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WHAT'S INSIDE

Telcos Flex Muscle on Hill

NAB survey sheds light on use of unlicensed devices in white spaces

by Deborah D. McAdams

WASHINGTON

The high-profile aspects of telecom reform continued to overshadow the element that could wreak havoc in the broadcast industry early this month. Opening unused channels in the TV spectrum took a backseat to the double marquee issues of video franchising and network neutrality.

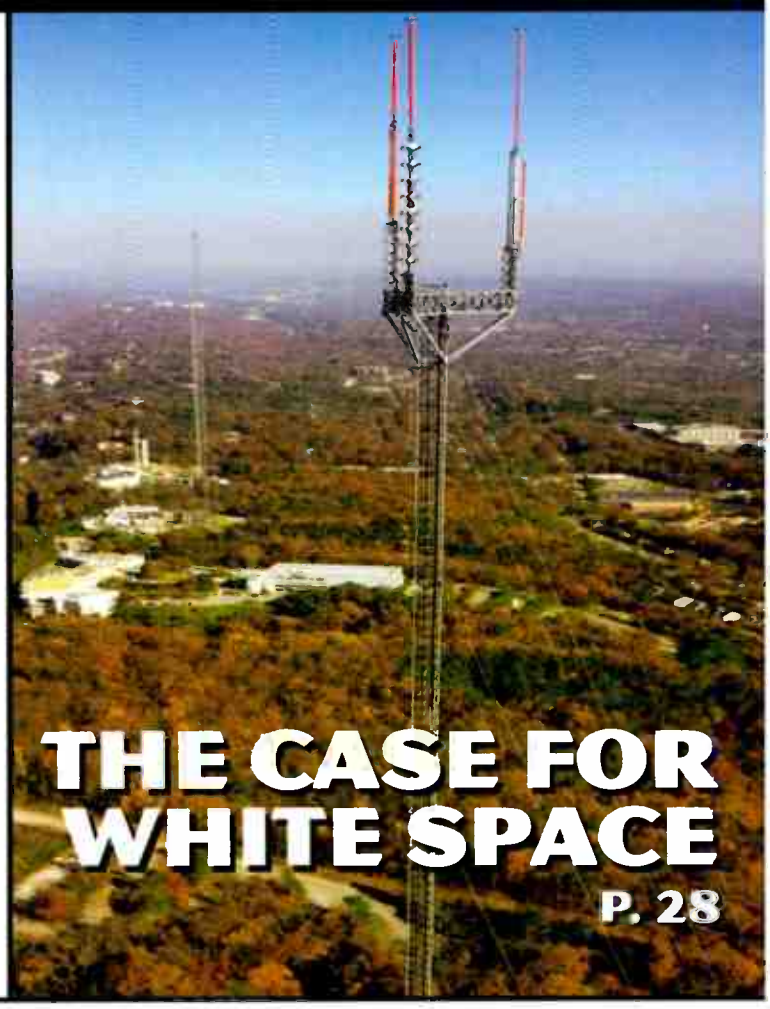
The latter of the two held up telecom reform in the Senate, while the former remained the impetus.

Verizon has been particularly aggressive about pushing for nationwide video franchising rather than cutting deals with local governments like cable operators do. The telcos have testified it would take them decades to hammer out deals with individual municipalities, which are often accused of making unreasonable stipulations.

By way of illustration, a lawsuit over video franchising broke out in an upscale Washington, D.C. bedroom community over the July 4th Congressional recess. Verizon sued Montgomery County, Md. in U.S. District Court over what the telco termed "numerous unlawful demands that have stymied the negotiations."

Among other things, Verizon claimed the county asked for 65

TELCOS, PAGE 8



Pappas Promotes Citizen Journalism

Station group launches CommunityCorrespondent.com

by Susan Ashworth

VISALIA, CALIF.

Pappas Telecasting has taken the concept of community journalism to a new level with the launch of its CommunityCorrespondent.com online initiative.

The program, which debuted at Nebraska Television in June, is designed to put the power of the media in the hands of the citizens of Nebraska.

NEWS BY POPULAR VOTE

The program allows any local individual to load images or post a news story to the CommunityCorrespondent.com Web site. These aren't the typical newsroom editor-approved stories seen on the evening news. The Community Correspondent site allows users themselves determine what is news by automatically publishing content from cell phones, e-mail and the Web site.

"With a click of a cell phone camera and by hitting the 'send' button, any user can instantly relay news to the site, thereby determining in that moment what is news," said Rosemary Danon, vice president of online and new media for Pappas Telecasting and a project leader withCommunity Correspondent.com.

