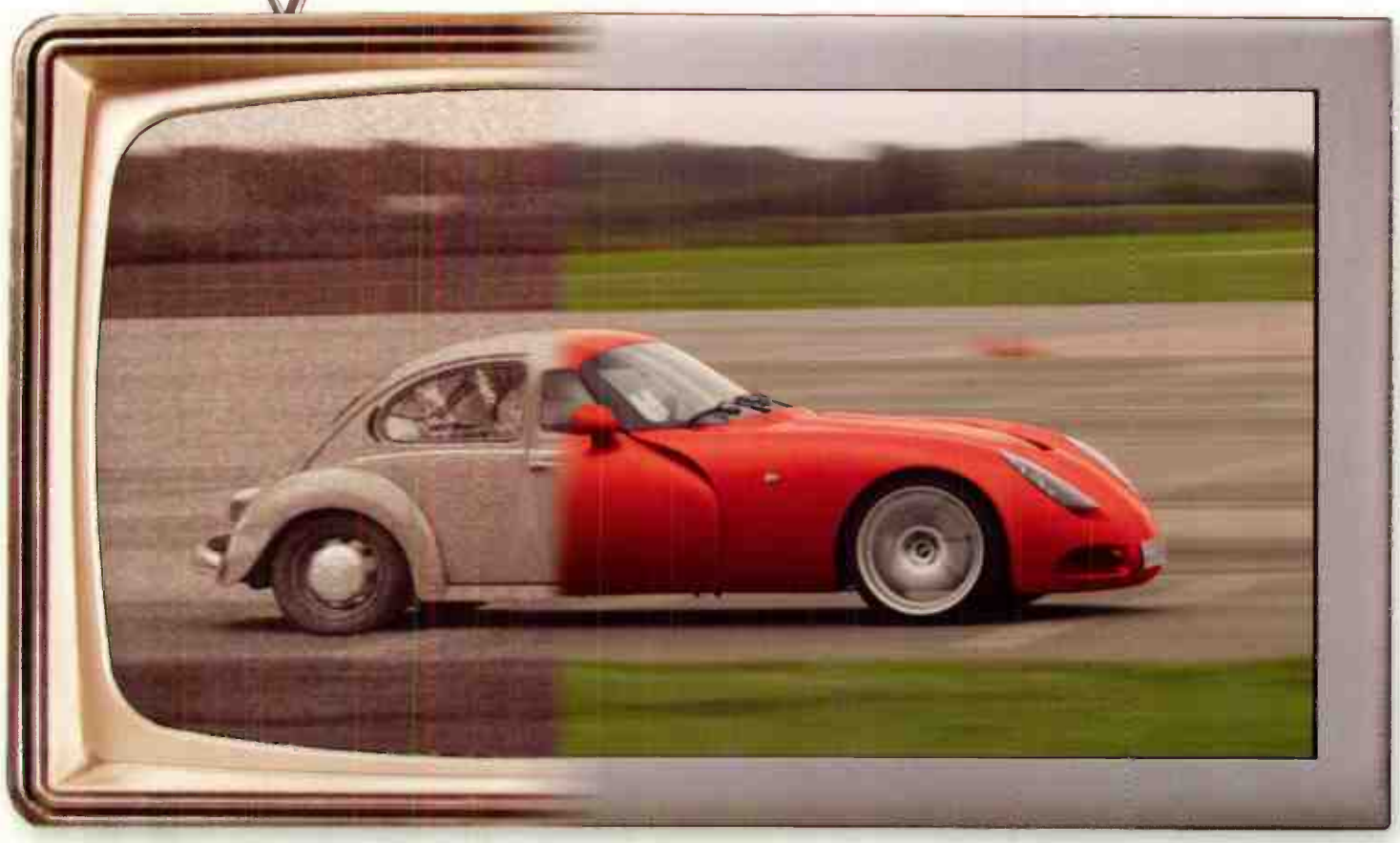
# evolve.



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# Cable-Tec

CONTINUED FROM PAGE 20

width to support the 1 GHz networks of the future.

AgileTV Corp., which demonstrated an updated version of its voice-activated remote control at the Motorola booth of the NCTA convention, will show up in the SeaChange International booth, touting its new relationship with the server company that supports Agile's ability to hunt for titles and performers when a viewer calls out a name.

On the voice/data side of the business—and again in the bandwidth management motif—Xtend Networks will introduce an upgraded DS3 technology that can handle data rates of 44.736 Mbps; instead of using multiple DS1 lines for T-1 service between headend and backbone, operators will be able to deliver the service using one DS3.

*Panel discussions among the top brass at cable companies are an important part of Cable-Tec.*

## SPREADING THE TECH MESSAGE

The SCTE show is also embracing diversity in several ways. For the second consecutive year, Cable-Tech Expo will feature a section devoted to bringing women- and minority-owned suppliers to the convention, encouraging cable operators to meet with these vendors. The diversity initiative is being developed in conjunction with the cable industry's Kaitz Foundation, which encourages minority involvement in the business.

**"We're creating a special track for learning and development."**

**—John Clark, SCTE**

SCTE is also continuing its "Operación Español" Spanish-language program. Six technical workshops plus all the general sessions will be offered with simultaneous interpretation for the large Hispanic contingent expected at the event.

A new event at this year's Cable Tec Expo will be introduced on June 14: the Conference on Broadband Learning and Development. The one-day program is aimed at cable managers and others who develop curricula to train employees in new cable technology.

"We're creating a special track for learning and development," Clark says. The goal is to help operators "work with [their] engineering team to learn what technologies are coming soon... and to create effective processes to teach it."

Clark summarizes the expanding program as typifying "the vitality of SCTE."

The process also differentiates Cable-Tec Expo from the recent NCTA convention. ■


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World Radio History

RF TECHNOLOGY

Doug Lung

# NAB Spotlights RF T&M Gear for DTV

As I've written before, I felt there was a great need for easy-to-use equipment for monitoring 8-VSB transmissions and ATSC streams. There was no shortage of DTV and 8-VSB test equipment at NAB this year. Prices were low enough. There is now no excuse for not knowing exactly what your station is transmitting on DTV.

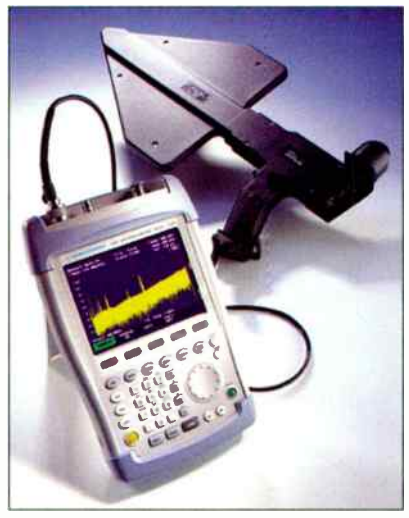
I believe many transmitter engineers have a good handle on the RF side of their DTV transmission facilities. Transmitter manufacturers continue to improve adaptive precorrection software in DTV exciters to compensate for system linear and nonlinear distortions.

When the transmitter is installed, filter response checked and antenna return loss measured, the entire system usually has no problem meeting the recommended minimum signal-to-noise ratio (SNR) of 27 dB. Many DTV transmitters now include the ability to monitor DTV transmission characteristics and most of them include a Web interface that displays alarms if something goes outside preset limits.

## JITTER

Unfortunately, in the ATSC DTV environment, it is not sufficient to deliver a strong signal. As more people buy sets or set-tops with ATSC tuners, some engineers may be surprised that viewers are having trouble receiving their signal, even when SNR and signal level is equivalent to that of other stations in the market.

In these cases, the problem can often be traced to the SMPTE-310 signal delivered to the transmitter's modulator. I'll discuss this in detail in a future column, but I want to mention one piece of equipment TV stations may want to consider purchasing—a jitter analyzer.



*The Rohde & Schwarz FSH3-TV analyzer with HE200 antenna*

Belar was showing a prototype instrument at NAB that measures the jitter in the DTV symbol clock. The DTV symbol clock analyzer I saw had few adjustments and a single digital readout showing the jitter in nanoseconds. The price hasn't been finalized, but I was told it would be less than $6,000. In early May, I could not find any information about it on *www.belar.com*. Symbol clock jitter will affect different manufacturers' ATSC receivers differently and can be very difficult to diagnose without an instrument like this.

## PSIP

Manufacturer-specific problems can also be traced to incorrect PSIP tables. If your station doesn't have an ATSC stream analyzer, check out a system I saw that could be put together for not much more than petty cash and a Windows XP laptop. Even if you already have an ATSC stream analyzer, I suspect you will be interested in a simple portable unit costing less than $400!

The system consists of the V@Box USB-A 3560 ATSC terrestrial receiver combined with Rod Hewitt's excellent TSReader software. Rod demonstrated the system to Gary Sgrignoli and me in a Nextel conference room at NAB, using a ThinkPad T40 laptop and a Silver Sensor antenna. We had no problem picking up the Las Vegas DTV stations and looking at their transport streams and PSIP data, including closed-captioning.

The software identified scrambled USDTV program streams and he was able to grab a file being transmitted on the PBS station's DTV signal.

I'll have more on this inexpensive PSIP monitoring setup in a future column. If you can't wait until then, you can learn more about TSReader at *www.coolstf.com/tsreader/*. The software works with a range of hardware and can be used to analyze ASI, DVB-T, and DVB-S signals as well as ATSC, depending on the hardware installed in the PC. For information on the V@Box USB ATSC tuner, see *www.vboxcomm.com*. You'll notice they also have PCI cards for DVB-T and ATSC reception on desktop computers. The V@Box cards and USB receiver were being shown at NAB by Optibase (*www.optibase.com*), and I also found them being sold at *www.visiblelight.com*

## 8-VSB

While transmitter adaptive precorrection systems can do a good job making sure an 8-VSB signal is as good as it can be, they aren't of much use if the a problem occurs in the hardware demodulating the RF sample from the transmitter. Most stations will want some signal quality monitoring capability in their master control.

Modulation Sciences (MSI) is well known for its BTSC stereo generator and audio monitoring equipment, as well as its precision NTSC VHF/UHF demodulator.

This year, MSI showed the new MSI-4400 8-VSB analyzer. The MSI-4400 provides basic RF analysis—constellation diagram, eye diagram, signal-to-noise ratio, error vector magnitude and tap equalizer graphs. Alarms can be set on bit error rate and other parameters. It looked like a good system for master control DTV monitoring.

If the master control is unattended, the MSI-4400 can e-mail alarm information. The displays are available to anyone on the network or the Internet via a built-in Web server. Cost is less than $10,000, not counting the PC. Eric Small said MSI is developing a transmitter-oriented version of the box that can display the 8-VSB channel spectrum with enough dynamic range for shoulder measurements, pilot phase and frequency measurements using a GPS reference.

Sencore showed its DTU234 RF Probe, which is capable of receiving VSB, QAM64, QAM256 and NTSC signals. When combined with Sencore RF Expert software, it can show the signal's eye diagram, constellation and channel spectrum. Combined with the stream analysis software Sencore offers, it can also do ATSC/ASI stream analysis. Cost of the complete package, minus the computer, should drop below $4,000.

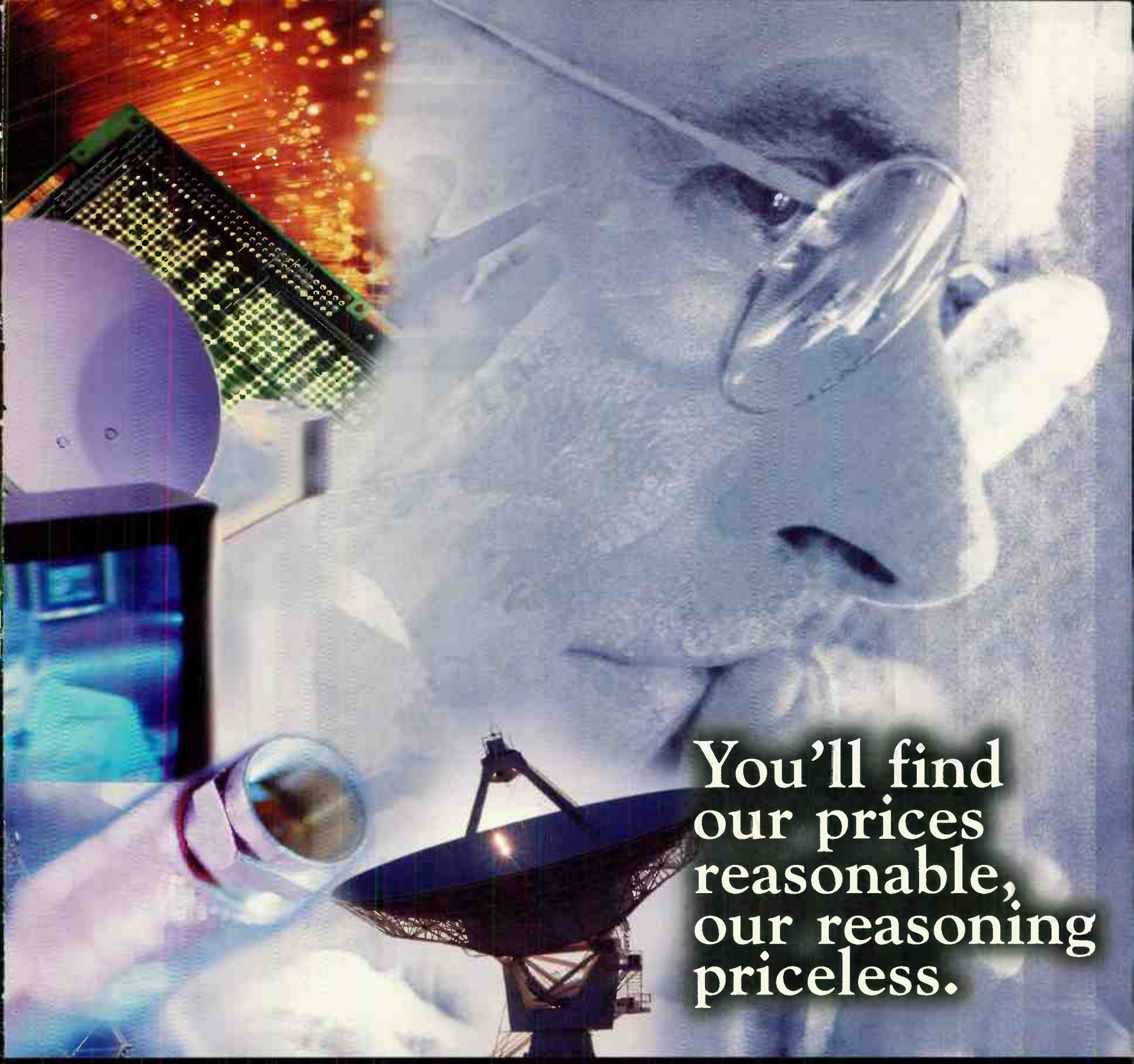
This only a small sample of the excellent, reasonably priced DTV test equipment shown at NAB. Take a look at the new products from Z Technology, known for signal strength field survey equipment, Pixelmetrix, Thales, Tektronix and others.

## ENTICING T&M GEAR

If someone gave me the option to pick a product at NAB I could take home, the Rohde & Schwarz FSH3-TV would have been at the top of my list. The display at the booth was enticing, but many

T&M GEAR, PAGE 26

World Radio History



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## T&M Gear

CONTINUED FROM PAGE 24

of the features of this handheld wonder weren't revealed until I started playing with it and reviewing the specifications. The FSH3-TV analyzer combines a spectrum analyzer, DTV receiver (4QAM through 256QAM and 8-VSB), analog TV receiver, spectrum analyzer, scalar and vector transmission and reflection analyzer, field-strength meter and tracking generator.

Among the measurements it can handle are carrier-to-noise, symbol rate, error rate, channel power, shoulder attenuation to 80 dB, EMC precompliance—and that's not all. It can also do power measurements when used with Rohde & Schwarz power sensors. Lock it to an external 10 MHz reference and use it as a frequency counter. Data can be exported in ASCII or Microsoft Excel format. The only thing I found it couldn't do was FM modulation measurements. Since the FSH3-TV can demodulate FM, it shouldn't be difficult to add measurement capability, which is present on many digital spectrum analyzers.

I was told an FSH3-TV with a preselector (needed for off-air measurements), and all digital formats costs around $16,000. The transmission/reflection measurement package was quoted at around 3,000 euros.

TDR capability is also an option, as is the "receiver mode." While the upper frequency limit of the analyzer is only 3,000 MHz, this is sufficient to handle the broadcast TV spectrum, the L-band spectrum Crown Castle will be using for their TV-to-handheld transmissions, the satellite radio spectrum and Broadband Radio Services spectrum.

While one of the most expensive products I've described so far, if everything works as advertised, it may be one of the best RF test equipment bargains!

### NEXT MONTH

If you receive my weekly RF Report newsletter (see *www.tvtechnology.com* to sign up), you may have seen my short article on Doug Vernier making shuttle radar topography mission (SRTM) terrain data available for use in his popular V-Soft coverage software. At NAB, I had a chance to see the software in action and compare DTV coverage in the New York City area from two sites using USGS terrain data and the V-Soft version of the USGS SRTM data. I'll have more on this in next month's column, but you may be amazed at the difference in signal strengths and coverage predicted using the SRTM terrain database, which includes the height of buildings and dense forest areas, as well as the standard USGS terrain database based on bare earth. ■

*As always, comments and questions are always welcome. Drop me a note at* dlung@transmitter.com

## Chips to test 8-VSB may become scarce

It appears low-cost 8-VSB RF test equipment may not be as easy to find a few years from now. Much of the comprehensive RF test gear I've talked about here is based on the Broadcom 8-VSB chip.

As the selling price of DTV sets drop and volume increases, set manufacturers will look for savings wherever they can. Newer DTV chips are being designed without the ability to extract the data on the RF signal that allowed display of tap energy, spectrum response, SNR, etc. Once the older DTV chips are off the market and test equipment manufacturers use up their stocks of the chips, they will be faced with discontinuing the product, offering reduced capability, or designing custom chips at high cost.

One bright spot is that software-based radios, such as the GNU Radio project, could provide a way to offer the same or greater functionality. An ATSC receiver has been implemented in GNU Radio (see *www.gnu.org/software/gnuradio*) and the software is open source. The highest cost item in the GNU Radio, excluding the computer, is the high-speed A/D converter needed to digitize the IF signal from the tuner. I noticed the hardware needed to build a software based HDTV receiver can be purchased for about $500. (See *comsec.com/wiki?UniversalSoftwareRadioPeripheral*) It will be interesting to see if anyone uses the platform for building DTV RF test gear.

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## INSIDE AUDIO — Dave Moulton

# Audio for Home Theater Presents New Challenges

Alert readers may recall that last month, I wrote about the state of audio for home theater, as observed from the retail showroom floor. I said it seemed unlikely that more than about half of home theater installations are hooked up and working correctly, considering poor documentation, no instructional materials and "low-touch" box-store discounters getting a big chunk of the business.