There's a deep breadth of knowledge about a community, say developers of Community

PAPPAS, PAGE 12

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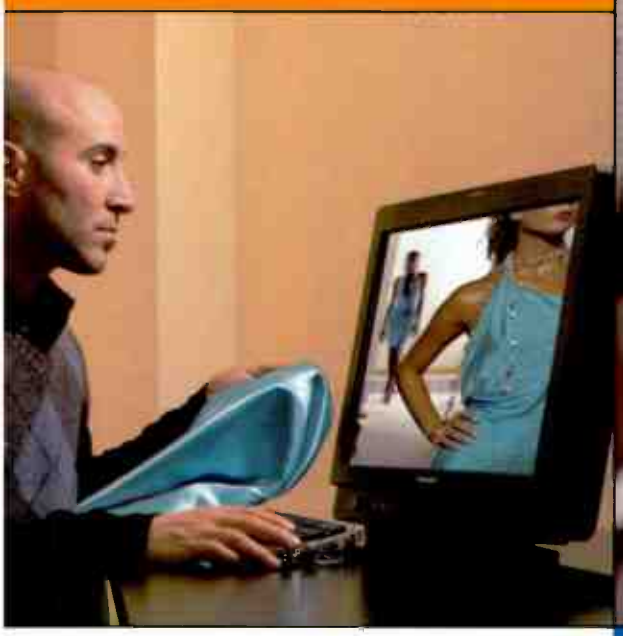

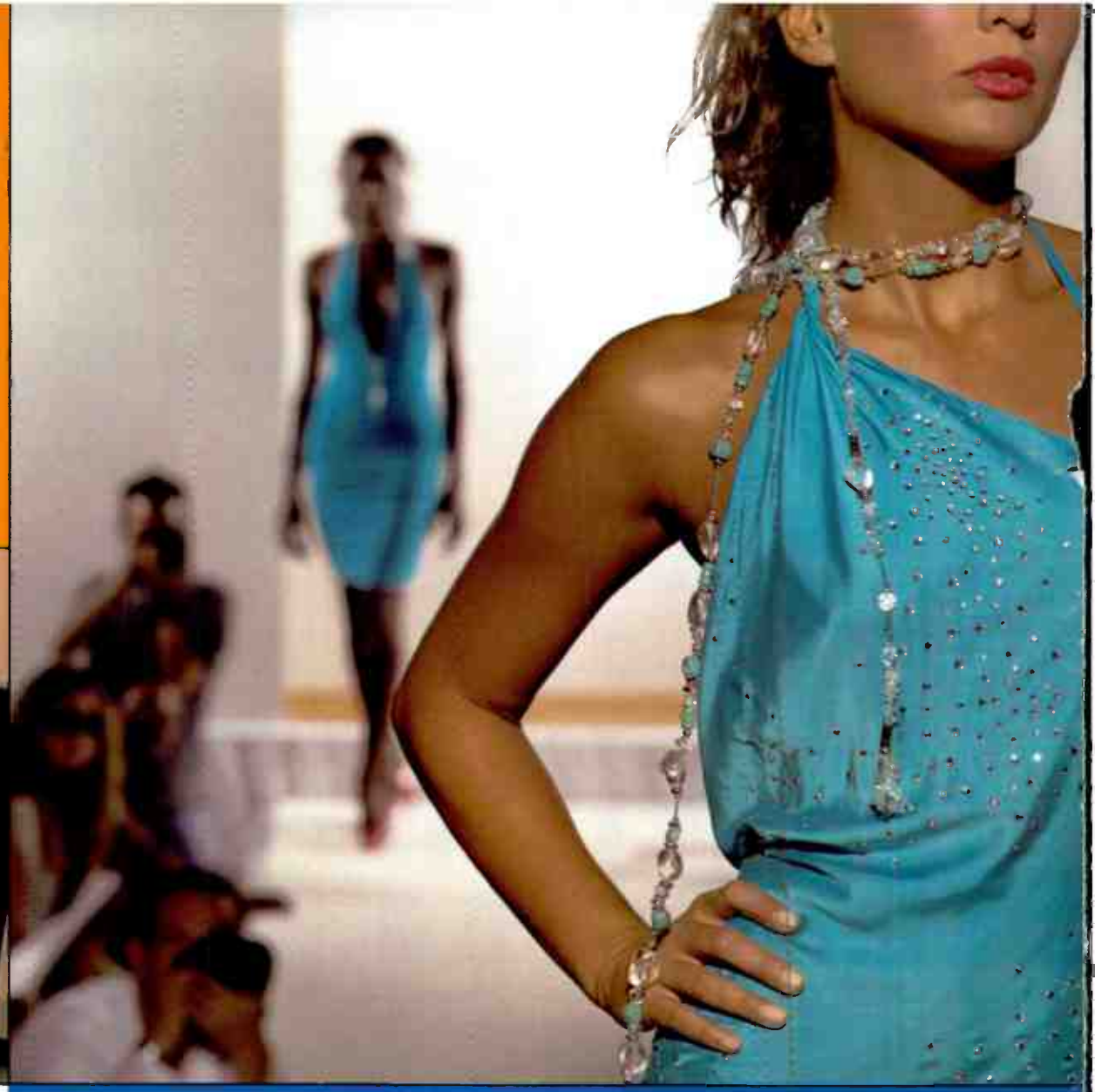

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IN THIS ISSUE

P.16
Sports and Surround Sound

P.36
Back to the 50s

P.38
Routing Switchers & Master Control

NEWS

FEATURES

BUYERS GUIDE

EQUIPMENT

P.18
Digitizing videotape

CONTRIBUTING WRITERS

Charles W. Rhodes

Digital TV

I have recently written about the hot topic of sharing broadcast spectrum with unlicensed devices.