At the same time, these surround systems are sufficiently complex and variable, so they can be difficult to set up and keep under control. I tell you this from a great deal of ongoing personal experience working with surround sound in a studio designed for such work.

**HD and surround sound are devilishly difficult to configure and no layperson can reasonably be expected to get it right, or to be able to judge whether it's right or not.**

### ON-SITE CONSULTATION

Therefore, I was interested and pleased to receive a Tweeter catalog in the mail that described a fairly comprehensive installation offer. The Tweeter program includes the sort of installation, setup and follow-up service needed to make these systems work reliably in peoples' homes.

As you probably know, Tweeter is a national chain of stores that has been devoted to mid- to hi-fi audio. In the current catalog, the company is described as specializing in "home and mobile entertainment."

In any case, right up at the front, the catalog makes a pitch that you probably need some consulting to get started. They offer a free in-home consultation and promise to provide a recommended system based on an individual site visit.

A proposal based on the site visit, is prepared for an appropriate system and an installation. Tweeter says it does all installations using trained in-company personnel. After the installation is complete, the client receives a briefing on how to use the system.

Finally, a follow-up visit is scheduled several weeks later to work through any problems the client may have encountered and answer any questions that may come up.

I would guess, in such a case, that the resulting system would be installed correctly and would work most of the time (subject, of course, to the occasional and inevitable user errors and misunderstandings).

The bundled packages offered in this section of the catalog range from $8,000 to $18,000 (not including installation), and involve good if not absolutely stellar components.

Tweeter has staked out a nice bit of middle-class turf here. I hope the company does well with it. Furthermore, I hope other firms adopt similar strategies, because surround sound definitely ain't "plug 'n play."

Why does this matter to us? If our work is going to be successful in living rooms and dens, the end-user setup must be decently implemented. HD and surround sound are devilishly difficult to configure and no layperson can reasonably be expected to get it right, or to be able to judge whether it's right or not.

All this person can do is judge whether or not it sounds good. And if it isn't installed right, chances are it won't sound good. Naturally, we will be blamed. That's why it matters. Enough said.

### AV101-106 OFFERING

I recently was asked to make a two-hour presentation at the 15th Annual Pro Video Show in Boston, based on the columns I have done for TV Technology covering the basics of audio for non-audio types. It was an interesting experience. The show is a pretty big one, with at least 50 exhibitors and maybe a thousand attendees. My workshop was one of two (out of 16) devoted to audio, and they charged $25 for it. About 25 people attended, which I thought was a good turnout.

About half the attendees already had some knowledge of and experience with audio and said they were taking the workshop to fill in gaps, and/or just because they were interested. The balance really seemed to be my target audience—video folks who find themselves stymied by the quirkiness and

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pervasive difficulties of audio when all they want to do is make a decent video.

In full crash course mode, I plowed through levels management, EQ, compression, reverb, stereo and surround sound in my allotted 110 minutes. It was too much for that amount of time.

When I was done, I felt that many of the attendees still needed a good deal more in the way of fundamental explanations. They weren't ready for surround sound, for instance, and they seemed pretty bewildered by compression, although some light bulbs went on when they realized it was the same as automatic gain control. Reverb and ambience also seemed to be a bit of a mystery. Concepts such as noise floor and clipping still seemed pretty fuzzy, and the notion of frequency response didn't get much past the "really shaky" level of comprehension.

**I've come to feel, for instance, that I understand a good deal more about video, film, vision, light, sight and so on, than most of the participants in that session understood about audio.**

### WHAT DOES IT MEAN?

There is a crying need for this sort of educational outreach. Audio remains a stepchild in the video production world—a stepchild that is not understood very well at all, and that presents serious problems for the video production community.

Meanwhile, the basics are not understood by video folks—I've come to feel, for instance, that I understand a good deal more about video, film, vision, light, sight and so on, than most of the participants in that session understood about audio. Hopefully, they knew more when they left than when they entered.

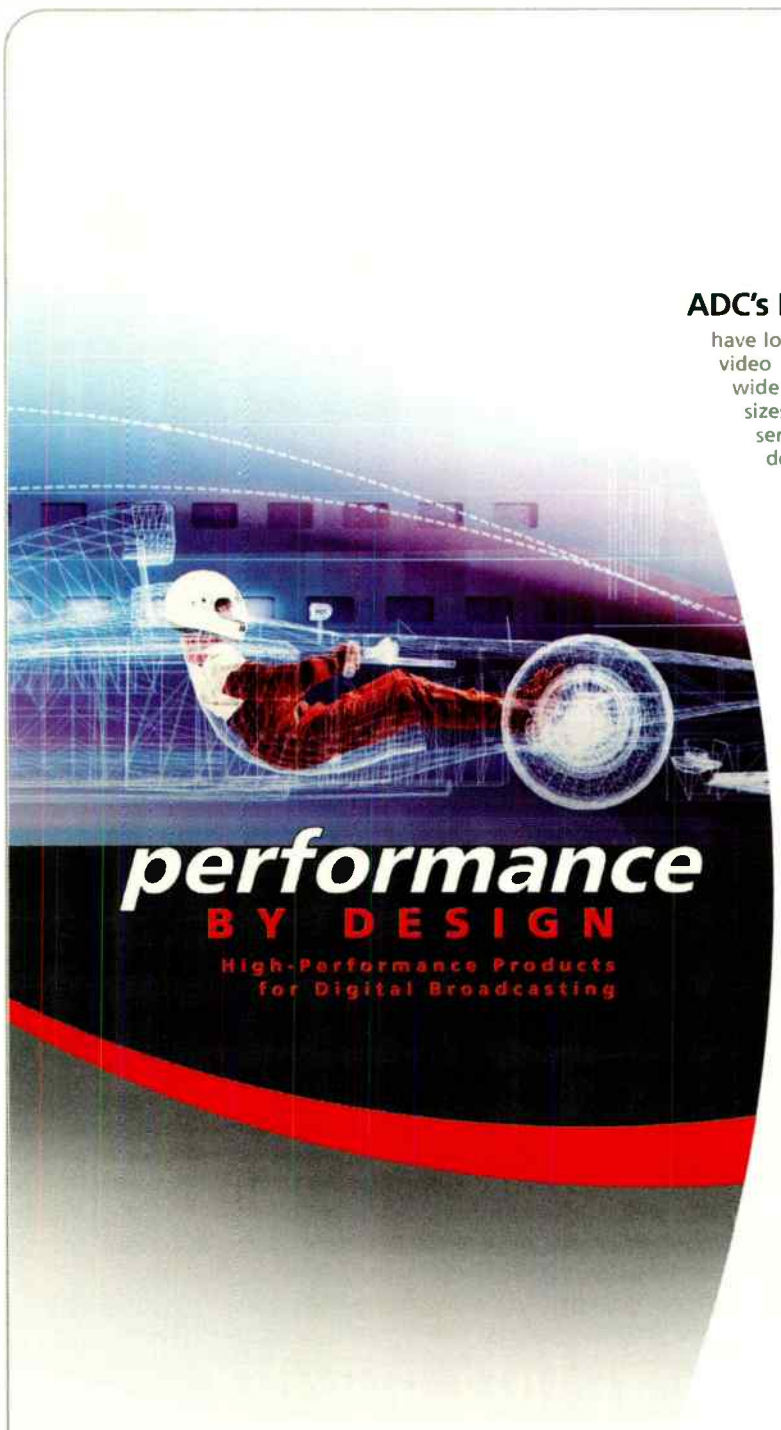
And why does this matter, you ask? Once again, if we can't get the basics right, the presentation to our beloved end users will suffer. In this case, we can't blame it on the cable company, the equipment manufacturers or the installers. In many respects and cases, we don't know what we're doing with audio, or how to control it. We need to learn more about it just to make the A/V convergence work properly.

Remember, it's a video world, and video is produced by, well, video folks. That's as it should be. However, they need to understand enough about audio to at least get audio converged with the video at a comparable level of production quality. That requires audio knowledge, craft and understanding, which are all still in pretty short supply in the video community.

Toward that end, my sponsor at the Boston event, the Parsons Center for Audio Studies, is looking for ways to put such an offering on the road for the video community—at least the Northeast, if not the country. If any of you would be interested in such an offering, contact Mark Parsons at *www.paudio.com*. We'll try to accommodate you!

Thanks for listening. ■

*Dave Moulton is trying to find his remote. You can complain to him about anything at his Web site*, www.moultonlabs.com.

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USER REPORT

# Red Sox Score with Echolab

**by Danny Kischel**
**Manager, Scoreboard and Video Production**
**World Champion Boston Red Sox**

BOSTON

After the incredible success of the 2004 season, the Red Sox TV and video department was given the task of rapidly upgrading our facility to accommodate the increasing workload. Our studio, located at Fenway Park, primarily produces the in-park show, feeding the video board live and capturing each game for news and archiving.

Shortly after last year's win, Echolab, a Boston-based company that has been designing and manufacturing video switchers for more than 30 years, contacted us. In fact, it was the Echolab staff who, out of pride for their home team, demanded that their management approach us here at the Red Sox and assist with the upgrade to our core video switching technology. They wanted Fenway to have great equipment made in Boston, by Bostonians, for their beloved Sox.

## TEAM PRIDE

Echolab presented the new Nova 1932 SDI Switcher as an ideal solution that would accommodate our present needs and grow with us into the future. The large 32 input Nova system allows us far more cross points than the existing switcher for easier access to the array of cameras and sources that we access for the large on-screen presentation.

We now have multiple MEs (2.5) and each has its own "recall," which gives us a huge operational advantage and flexibility. Multiple frame buffers let us grab and store frames, releasing us from the mess of scan converters. The Echolab Nova 1932 enables us to create our entire inventory of graphics, statistics and sponsor advertisements quickly and easily. Our operator can upload and download graphics to the Nova 1932 frame buffers via the system's TFTP Server. Working with a remote PC running Photoshop, we create full screen images or 32-bit images, such as a lower third, and then transfer both the foreground and alpha directly to the Nova to set up a key. We can have a new player's headshot in the switcher and create up-to-the-minute stats as overlay graphics in real-time, and then zing straight up on screen.

One of our criteria when evaluating the upgrade was the switcher's technology platform. The Nova 1932's unique system-on-chip architecture stores firmware and hardware configuration updates on a Compact Flash memory card. Interconnectivity and networking was a key element to our growing number of digital sources. The Nova switcher gives 10/100-Mb Ethernet port connectivity, supporting simultaneous connections to the outside world through Web, TFTP & XML-RPC servers. This enables our TD to remotely access the switcher from anywhere on our network and, via a Web page, check on the switcher's status and configuration.

The Echolab installation took place in the week while we were at spring training and their team was here all weekend before and on Opening Day to ensure the smooth transition. Now, with quite a few games under our belts, we can't remember what it was like producing such a rich, demanding live show without the Nova 1932. It's great to have such a committed local company enjoy the success with us here at the Red Sox. ■

*Sarah Logan, producer/editor works in the control room of Fenway Park in Boston.*

*Danny Kischel is the manager, scoreboard and video production, World Champion Boston Red Sox. He can be reached at* dkischel@redsox.com. *The opinions expressed are the author's alone.*

*For more information, contact Echolab at 978-262-0063 or visit* www.echolab.com.

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USER REPORT

# Canare Cables Cam Cart

**by Tim Armstrong**
**Owner/Operator**
**Cam Cart Video Assist**

CHICAGO

With today's advanced technology for on-site recording of commercials, movies, television content and music videos, directors can monitor a scene while shooting, as a viewer would see it, using digital video assist services. These are the products and services provided by Chicago-based Cam Cart Video Assist.

After working for another video assist company for three years, I decided to go into business for myself. In January 2000, I formed Cam Cart and we currently have three technicians, including myself.

*Canare cables maintain critical connections.*

We provide gear for instant monitoring, recording and playback of the camera's view for production teams working for everything from major motion picture studios to independent filmmakers to commercial producers.

Our service allows producers and directors to play back a take to review all elements of a shot immediately after shooting it. If all parties are satisfied with the shot, then they can move on to the next shot, saving time and money.

## CONNECTIONS

Because we are an on-site service provider, our gear is constantly on the move from one location to another, being installed and removed frequently, even multiple times a day.

We need to rely on our equipment to withstand the rigors of heavy use, repeated connection/disconnection, and general abuse.

I have been in this industry since 1992 and have tried virtually every cable and connector on the market, but now I only use Canare LV-61S cable with BCP-C4B connectors.

In my business, I can't afford to have cables or connectors fail, so top quality connectors and cables are my lifeline.

I prefer the Canare BNC cable because it is extremely soft and flexible, which slows damage caused by kinking; in addition, the BNC connectors are so easily field-reparable. If a cable sustains significant damage while in use, I can simply snip the connector off, strip the end of the cable and crimp on a new one in less than a minute.

If a cable fails while shooting, it could kill my service, so I need cables upon which I can rely. I can't have an

CANARE, PAGE 32

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## Canare

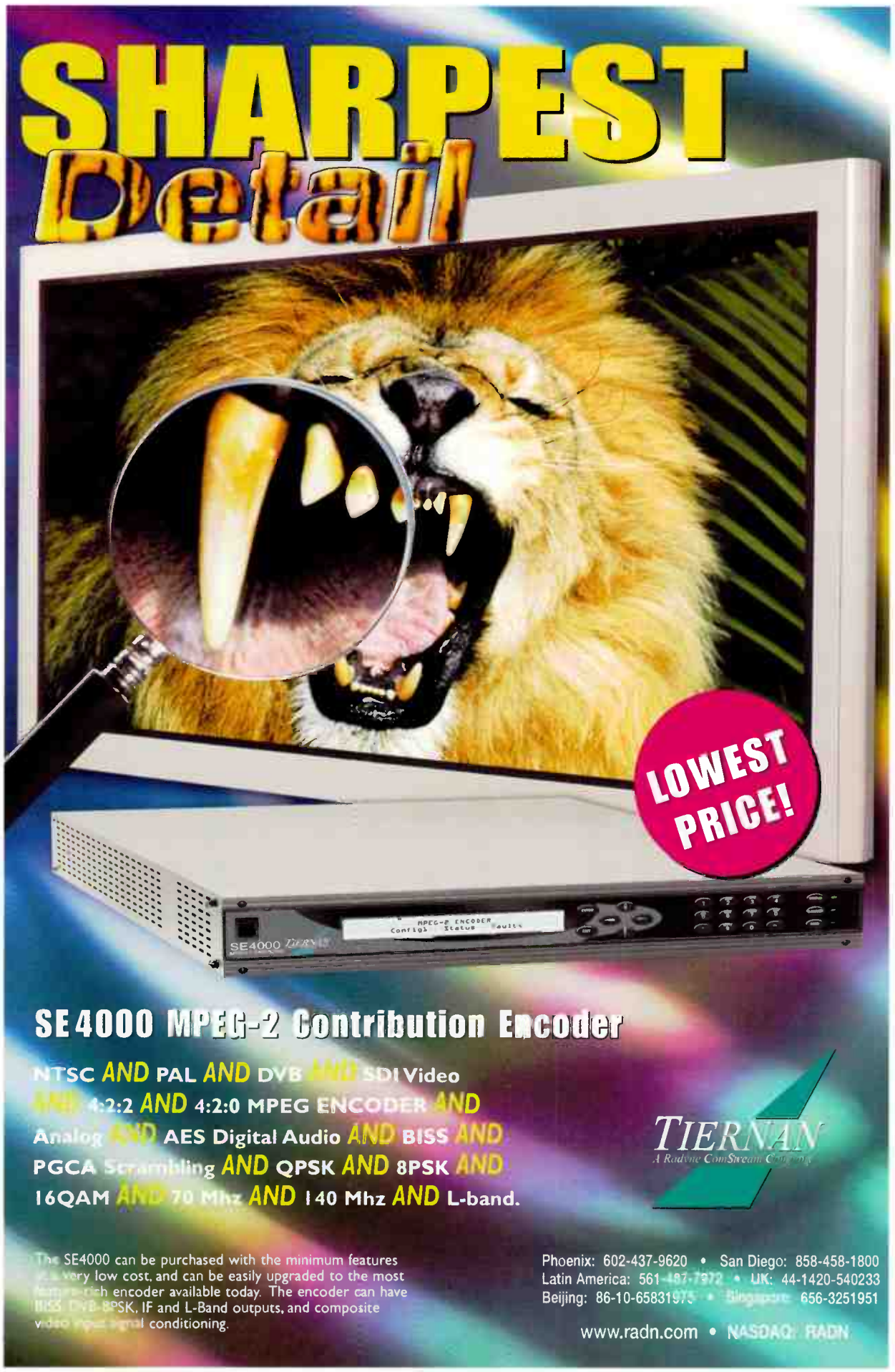
CONTINUED FROM PAGE 31

erratic or intermittent signal. My cables must provide a clear, consistent signal throughout the filming. The connectors need to maintain a solid connection between the cameras and the monitors. The LV-61S and BCP-C4B are rugged and reliable. I have great confidence in these and now use nothing else.

Keeping up with technology and following the course of where film is headed is keeping us busy right now. The last thing we want to worry about is the quality of our equipment connections. That's why we use Canare LV-61S cable and BCP-C4B connectors. ■

*Tim Armstrong is the owner/operator for Cam Cart Video Assist. He can be reached at* camcart@rcn.com. *The opinions expressed are the author's alone.*

*For more information contact Canare at 818-365-2446 or visit* www.canare.com.

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The Callisto-R digital production switcher by **Brick House Video** is an 8-input 270 Mb SDI video switcher/mixer with 10-bit digital precision throughout.

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*For more information, contact Brick House Video at 212-967-1774 or visit* www.brickhousevideo.com.

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World Radio History

USER REPORT

# Ross First Choice for WJLA-TV

**by Robert Forsyth**
**Director of Operations and Engineering**
**WJLA-TV**

**WASHINGTON**

WJLA-TV is one of the top-rated Nielsen television stations in the Washington, D.C. market. We are also one of the largest and most technically advanced local stations in broadcasting. As director of operations and engineering, I am responsible for the entire plant operations including ABC 7 and 24 hour news cable station NewsChannel 8.

Everyday WJLA-TV provides a source for traditional news and information programming to ABC 7 viewers and a non-traditional news and information source to our 24-hour cable service NewsChannel 8. Our viewers rely on our stations to give accurate and timely news information. We strive to give viewers the best possible programming in a production environment with the latest technology.

## PREPARING FOR HD

I manage the technology, support staff and the operators to minimize downtime and failures at our facility. We recently consolidated and designed our new, digital production facility in less than a year. We needed to find the right equipment to support our current standard digital needs while laying the groundwork for our future HD needs. Our facility has an excellent migration path to 100 percent operation in an HD environment.

As we began searching for a digital production switcher, the key factor was a good feature set, ease of use and training, and an easy SD to HDTV migration. As a technical director for four years, I never operated a Ross Switcher but chose to go with Ross to remain competitive and gain efficiencies in our workflow.