There are those you believe that the television broadcast spectrum is being under-utilized, since there are channels with nothing...

p. 28

Jay Ankeney

Focus on Editing

Now that the dust has settled from the changes in some edit system ownerships over the past year, it's time to track the new topography of the NLE landscape.

The final acquisition of Media 100's assets by Boris FX was announced only last October, but...

p. 30

Gary Arlen

Tuning In

Consumers are fickle, and electronics shoppers are poster children for that problem your mom warned you about: "Your eyes are bigger than your stomach." Now, University of Maryland business school researchers have quantified the problem...

p. 34

FROM THE MANAGING EDITOR

A Eulogy for Free TV

The baloney that passes for information in Washington, D.C. has become so fallacious that even bass fishermen, pro wrestlers and criminal defense lawyers are stunned by it. OK, I made that up, but I presume most readers will catch the irony. I'm not so sure the same can be said about the telcoTV campaign hilariously tagged "TV Freedom."

Perhaps you've seen the TV Freedom ad with an entire family gathered around *a single TV set*. If that weren't improbable enough, the matriarch turns to the camera after a fresh dose of Restasis and relates how "some of us don't even have a choice" about TV. It's enough to make the average citizen get up and go to the kitchen for something they forget by the time they get there. It's also enough to make the average politician eradicate decades of video franchising law, even though the TV Freedom family could stick a Yagi or a dish on the house. But reality isn't the point in Washington, D.C.; perception is.

TV Freedom is about creating the perception that the citizens of the United States, (referred to in D.C. as "consumers,") are enslaved by cable TV. And since we all know the survival of this great nation rests on access to programs like "COPS," an alternative to cable is imperative. (*TV Freedom cannot be held responsible for pesky facts like the availability of over-the-air and DBS television. May cause excessive campaign donations.*)

Lawmakers justify their TV Freedom legislation by saying it provides competition to cable, all while they go about killing free TV. The same bill in the Senate that gives the telcos a big smooch contains legislation that opens up all unoccupied TV channels for unlicensed devices.

The guys pushing unlicensed devices—Microsoft and Intel—say their gizmos will be able to sniff out unused channels. And there's no reason not to believe two gigantic mega corporations that have convinced Congress to *give* them the "beachfront" spectrum broadcasters have supposedly been squatting on for years. Never mind that the DTV transition was about freeing up spectrum to generate more revenue. Let us not dwell upon annoying facts.

The real problem is the assumption that these devices always will work perfectly, just as the Window operating system never needs patches, fixes, updates, upgrades, upbraids and regular decryption by IT people who now enjoy the status of professional athletes. So, for example, if I'm Jane Doe in 4C and my TV reception goes haywire, I will likely blame the TV or the converter box. I am quite unlikely to consider that it might be the guy in 5D using a remote control to set the thermostat because he can't be bothered to walk 15 feet.

Then again, free TV is not an inalienable right. It is, however (sadly or otherwise) the one medium that's provided more commonality to more households in this diverse country than any other has, or ever will again. But hey, at least we'll have TV Freedom.

Deborah D. McAdams
Managing Editor
dmcadams@imaspub.com

LETTERS

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

Format Fatigue

Dear Editor:

The current state of affairs regarding consumers and how they are viewed by both the Hollywood studios and the Consumer Electronics Association is appalling. It seems that they both view consumers as criminals and pirates. The "us and them" mentality has gone beyond boring. Their attitude that consumers are a bottomless pit of money is also getting very tiresome. A move by the Consumer Electronics Association towards providing what the customer really wants would be most refreshing.

We have an HD-ready TV that has a DVI-D input; the DVI-D input is already occupied by the LG ATSC HDTV tuner. The TV's component input is being occupied by the standard-def DVD player. What I am really looking for is a cost-effective, reliable way to time-shift and archive for later viewing DTV/HD off-air content. I would want to view the content both on my HDTV and the other standard-def TV's in the house.

A Channels-Plus TV distribution system is in use today for distribution of analog A/V content throughout the house. The LG tuner's analog output is connected to my Panasonic standard-def hard drive/DVD recorder (purchased from Crutchfield). I do get it, that this a standard-def recording of the HD broadcast.

In addition, the LG tuner does not have any timer feature (unlike my SAT receiver) to change channels. But at least this still gives me the viewing versatility I have become accustomed to. I am not really interested in going back to klutzy tape formats; hard drive and DVD viewing has been much more convenient.

However, since the industry seems to be going to the DVI/HDMI standard, where is the support for this? Most HDTV's only provide one DVI/HDMI input. Equipment sold with DVI/HDMI outputs don't even provide pass-thru support for multiple pieces of equipment with DVI/HDMI outputs. DVI/HDMI switch boxes or surround receiver choices also seem scarce.

My occupation is technical in nature. I am a graduate from the Milwaukee School Of Engineering. My hobby interests have always included electronics, multimedia and photography, so I do consider myself some-what of an enthusiast when it comes to the home entertainment industry. But in recent years, if the Hollywood studio's and Consumer Electronics Association's goal has been to frustrate and confuse "us" consumers—bravo—they have succeeded.