We chose the Ross Synergy 4 digital production switcher because of its upgrade path, ease of use, squeeze and tease WARP effects and custom controls. The Synergy 4 was the switcher that met all of our requirements. No other products could compare to the Synergy switcher in terms of feature set and price point.

When researching switchers we evaluated all of the professional products the market had to offer at the time. Taking into account all options and support, the Ross Synergy 4 digital production switcher was the best fit for the plant and workflow we're trying to achieve. Because we were working on an extremely tight time frame with less than a year, we only two months to research and make a decision. We selected the switcher with the easiest path going forward. The Ross choice of robustness and a less complicated future path made the most sense for our facility.

*Robert Forsyth and the Ross Video Synergy 4 digital production switcher.*

Ross' installation of the Synergy 4 was easy and on time and we have had no issues with the switcher. I can only give praise for the effectiveness it has brought to all of our workflow.

The Synergy 4 is used mainly for live news productions. The switcher is very easy to use and performs flawlessly on a day-to-day basis. The Synergy has improved the look of our productions and also has improved overall workflow and integration with other components, allowing a more creative presentation.

WJLA is ready to face its future production needs with its complete migration path to HDTV. If we had to do it all over again, I wouldn't change a thing. Ross would still be my first choice. The system works well with other vendor components and still gives us room for growth. ■

*Robert Forsyth is the director of operations and engineering for WJLA-TV in Washington, D.C. and he can be reached at* robertf@wjla.com. *The opinions expressed are the author's alone.*

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

USER REPORT

# For-A Switches TVB USA to Digital

**by Ringo Wong**
**Assistant Engineering Manager**
**TVB USA**

**NORWALK, CALIF.**

Like many broadcasters in the country, TVB USA is gradually replacing its analog equipment with digital. As part of this transition we recently installed two For-A VPS-400D digital video switchers—one for our news control room and one for our production control room—in our Norwalk, Calif. broadcast center. We have the full version of the switchers, with 12 inputs, including four analog component inputs and eight SDI inputs. Before the VPS-400D, we had a four-channel analog switcher. Although it served us well throughout the years, we knew that when the time came to make the transition to digital, we would need a switcher that could handle more complex operations. TVB USA provides 24/7 Cantonese- and Mandarin-language programming to thousands of viewers across the United States via five channels on DirecTV, as well as on local cable systems. Particularly for our various news programs, we are

*Ringo Wong uses the For-A 400D to handle a variety of special effects and graphics.*

FOR-A, PAGE 37

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USER REPORT

# Gefen Extends HD

**by Mark Stross**
**Executive Vice President of Technology**
**ANC Sports**

**PURCHASE, N.Y.**

ANC Sports Enterprises' recent installation of LED video fascia boards—displays that use lights and motion in signage tiled together—in San Diego's PETCO Park stadium illustrates how the high resolution of digital video can be transmitted using both VGA and DVI technologies. For mission-critical applications, DVI was essential, but we found that for less critical applications, like preview monitors, VGA was acceptable and would help curb some of the costs associated with extending digital video.

ANC uses LED video technology driven by our proprietary FasciaSOFT software to display advertising, statistics and fan prompts for professional sports teams, such as the San Diego Padres, at PETCO Park. ANC chose to work with Gefen to facilitate the setup of our control room equipment and the positioning of our operator in full view of the LED video boards within the ballpark. Due to distinct building layouts, the location of our servers and operators is always different and the distance between the equipment and the operator varies greatly.

*The Gefen extend-it DVI Splitter helps ANC keep its uncompressed, high resolution digital video in the digital domain .*

In some arenas, game time action is sent via live feeds more than 1,000 feet over Ethernet, USB and serial cables from the servers to the computers in the control room.

For PETCO Park, we created a method of system integration and extension that guarantees top quality digital video is sent from the FasciaSOFT servers to the monitors in the control room and the LED video boards using DVI, and to the control room operator preview monitors using VGA.

The installation included two analog monitors in the control room and one digital monitor that feeds the high definition video boards. To curb costs, the two analog monitors—which are used for previewing scenes only—are set up to receive analog video. Using a Gefen DVI to VGA converter, we downgrade the video from DVI to VGA for the long haul to the control room. Only the monitor that is feeding the video boards remains in the digital video (DVI) domain. Gefen's CAT5-based KVM extenders enable remote operation of the computerized video data and power the other software output monitors, keyboards and mice.

At the heart of the system are Gefen DVI Splitters, which are mission-critical. They serve to ensure that the uncompressed, high resolution of digital video remain in the digital domain from the computer's output to the boards. They take the digital video output and distribute it to feed the video fascia system that displays advertising and fan prompts from ANC's FasciaSOFT software for fans to see from any seat in the stadium. Without them, we would have no signal. With them, we have a method that ensures digital video is available, at even the longest distances, for all to see. ■

*Mark Stross is the executive vice president of technology for ANC Sports. He can be reached at* mstross@ancsports.com. *The opinions expressed are the author's alone.*

*For more information, contact Gefen at 818-884-6294 or visit* www.gefen.com.

USER REPORT

# Kahuna Hits the Big Screen

**by Les Goldberg**
**Founder and CEO**
**LMG**

**ORLANDO, FLA.**

As a provider of presentation services for product launches, expositions, press conferences, and numerous other live events LMG has been an early adopter ever since we launched our first office in 1984. Our mission is to provide clients with the best technology for what they want to accomplish, and in pursuing this goal we have brought many innovations to the presentation industry.

KAHUNA, PAGE 41

*LMG is using the Snell & Wilcox Kahuna switcher in its HD-1 production truck.*

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Pro-Bel has long been associated with the most reliable routing switchers in the industry. Twenty eight years of experience has ensured we know all there is to know about routing.

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World Radio History

## For-A

CONTINUED FROM PAGE 33

constantly receiving feeds from Hong Kong and as well as domestically. It's crucial that we have a switcher that can handle these multiple feeds smoothly and efficiently.

We use the VPS-400Ds to manage and process the local production sources in the Norwalk broadcast center. The output sources of our studio cameras and VTRs are analog component format. As an option, these signals can be directly connected to the VPS-400D switcher. We also use the switcher to produce and compile daily news and some commercial promotional events for the network.

Along with the VPS-400Ds, we purchased an FA-370 frame synchronizer from For-A. We use it to convert the analog component output of our analog devices to SDI as well as to stabilize and correct any timebase errors of the input source of the VPS-400D.

### STREAMLINING WORKFLOW

Both the FA-370 and VPS-400 handle their tasks quite rapidly and efficiently. In fact, there is very little operator effort needed. This has helped us streamline our production workflow a great deal, freeing up staff members to make what goes on in front of the camera the best possible experience for our viewers.

Another reason we like the VPS-400D is the wide variety of special effects and graphics capabilities it offers. Now more then ever, high-quality graphics are critical to running a successful television operation. The VPS-400 offers 80 user-demanded wipe patterns and up to 200 DVE patterns. It allows operators to create graphics using a program like Adobe Photoshop, and load them into the switcher. Our production crew loves this feature, and, according to audience feedback, our picture is clearer than before. With this switcher, we're able to create and generate the best quality image for our viewers.

At this point, the VPS-400Ds have been running in our broadcast center for a little more than 10 months. They play a vital role in our transition. ■

*Ringo Wong is the assistant engineering manager for TVB USA. He can be reached at* ringo.wong@tvbusa.com. *The opinions expressed are the author's alone.*

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

## BUYERS BRIEFS

The **Ikegami** HSS-300 line of production switchers was designed with the digital transition in mind. The switchers support HD/SD multifor-

mat and offer 1M/E, eight input/eight output to 4M/E, 96 input/64 output configurations to meet all types of system requirements.

Other features include a dual LCD touch screen and dual network capability. Also, an optional two-channel DVE can be connected. Up to two units can be applied to a single electronic frame, allowing a total of four-channel HD/SD DVE effects.

*For more information, contact Ikegami at 201-368-9171 or visit* www.ikegami.com.

World Radio History

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

# REFERENCE GUIDE

## VIDEO PATCH PANELS

| MANUFACTURER | MODEL | TYPE | DENSITY | BANDWIDTH | OPTIONS | SIZE | PRICE |
|---|---|---|---|---|---|---|---|
| **ADC**<br>800-726-4266<br>*www.adc.com* | PPI series<br>PPE series | Digital/analog, RF patching, normaling, straight through | 2 x 24, 2 x 26, 2 x 32, 3 x 32, 6 x 32 | 3 GHz | Weco standard size, Weco midsize, Musa standard size | 1, 1.5, 2, 3 and 4 RU | Call for pricing |
| **Audio Accessories**<br>603-446-3335<br>*www.patchbays.com* | 632D4P/SVJ2TX<br>32MV2/MVJ3T | Digital | 2 x 24, 2 x 26, 2 x 32 | 3 GHz | Other jacks available | 1.5, 2 and 4 RU | Call for pricing |
| **AVP Manufacturing**<br>800-481-2493<br>*www.avpmfg.com* | ASN7511; AMN75 | Digital Mini-Weco with monitor row | 3 x 32 | 3 GHz | Normalling, Terminations, Looping plugs | 2 RU | $1,321 |
| **Bittree**<br>800-500-8142<br>*www.bittree.com* | B96T-1MWTHD | Digital, Non-normaled, Mini-WECO | 2 x 32 | 3 GHz | 3 GHz mini-WECO Looping plugs | 1, 1.5 and 2 RU | Call for pricing |
| **Canare**<br>212-682-9661<br>*www.canare.com* | 32MD-ST-SC | Digital, mid-WECO | 32 across | 3 GHz | Standard BNC | 1, 1.5, 2 and 4 RU | $938 |
| **Switchcraft**<br>773-792-2700<br>*www.switchcraft.com* | MBPK175T | Analog or digital; Normalled or Non-normalled | 40 per row—16 video, 24 audio | DC to 3 GHz | Supplied with designation strips | 1 RU | Call for pricing |
| **Trompeter**<br>818-707-2020<br>www.trompeter.com | J314MWT mini-WEC patchjacks | Mini-WECO Digital | 32 across | DC to 3 GHz | Terminated and unterminated | 1 and 2 RU | $1,344 |

World Radio History

USER REPORT

# WDIV Breaks News with Sony

**by Jason Weintraub**
**Supervisor/Technical Director**
**WDIV-TV**

DETROIT

WDIV-TV, Channel 4 is an NBC affiliate based in Detroit. Because the majority of our live programming is news, accessibility to effects and recall speed rank high on our list of priorities. Those are just some of the factors that led me, as the technical director, and the rest of the technical staff at WDIV to choose Sony's DVS-9000 production switcher as the core of our video infrastructure.

In a breaking news environment, spontaneity is critical, and the use of this switcher has increased the overall speed and flexibility with which we can present our newscasts. We can recall complex setups more rapidly, which allows us to insert more graphics and effects. Also, if we want to incorporate an over-the-shoulder or DDR animation for breaking news stories, with the push of a single button we can recall these graphics instantly from the internal stillstore. Previously, we would have to set up several different devices using many keystrokes just to recall one effect. Now this can all be accomplished through this switcher using a single keystroke.

*Jason Weintraub uses the Sony DVS-9000 switcher as the core of WDIV's infrastructure.*

## FEATURES, FLEXIBILITY

We also find that transitions are much easier now, with the ability for instant recall of frame memories. This switcher helps to improve the overall on-air appearance and presentation of our newscasts.

We are operating in an environment where we can't predict what's going to happen next. We simply need to present the story quickly yet still have a high-production-quality feel.

Other features of the DVS-9000 that are attractive to WDIV include more inputs and keyers per M/E, impressive feature-set of internal DME's, improved file transfer times, server control, ease of operation and the overall flexibility of the panel. The bottom line is that the switcher enables us to produce a more advanced graphics presentation while at the same time providing a more user-friendly interface. ■

*Jason Weintraub is the supervisor/technical director for WDIV-TV and can be reached at* jasonw@wdiv.com. *The opinions expressed are the author's alone.*

*For more information contact Sony at 212- 833-6800 or visit* www.sony.com.

USER REPORT

# Daystar Connects with Gepco

**by Steve McNeal**
**Director of Engineering**
**Daystar Television Network**

DALLAS

Like grass in the summer, Daystar Television continues to grow. Started on a local cable station in Montgomery, Ala. in 1984, Daystar has expanded its operation several times, including moving to a 32,000-square-foot facility in 1997 and then an 86,000-square-foot facility in December 2003.

Today, Daystar is the second largest and fastest growing Christian television network in the world—broadcasting 24 hours a day, seven days a week to every country on the map. In fact, Daystar is already outgrowing its new headquarters.

As the director of engineering at Daystar for the past eight years, I've played an integral role in determining the equipment used throughout our studios to broadcast programs to viewers across the globe. While I closely scrutinize each equipment purchase, having used Gepco cables for nearly 20 years, there's never any question about what cable I'm going to order for use at our facility. With its comprehensive line of cables and cable accessories, I can manage most of Daystar's cabling needs with one simple phone call to Gepco.

*The central equipment rack room at Daystar Television's broadcast studio*

Headquartered in the greater Dallas/Fort Worth Metroplex, Daystar operates 40 television stations in major markets across the United States, with production facilities in Dallas, Houston, Denver, Atlanta and Ashland, Ky.

ECHOLAB, PAGE 42

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USER REPORT

# Grass Valley Switches Lyon to HD

**by Bob Lyon**
**President**
**Lyon Video**

COLUMBUS, OHIO

At Lyon Video, when we choose a video production switcher, we take into account the technologies that will help us achieve our business and technical goals. The Grass Valley Kalypso switcher has helped us meet both.

As the center of a mobile production truck's digital infrastructure, the switcher handles a multitude of signal types, prebuilt graphics and other sources, and then combines them into a seamless production. That's why our clients, including ABC Sports, ESPN HD and Fox Sports Net, all come back to us. They know we're providing the best in technology to get the project finished on time and on budget.

We built our new Mobile Unit 6HD (MU-6) HD truck with the best technology that the industry has to offer. The MU-6 is a multiformat expando unit, with a full complement of Grass Valley production equipment. This includes 12 Grass Valley LDK 6000 mk II WorldCam HD cameras, an LDK 6200 HD Super SloMo camera, Trinix video routing switcher and Concerto Series audio router.

## HD ON WHEELS

When we decided to build our first all-high-definition mobile unit last year, we knew that the Grass Valley Kalypso HD Video Production Center was the right choice. We now have four mobile production units in our fleet that all include Grass Valley digital production switchers; MU-3 and MU-5 have Kalypso SD switchers—and MU-4 includes the Grass Valley 3000 model. We are extremely pleased with their performance.

*The Grass Valley Kalypso HD switcher features up to 90 inputs.*

We like the fact that the Kalypso HD switcher features up to 90 inputs; 4 ME channels (four keyers per M/E), which enable us to create multilayered animations and effects on-site with ease; and that it can be used to handle either 720p or 1080i productions, even in 24p. It also includes support for SDI and analog signals, as we still use a considerable amount of SDI and analog sources and destinations in our daily productions.

This flexibility is important to us, as it helps us to service a variety of clients. We can also create an SD/HD simulcast with the Kalypso. The circuitry fits in a 15 RU frame, which saves us space, heat generation, power consumption and weight.

There's also an internal, eight-output animation still-store system, six video/key channels of internal digital video effects; a programmable clean-feed system, and the ability to control the switcher remotely via the Grass Valley NetCentral SNMP-based facility-monitoring software.

As our clients ask for more HD content, we're working hard to satisfy that demand. That's why, for our new MU-6, it was important to select equipment that would carry us through the next few years, when we're certain all production will be commonly captured in some type of HD format.

Staying with our strategy of the overall system, the new truck also features a highly flexible virtual monitor wall—made up of eight HD plasma screens (totaling 35 feet long)—and an all-digital core. It includes a self-contained audio, graphics and post-production area on board that does not require a "B-Unit" (as most other HD trucks do).

The best part of the new truck's design is that our clients love it. Dave Ashbrock, Production Manger at WXIX-TV [owned by Raycomm Cincinnati] used it for HD telecasts of University of Cincinnati College Basketball games this past winter.

The truck, which was displayed at NAB2005, officially hit the road in December and has already been used to cover a number of live college basketball (NCAA playoffs) and hockey (NCAA "Frozen Four") games in HD. The truck has also helped televise the NBA's Detroit Pistons for Palace Entertainment and will cover a number of Cincinnati Reds and Cleveland Indians baseball games for in HD throughout the current Major League Baseball season. ■

*Bob Lyon is the president of Lyon Video and can be reached at* rlyon@lyonvideo.com.

*For more information, contact Grass Valley at 503-526-8200 or visit* www.grassvalley.com.

# BUYERS BRIEF

The PixMaster by **Broadcast Pix** is at the heart of the new version of software for the Broadcast Pix Studio integrated live video production system.

As an integrated pre-production environment, the PixMaster simplifies the creation of multiplayer video. For example, it enables a producer to click on a switcher's still or graphic stores to reveal its content library and then click on any element in it Inscriber for editing.

With PixMaster, clips and graphics can be set to automatically start as they go on-air and cut the next one as they come off air. The software is free for anyone to learn live production. It also can be used by Broadcast Pix customers to do pre-production off-line.

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

World Radio History

# Kahuna

CONTINUED FROM PAGE 36

Our latest innovation is "HD-1," a multiformat high-definition truck-in-a-box, which we debuted earlier this year during a pharmaceutical company product launch at the World Congress Center in Atlanta. "HD-1" is engineered around the Snell & Wilcox Kahuna multi-format switcher, which can integrate HD and SD sources within a single mainframe and to integrate SD material into HD productions without the need for upconversion.

## WOWING AUDIENCES IN HD

As companies in the presentation and staging industry have begun to round the HD curve, we've learned that HD images not only look cleaner on big-screen displays than SD images, but they also make a stronger impression on the viewer. Though the benefits of HD presentation are clear, the actual move to HD represents a significant cost and investment. Determining the right path to HD is critical. With the Kahuna on board our new HD flypack, I knew we'd have the ability to bring HD to our clients without compromise.

I first saw the Kahuna at NAB2004, and I figured out very quickly what this would mean for LMG in terms of presentations and live events, such as product launches, where clients really need to "wow" audiences. The Kahuna enables the user to integrate all formats, SD and HD, and all aspect ratios, including 4:3 and 16:9, and deliver them to HD video displays while simultaneously recording the feed in SD.

Prior to our introduction of "HD-1," SD systems would have to feed a graphics switcher-type unit that could take computer graphics or HD and scale them, or feed SD to screens and scale down the computer images. There were always limitations. Now we ask clients to produce computer graphics at 1600x1200, and we convert them to HD-SDI (if the computer doesn't already have HD-SDI output) and feed it through the system as another source.

When we show "HD-1" and its Kahuna to our customers, it has a big wow factor. It produces phenomenal-looking computer images, and the video images off of our HD cameras are terrific. The Kahuna's FormatFusion technology lets operators integrate any SD material—handheld camera feeds, graphics or archive footage—into HD productions without compromise.