Most people I interface with (this includes other technical and media people) don't have a clue as to what is going on today in the industry. More importantly, they are quite satisfied with viewing standard-def DVDs and ghosty/grainy broadcast/cable shows on their standard-def TVs. At least that is something that works that they understand and can afford. I am still weary from the Beta-VHS wars. I think I will sit this one out and let others waste their hard-earned money.

Alan Wagner
Waukesha, Wis.

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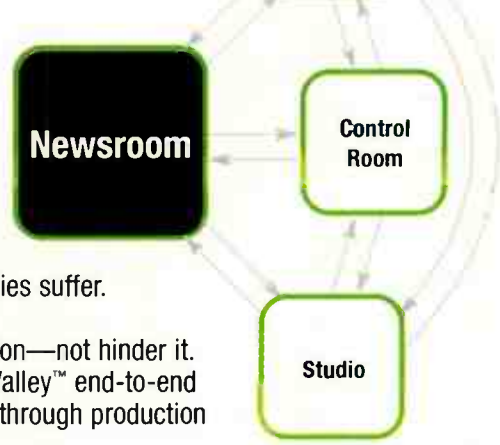

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Miranda Co-Founder Killed in Accident

MONTREAL

Christian Tremblay, a co-founder of Miranda Technologies died in a road accident June 29.

Described as the "gentleman" of broadcast by Qui Fait Quoi magazine, Tremblay helped co-found Miranda Technologies and became president of the company in 1989. He was the winner of the Entrepreneur Grand Prix award in 1998 and recipient of numerous business awards for Miranda Technologies over the years. In 2003, Tremblay founded Algolith, a spinoff of Miranda Technologies' algorithmic group, implementing its advanced algorithms in a variety of format conversion and pre/post-processing applications.

"Christian will be remembered by his current and former colleagues, and many throughout the broadcast industry, for his humanity, wisdom and drive. He launched and advanced many careers, providing selfless invaluable advice and encouragement. He will be profoundly missed but will continue to inspire many," said Strath Goodship, Miranda's president and CEO.

Christian Tremblay

"Tremblay was more than a leader, mentor and entrepreneur; his belief in education, surrounding himself with talent, and his dedication in research, made him a man of influence and respect," read a statement on the Algolith Web site.

Tremblay was born in 1953. He graduated with a bachelor's degree in electrical engineering from l'Université de Sherbrooke in 1978, he pursued his career as a television engineer with Société Radio Canada, before joining CDL (Central Dynamics Ltd.) a Canadian broadcast manufacturer. He had been elected, with distinction, Fellow Member of the SMPTE.

Obituary

Infineon Chip Targets Low Power

MUNICH, GERMANY

Infineon Technologies has introduced a new single chip TV tuner IC that includes IF functions as well as RF (tuner) functions. The Taifun TUA6039 offers lower power consumption and half the footprint of a conventional RF and IF devices, according to the company.

The tuner is constructed using a bipolar CMOS process and is targeted at stationary broadcast receivers, where low cost and low power consumption are important. The company did not disclose details on critical RF performance characteristics such as adjacent channel and taboo channel rejection.

"The latest market-driven trends in developing digital television receivers are the competencies to reduce the footprint of the tuner module while delivering higher performance and lower power consumption at significantly reduced costs," said Giuseppe Calarco, general manager of the tuner systems business unit at Infineon. "The launch of the TUA6039 shows that Infineon is continuing to expand its expertise in analog and RF chip design and manufacturing to support its customers with strategic products for the TV tuner market."

The Infineon Taifun TUA6039

Samples of the TUA6039 are available now, with volume production planned for Q3 2006. Infineon also plans to offer a complete TV tuner reference design.

DTV Silicon

World Cup Spins ESPN360 Meter

BRISTOL, CONN.

ESPN's broadband site fared well with World Cup coverage. According to the sports cable net, the soccer tourney has been the most viewed event ever on its broadband site, ESPN360. The site was opened up to all users for the matches.

The World Cup achieved record ratings on ESPN's broadband channel, ESPN360.

Since the June 9 start of the World Cup through July 1, ESPN360 simulcasts had more than 2.3 million hits. The June 30 match between Germany and Argentina was the most viewed; the same-day late match between Italy and Ukraine was the second most-viewed. Both matches broke a record set June 27 by the France-Spain matchup, which had in turn broken records set by several earlier World Cup matches, according to ESPN.

As of June 26, ESPN360 began a trial "All Access" period that ran through July 19, making the streaming site available to anyone with a broadband connection.

For ABC, the final on July 9, in which Italy beat France on penalty kicks in overtime, earned a 7.0 rating for the network, nearly three times the 2.5 rating for the 2002 Final. The three-and-a-half hour telecast averaged nearly 12 million viewers in 7,750,000 homes, both also approximately triple those who tuned in to the 2002 final.

ABC says that overall, 90 million people tuned into the World Cup on ABC, ESPN, or ESPN2, up 15 percent from the 78 million people who tuned into the World Cup on the three networks through the same point in 2002.

ESPN's 31 games avereaged a 1.0 rating, up 67 percent caompared to the same number of games aired in 2002.

Sports

Rosum Awarded GPS Patents

MOUNTAIN VIEW, CALIF.

Rosum Corp., which has developed technology to use TV broadcast signals for position location of mobile assets, has been awarded two patents, raising the number of patents the company has received to 18.

The newly received patents are U.S. Patent No. 7,042,949, "Robust Data Transmission Using Broadcast Digital Television Signals," and U.S. Patent No. 7,042,396, "Position Location Using Digital Audio Broadcast Signals." The new patents represent the company's efforts to use broadcasters' DTV signals for public safety purposes as well as to extend its patent portfolio to cover additional, non-TV broadcast signals.

Rosum's technology uses broadcast signals for identifying geographic positions.

"Digital broadcast television signals provide a robust platform for data transmission to both commercial and public safety customers," said Dr. Matthew Rabinowitz, Rosum chief technical officer and co-founder. "The transmitters themselves are distributed and highly robust—which enables public service applications to remain functional even when conventional wireline and wireless infrastructures are impaired."

A more detailed story on Rosum's technology appeared in the July 6, 2005 issue of **TV Technology** ("TV Signals Used for Geo-Positioning").

Broadcast

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Brazil Selects Japan DTV Standard

BRASILIA, BRAZIL

After years of research, discussion and politicking, Brazil has officially chosen the Japanese ISDB-T standard as the country's model for terrestrial DTV, according to Minister of Communications Helio Costa.

The ISDB-T standard uses COFDM, as does the European DVB-T standard, but features a longer interleaver, providing greater immunity to interference from impulse noise. It was reported that the Japanese system was selected because it allows transmission to mobile devices and that was not the case with the European model, which only permits high-definition transmission to television sets. However, as the European DVB-T standard is used primarily for standard-definition TV broadcasting, it does have the capability of using hierarchical modulation to carry a DVB-H signal for handhelds.

The Ministry of Communications press office said in a recent report that the deal made provides for discoveries made by Brazilian scientists to be incorporated into the Japanese model. The standard for Brazil will not be a pure ISDB-T implementation but as the basis for its own system, Sistema Brasileiro de Televisão Digital Terrestre or SBTD-T.

The Brazilian government Web site *Radiobras.gov.br* reported that the decree signed by President Luiz Inacio Lula da Silva made Brazil's choice official and it gives Brazil 10 years to make the move from analog to digital transmission and provides four new digital channels—one for the executive branch and others for education, citizenship and culture. Brazilian broadcasters will receive a separate DTV channel and have 18 months to begin using it for transmission.

Whether the Brazil decision will isolate the country from the rest of Latin America remains to be seen. In June it was reported that there was a diplomatic effort underway to establish a common DTV standard in the region. *BNAmericas.com* reported that Gustavo Perez, TV manager at Telefonica CTC Chile said Chilean authorities should consider adopting the same DTV standard as other Latin American countries to boost economies of scale when importing TVs.

Reports say that the European DVB coalition expressed astonishment at the decision and also quotes Jose Otero, president of Signals Telecom Consulting, "Although Brazil is the biggest country in Latin America, this could leave it as a digital TV island in the region."

Robert Graves, president of the Advanced Television Systems Committee, which has spent years lobbying Brazil to adopt the U.S. DTV standard, agrees.

"It's a disappointment to us because we've been working hard to see a common standard through the Americas," Graves said. "I'm not aware of any country that is interested in following Brazil's lead."

DTV Standard

Telcos

CONTINUED FROM PAGE 1

PEG (public, education and government) channels, regulatory authority over the telco's fiber infrastructure, and a bucket of cash.

The lawsuit asked the court to strip out the bells and whistles and force Montgomery County to close a franchise deal within 60 days.

Montgomery County Council Vice President Marilyn Praisner said Verizon had yet to submit a franchise application at the time of the suit.

"This lawsuit is not really about Montgomery County. It is Verizon's attempt to influence federal legislation," she said. "It is about eradicating the role of local government, the government closest to the people, and our efforts to protect consumers and our local rights-of-way."

ARE YOU BEING SERVED?

The power of the telcos on Capitol Hill is hardly a secret. They pretty much got what they wanted in the telecom reform bill passed by the House that's predominantly comprised of national franchising parameters.

The companion Senate bill was much more of a mishmash, and met with much more resistance. Days after the bill was reported out of the Commerce Committee in late June, cities attacked it for prohibiting new cell phone service and Internet taxes, and for allowing telcos to cherry-pick wealthy neighborhoods.

Within the Senate itself, the fur flew over network neutrality. Hours after Commerce passed the bill 15-7, Sen. Ron Wyden (D-Ore.) placed a hold on it because it didn't prohibit broadband service providers from creating speed lanes, the concept otherwise known as "network neutrality."

The camp pushing for network neutrality say it would preserve the status quo of the Internet, while opponents believe it would stifle further investment in the broadband infrastructure. Up until the Supreme Court Brand X decision of a year ago, broadband—specifically, cable modem service—was classified as "telecommunications" and thus subject to open access regulations. Brand X reclassified it as an information service, giving broadband providers the power to prioritize content.

"When Congress gets into spectrum issues, it's disastrous."
—Dennis Wallace, Meintel, Sgrignoli & Wallace

Network neutrality has generated the greatest polemics of the entire Senate telecom package, which includes items ranging from phone subsidies for active duty military personnel to a broadcast flag blessing and steeper fines for Internet kiddie porn.