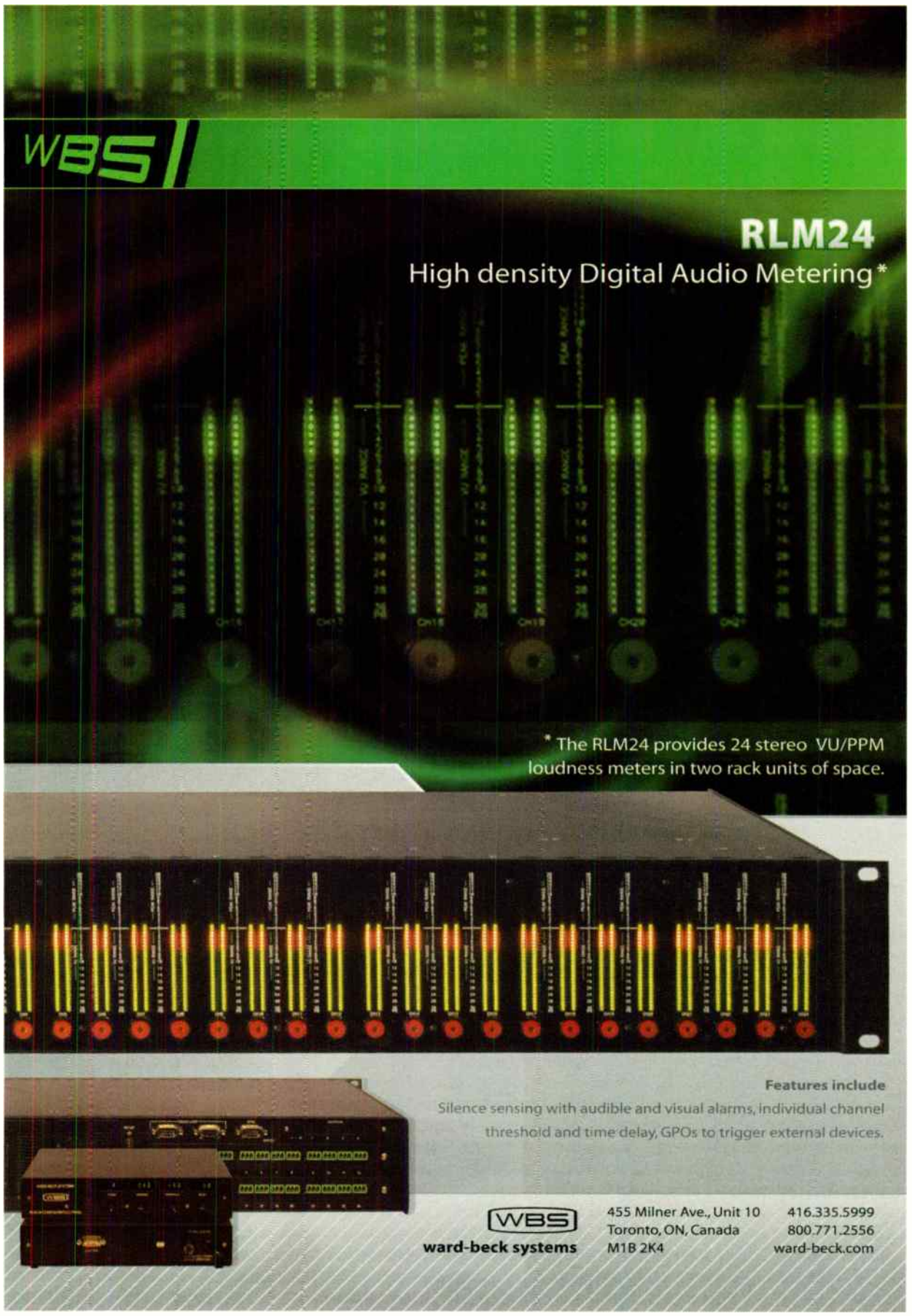
Because we do cameras, switching, display and projection all in HD, we're able to provide an HD digital link from camera acquisition all the way through to the projector. Operators can accommodate graphics and feeds as they come with speed and flexibility. In terms of signal flow, we get a better quality signal without delay because the Kahuna has eliminated the need to up- and downconvert outside the system.

We've been working with the 3-M/E version of the Snell & Wilcox switcher, and we'll add the fourth M/E controlled separately by a side car panel to enable one operator to manage live screen feeds while a second looks after line cuts and records unique to the show. We anticipate that this added degree of flexibility will enhance both the look and quality of visual presentations.

We built "HD-1" around the Kahuna in months, at the same time training operators to use the system. Our chief engineer, Kevin McCabe and his engineering team helped us through the learning curve successfully. We've used the system on quite a few shows already, and we're very excited with its performance. As far as I'm concerned, the Kahuna-based system has already become the new de facto standard for this industry. ■

*Les Goldberg is the CEO/president of LMG and can be reached at* les.goldberg@lmg.net.

*For more information, contact Snell & Wilcox at 212-481-2416 or visit* www.snellwilcox.com.






World Radio History

## Daystar

CONTINUED FROM PAGE 39

### CABLES, ACCESSORIES

With a potential audience of more than 128 million in the United States alone, ensuring the proper distribution for broadcast begins with selecting dependable, flexible cables that meet the required electrical performance.

We use Gepco for audio, video, triax, control and intercom—pretty much everything except data and telephone connection.

I'd estimate that we have nearly 100 miles of Gepco cables installed throughout our headquarters and have never had a problem with them.

Having expanded twice in the past decade, we needed a cable manufacturer and supplier who could meet the demands of the growing business.

My familiarity with Gepco's outstanding reliability, competitive pricing and peerless service has enabled me to devote most of my attention to meeting the additional technology needs of the company's two studios, two production control rooms, four video editing suites, two audio editing suites and network operations center.

Under the leadership and guidance of its founders, Marcus and Joni Lamb, Daystar has embraced its popularity and has successfully met the challenges of building a flourishing network.

As Daystar continues to grow, we will work closely with our equipment suppliers to make certain we can meet the increased demands of our audience with quality productions captured and delivered through state-of-the-art technology products such as Gepco cables. ■

*Steve McNeal is the director of engineering for Daystar Television Network. He can be reached at* steve.mcneal@daystar.com. *The opinions expressed are the author's alone.*

*For more information, contact Gepco at 800-966-0069 or* visit www.gepco.com.

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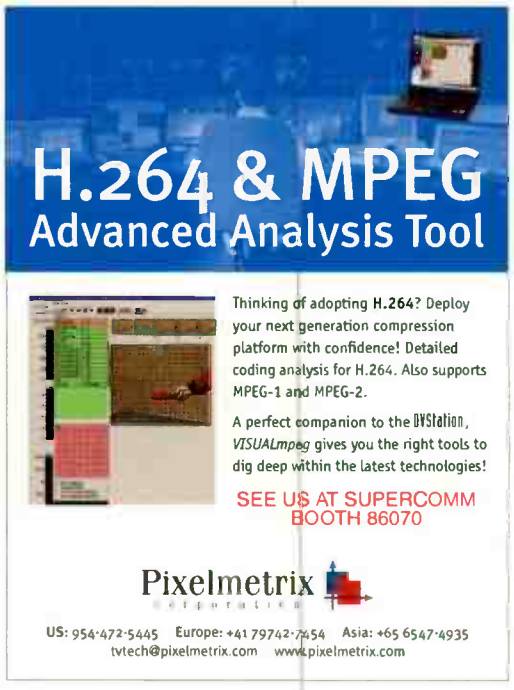

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COMPANY PROFILE

# Fischer Connectors Links to the Future

by Lauren Evoy Davis

APPLES, SWITZERLAND

Fischer Connectors has been keeping companies plugged in for more than 50 years with its line of metal and plastic shell connectors.

Founded in 1954 by Walter Werner Fischer, the company provides its products to the medical, satellite and terrestrial markets worldwide. Fischer's son, Peter is still actively involved in the company. Its products also can be found in the instrumentation, computer, aerospace, petroleum, nuclear and geophysical industries. Now Fischer is expanding its focus on the American broadcast market. The company operates in seven territories within the United States with a regional sales manager in each territory, plus a stocking agent in Canada.

## SILVER BULLET

One of Fischer's first products was a sealed push/pull connector that the company continues to sell today as one of its main products.

Configurations of the Fischer connectors include coaxial, triaxial, multipole, mixed, high voltage and thermocouple in standard or custom designs.

The American version of the broadcast triax connector line was recently introduced to the U.S. market and is expected to complement the 1051 triax connector that is already selling very well in the international broadcast market.

"In the U.S. broadcast realm, Fischer is not as well-known but it is the standard in the rest of the world," said Fischer President and General Manager Eric Fage.

The metric system-based cables and the existing U.S.-based competition have prevented the company's products from being widely adopted in the American broadcast realm, but Fage sees that rapidly changing, especially due to the successful launch of its 1053 Series of fiber-optic connectors for HDTV cameras at NAB2005.

Developed in an exclusive deal with Hickory, N.C.-based Corning Cable Systems, the 1053 series combines Fischer's broadcast triax connectors with the Corning UniCam "No Epoxy - No Polish" fiber-optic contacts.

"We put their silver bullet into our golden gun," Fage said.

The SMPTE signal-compliant connectors use two single-mode fiber contacts, two high voltage contacts and two low voltage contacts and are designed to be used by most camera manufacturers, mobile trucks, production centers and broadcast studios.