BROADCAST BANE

Also tucked within the 10 titles of the bill is legislation that would open up unused broadcast spectrum for unlicensed devices.

"It's disastrous," said Dennis Wallace of the engineering firm Meintel, Sgrignoli & Wallace. "But that's not unprecedented. When Congress gets into spectrum issues, it's disastrous."

MSW's clients include the NAB and the Association of Maximum Service TV (MSTV). Recent tests conducted for the NAB suggested a majority of the unlicensed devices now used in the FM band—iPod and MP3 transmitters, for example—do not comply with FCC regulations.

"There's clearly a precedent that the enforcement bureau doesn't enforce the rules," Wallace said.

No members of the Senate Commerce Committee expressed opposition to the legislation, entitled the Wireless Innovation Networks, or WIN Act. In the space of three pages, WIN 1) opens up all unused broadcast channels, including first adjacents, for unlicensed devices; 2) and puts the burden of proving interference on individual broadcasters; and 3) offers no interference protection for translators and low power TV stations.

"The translator guys are very concerned because it would only protect channels within the station contour," Wallace said. "Some cable headends pick up channels from 100 miles away. It's not just a broadcaster problem."

MSTV chief David Donovan has been feverishly working Capitol Hill to get the language in the bill refined. As it stands, he said, the legislation has strayed radically from its original intent—to extend wireless broadband networks into underserved, mostly rural areas.

"This is not a rural broadband bill," Donovan said. "This allows all kinds of devices into the spectrum. Why should a $29 toy interfere with a $2,000 television set?"

Wallace found the whole rural WiFi rationale a bit dodgy because "it would cost an astronomical amount of money," he said.

However, Kevin Kahn of Intel told Congress that opening TV spectrum would make rural WiFi or WiMAX economically feasible.

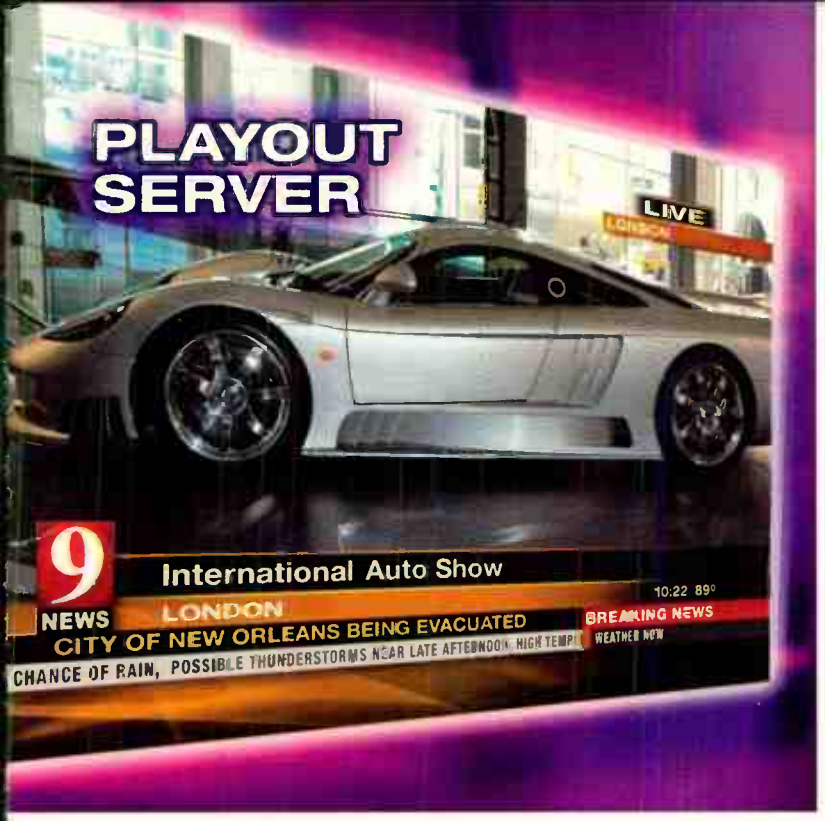
"Given its propagation characteristics, the TV white spaces could be particularly useful in rural areas," he testified. "In contrast, we estimate that the 2.5 GHz frequencies would require approximately four times as many base stations to achieve equal geographic area coverage."

Both Kahn and Craig Mundie of Microsoft said using spectrum for last-mile connections to homes is cheaper than digging acres of trenches for wires. Both also noted that unlicensed devices designed for the TV spectrum will be "smart," either detecting unused channels or downloading the information from a database.

Thomas Lenard of the Progress and Freedom Foundation is one of few people asking why government doesn't auction off white spaces.

"It is... extremely disappointing that Congress, supported by a large part of the technology industry that apparently believes it will sell more products in an unlicensed regime, is now proposing to take a big step backward by allocating a significant chunk of 'beachfront' spectrum—the TV broadcast spectrum white space—to 'unlicensed' uses. This is the polar opposite of a market-allocation regime," Lenard wrote in a policy paper entitled, "Why Don't We Just Auction the 'White Space'?"

The pending legislation would open white spaces 270 days after passage, if the bill gets that far. Wyden's hold does not prevent the bill from coming to a floor vote, but it does mean it can't be passed without debate, which presents the opportunity for a filibuster. Commerce Committee Chairman Ted Stevens (R-Alaska) and his allies would need to garner 60 votes to block a filibuster. Following the June committee vote, Stevens said he would "find out what members would vote for it if something were taken out." ■



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FOR THE CHANGING FACE OF TELEVISION

Compression Competition

MPEG-2 has contenders, but appears here to stay

by James E. O'Neal

FALLS CHURCH, VA

With nearly two decades of experience under its belt, MPEG compression technology is still very much a part of the television and audio/visual scene, and from all indications is not about to be routed from its king of the hill position any time soon.

However, the field of video compression has been far from stagnant since MPEG-2 jumped into the driver's seat and grabbed the controls. The compression industry has not rested on its laurels with the launching of MPEG-2 and there are other contenders in this world of bit-trimming. New and more demanding applications are requiring the industry to reassess its relationship with MPEG-2 and look to fresher technologies. These newer and more demanding players include digital cinema; HD DVDs and Blu-ray applications; increasing cable and satellite program distributor demands; and mobile TV. These could all be driving forces in bending the compression twig in another direction.

AVC

One of the newbies is advanced video coding, or "AVC" for short.

AVC (aka H.264 or MPEG-4, Part 10) emerged as a collaborative effort of the ITU-T Video Coding Experts Group (VCEG) and the ISO/IEC Moving Picture Experts Group (MPEG) in 2003. The intent was to provide good video quality with substantially lower bit rates than previous standards (half that of MPEG-2). Resolutions of 4096x2048 at 30 fps, 4:4:4 sampling and bit rates up to 960 Mbps are supported by AVC.

Because two different groups were each working on standardization of the same compression technology, each has its own designation for that work in progress. The MPEG group used the designation MPEG-4, Part 10 (ISO/IEC 14496-10), while the VCEG group used H.264. The names all refer to the same compression. Of these designations, the most general, easiest to use and "neutral" is advanced video coding, or AVC, which generally speaking, has just about double the coding efficiency of MPEG-2.

Matthew Goldman, vice president of technology for compression systems, Tandberg Television

"MPEG-2 is pretty much at the asymptote of its ability. The chip sets aren't going to get much better. There are still likely to be improvements, but no quantum leaps."

—Matthew Goldman, Tandberg Television

A competing compression technology is Microsoft's Windows Media Video 9. The official designation is SMPTE 421M VC-1, or VC-1 for short. One of its merits is interoperability; VC-1 was designed to be both container- and transport-independent, thus allowing delivery via MPEG-2 transport systems. It is claimed to process high definition video at rates surpassing both MPEG-2 and AVC.

Peter Symes, manager of advanced technology, Grass Valley

"Every DVD player, every DVR, every digital television set, every set-top box and most every PC has an MPEG-2 decoder. They're everywhere and will not go away in the foreseeable future."

—Peter Symes, Grass Valley

With the rise of these (and other compression technologies), where do the experts feel the compression world headed and what is the life expectancy of MPEG-2?

Peter Symes, author of "Digital Video Compression," and manager of advanced technology for Grass Valley, believes that MPEG-2 is so entrenched in the technical culture that it will probably not pass from the scene anytime too soon.

"I would estimate that there are more than one billion MPEG-2 decoders out in the field. Every DVD player, every DVR, every digital television set, every set-top box and most every PC has an MPEG-2 decoder," said Symes. "They're everywhere and will not go away in the foreseeable future, as all terrestrial broadcasting is based on MPEG-2 coding."

On the other hand, Symes believes that AVC has a lot to offer and will move to the compression forefront in some areas.

"I think that what we have now is something significantly better than MPEG-2 in new applications where you have the ability to get the [new] decoder out in the field," said Symes. "Where you've got sufficient control [over a distribution system] to get an AVC unit out there, it's compelling to do so. AVC is better, probably twice as good to a cable operator or satellite supplier. They can get twice as many channels on a system."

Symes also flagged other examples in which AVC could displace MPEG technology.

"In Europe, the situation is different. As present-day DVB is set up for SD, new decoders will have to be deployed for more advanced applications. These will probably be AVC types," Symes said. "Program distributors have control of the set-top boxes there—they don't care about anyone who's not a subscriber—and will not be tied to MPEG-2."

Symes also believes that other emerging technologies will break away from MPEG-2.

"I'm thinking of video delivered via handheld devices—bandwidth is critical there and it's very likely that AVC will be used," said Symes.

He added that some interesting work is going on with scalable video codecs.

"These would allow transmission of several bit-rates within the same bit stream. One device could decode the whole of the things, while a smaller or more power-starved device, a cell phone for instance, would decode only part of the bit stream. This is still very much in the melting pot at the moment, though," Symes said.

UNTIL THE COWS COME HOME

Matthew Goldman, vice president of technology for compression systems at Tandberg Television agrees with Symes that MPEG-2 is here to stay.

"With regards to over-the-air television, MPEG-2 is not going anywhere," said Goldman. "The FCC ruling [covering terrestrial digital transmission] mandates MPEG-2 and it's going to be around until the cows come home. If this were to change, every digital TV screen would go blank!"