*Fischer Connectors launched its 1053 HDTV Series of fiber-optic camera connectors at NAB2005.*

Sony and Kuwait TV have purchased the company's 1053 series of connectors and are many more deals in the works, according to Fage.

## CONNECT TO THE FUTURE

Fage sees a bright future for the company, due in part to the high-definition revolution.

"We're a link in the chain that's been missing for HDTV," he said.

Fage plans to continue making products that meet the needs of Fischer's customers and he keeps the door opened for suggestions from users.

"From a broadcast standpoint, we're hoping that customers will come to us with their ideas," he said.

Additionally, Fage continues to see opportunities in every corner of the world.

"Fischer has grown from a small company in Switzerland into an international company that understands that it needs to be global," Fage said.

He likened the company's products to a high-end automobile that he expects targeted markets to trade up to once the Fischer Connectors brand becomes better known in the broadcast industry.

"It's like they're [potential customers] driving a Ford but we're going to give them a BMW," he said of the Fischer's line of high-end connectors.

The company's marketing strategy also will focus on users of the 1053 HDTV connector. Fage, a former engineer and user of the Fischer line of products himself, views the users as the target market.

"We expect to sell from the bottom up," he said. ■

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The single BNC to video plugs allows a BNC output or input sources such as a camera or a monitor to be patched into a video jack to allow equipment to tap to or from the signal chain.

*For more information, contact Switchcraft at 773-792-2700 or visit* www.switchcraft.com.



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**Panasonic AJ-HDC20a** hi-def DVCPRO w/lens, $38500; Panasonic AG-DVC200 w/19x Fujinon lens, $5495; 3 Sony DXC-D30 studio config, $9500/ea; Panasonic DVX-100a, $3295; Sony DSR-300a camcorder pkg, $6495. 818-788-4700 or www.tvprogear.com.

**Sony DSR-PF150**, xlnt, w/all standard access, $2250; wide & tele aux lens avail, also Century Optics anamorphic, will trade for or into loaded Mac laptop/desktop dual G5. Bruce, 406-542-2595 or bbbacres@bresnan.net.

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**Sony UVW-1800**, lw hrs $5000; Sony PVW-2800, from $3500; Sony BVW-70 from $3500; Sony BVW-60,from $1250; Sony DSR-1500A, new, $5150; Sony DSR-45, new, $3995; Panasonic AJ-D950 DVCPRO 50 rcdr, from $6950; Panasonic AJ-D850 DVCPRO 50 rcdr, $3950; Panasonic AJ-D750 DVCPRO 50 rcdr from $3950; Panasonic AJ-D230H DVCPRO rcdr from $1695; Sony VO 9850 w/timecode, $1200; Sony VO 9800 w/timecode, $1000; Accom WSD Xtreme, $3500. 818-788-4700 or www.tvprogear.com.

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# Business News

## Leitch Updates Game Plan

TORONTO

Leitch Technology announced in mid-May it would cut 75 to 100 staff and outsource some of the company's activities in Toronto as part of its overall effort to reduce operating costs.

The company estimated the charges associated with the restructuring would be about $3 million, which would be recorded as a one-time charge in Q1, ending July 31, 2005.

Leitch also announced that it would add about 15 staff to the customer support unit, and that "some" of those jobs would be in the Toronto customer support center.

Shares of Leitch made a slight surge on the Canadian boards following the announcement, but quickly backtracked to around $9.20 Canadian.

Leitch has recently made sales to NBC for the network's digital Weather Plus service and to BSkyB Broadcasting, and purchased Inscriber Technology earlier this year. ■

## Broadcast Tech Companies Hire New Execs

SAN JOSE & PALO ALTO, CALIF.

Two Silicon Valley companies have appointed new chief executives.

Prime Image recently appointed Peter J. Jegou as its new CEO, and Euphonix tapped Martin Kloiber as chairman of the board and chief technology officer.

At Euphonix, Kloiber said he would emphasize the importance of the company's technology and form strategic alliances. As the former executive vice president of technology, he was involved in the debut of System 5-MC and the MC products and in forming alliances with Steinberg and Merging Technologies.

Kloiber holds a degree in music and electronics, which served him well as an independent music producer and engineer starting in 1984 when he worked for Austrian broadcaster ORF.

He became familiar with Euphonix in 1991 when he was chief engineer and manager for Soundproof Studios, a Los Angeles facility he co-founded.

Kloiber joined Euphonix in 2000 as executive vice president of technology, and became a member of the board in 2002.

For Prime Image, Jegou's goals include setting the new corporate direction for profitable growth and developing strategic partnerships needed to meeting new corporate objectives.

"We look forward to continuing and building on existing relationships, while developing the strategic partnerships needed to meet our new corporate objectives, and to evolve Prime Image to what their name implies," he said. ■

## AZCAR Acquires Pro-Com Systems

MARKHAM, ONTARIO

Setting its sights on the high-end imaging market for display, medicine and videoconferencing, systems integrator AZCAR Technologies has acquired the assets and intellectual property of Pro-Com Systems.

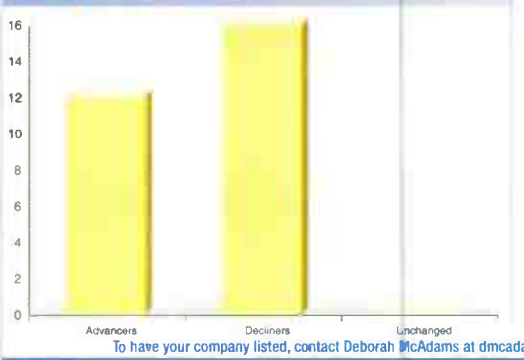
AZCAR Procom will operate out of AZCAR's Canonsburg, Pa. office.

"This acquisition dovetails nicely with AZCAR's overall strategic plan for growing its media technologies and related business," said Stephen Pumple, president/CEO of AZCAR.

Bill Frazier, AZCAR's vice president of sales said that with the acquisition AZCAR gains immediate penetration into video-conferencing, high-end video production and display systems, medical imaging and telemedicine markets.

Terms of the deal were not disclosed. Earlier, Procom sold the intellectual property rights and certain related assets of its NetFORCE disk-based networked data storage appliances business to Sun Microsystems for approximately $50 million in cash. ■

## WIN-LOSE RATIO




**TOP ADVANCERS BROADCAST STOCKS**
(May 6 - May 20)

Emmis + 15.76%
Sinclair + 6.52%

**TOP DECLINERS BROADCAST STOCKS**
(May 6 - May 20)

Paxson - 22.09%
Lin TV - 12.15%

**TOP ADVANCERS TV STOCKS**
(May 6 - May 20)

Harmonic + 8.64%
LSI Logic + 8.64%

**TOP DECLINERS TV STOCKS**
(May 6 - May 20)

SeaChange - 9.70%
Ciprico - 9.59%

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

### TV Tech STOCKS as of May 20

| Company Name | 52-Week Range | May 6 | May 20 | % Change |
|---|---|---|---|---|
| Avid | 40.90 - 68.35 | 53.96 | 53.52 | -0.82% |
| Belden | 16.02 - 24.59 | 18.58 | 19.04 | 2.48% |
| Ciprico | 3.15 - 4.90 | 4.69 | 4.24 | -9.59% |
| Harmonic | 4.86 - 12.40 | 5.79 | 6.29 | 8.64% |
| Harris | 21.60 - 35 | 29.2 | 29.97 | 2.64% |
| Leitch | 6.53 - 11.2 | 9.4 | 9.17 | -2.45% |
| LSI Logic | 4.01 - 8.23 | 5.67 | 6.16 | 8.64% |
| Pinnacle | 3.25 - 7.50 | 5.51 | 5.49 | -0.36% |
| Sci. Atlanta | 24.61 - 36.06 | 31.23 | 33.06 | 5.86% |
| SeaChange | 7.29 - 19.75 | 8.97 | 8.1 | -9.70% |
| Tektronix | 20.97 - 35.00 | 22.51 | 22.38 | -0.58% |

### Broadcast STOCKS as of May 20

| Company Name | 52-Week Range | May 6 | May 20 | % Change |
|---|---|---|---|---|
| Acme | 3.51 - 8.06 | 4 | 3.84 | -4.00% |
| Belo | 18.00 - 29.62 | 23.74 | 24.08 | 1.43% |
| Emmis | 15.29 - 22.44 | 15.42 | 17.85 | 15.76% |
| Entravision | 6.85 - 9.11 | 7.55 | 7.5 | -0.66% |
| Fisher | 45.02 - 52.60 | 47.98 | 50.25 | 4.73% |
| Gray | 11.20 - 15.74 | 12.96 | 12.16 | -6.17% |
| Hearst Argyle | 22.57 - 26.75 | 24.92 | 24.95 | 0.12% |
| Nexstar | 4.84 - 11.84 | 5.68 | 4.99 | -12.15% |
| Lin TV | 14.34 - 22.99 | 15.94 | 14.9 | -6.52% |
| Paxson | 0.48 - 3.81 | 0.86 | 0.67 | -22.09% |
| Sinclair | 6.12 - 11.52 | 7.97 | 8.49 | 6.52% |
| Liberty | 34.32 - 48 | 36.53 | 37.58 | 2.87% |
| Univision | 25.80 - 35.22 | 27.18 | 26.69 | -1.80% |
| Young | 5.18 - 14.81 | 6.17 | 5.44 | -11.83% |
| Tribune | 36.50 - 48.97 | 38.4 | 36.57 | -4.77% |
| Meredith | 44.51 - 55.94 | 47.02 | 47.5 | 1.02% |
| EW Scripps | 44.73 - 54.52 | 51.26 | 51.17 | -0.18% |

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