Goldman says there are unlikely to be any improvements that would find it taking on any new and more ambitious assignments.

"MPEG-2 is pretty much at the asymptote of its ability," he said. "The chip sets aren't going to get much better. There are still likely to be improvements, but no quantum leaps."

However, Goldman does believe that alternative forms of compression technology will gain traction in distribution mediums outside of the broadcast space.

"AVC has a huge amount of compression efficiency; there's a gain of over two times in what can be achieved with MPEG-2," said Goldman. But he cautioned that while "a 50 percent reduction in bits required is a rule of thumb, your actual mileage may vary."

He feels that cable television will be a good customer for AVC-capable set top boxes.

"Cable is looking to enhance services using this next generation encoding. MPEG-2 will still be there for a tier of programming, but AVC will appear on another tier—for example, high definition and more on-demand offerings, due to its compression efficiency over MPEG-2."

Engineers are busy developing a digital receiver with advantages over sets currently available. Today, one of

COMPRESSION, PAGE 26

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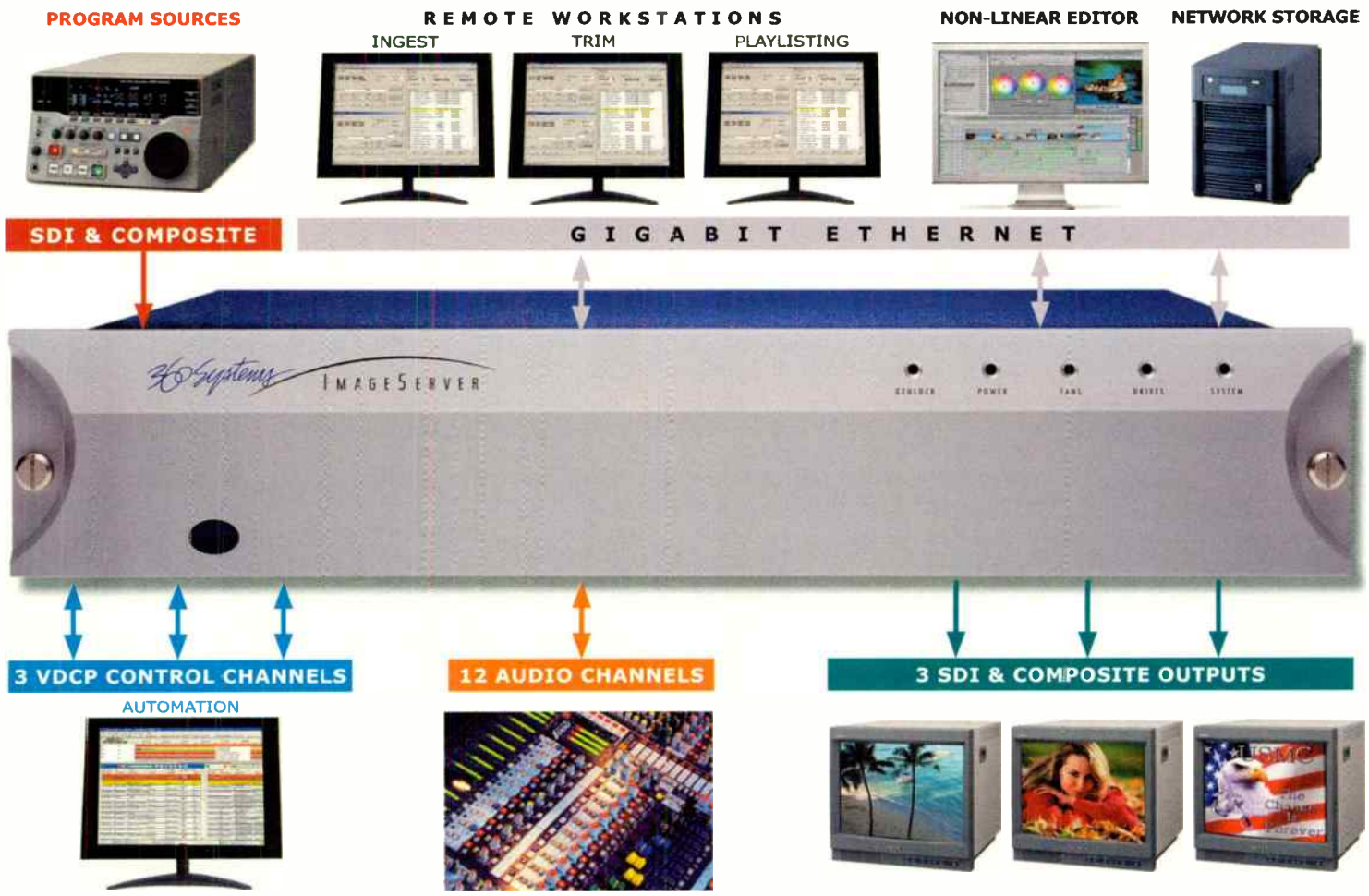

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News Raw: A Series of Fortunate Events

KNBC Los Angeles stakes claim to a digital niche

by Robin Berger

BURBANK, CALIF.

Sometimes a new concept for news coverage develops from a "use it or lose it" scenario. Such was the case with KNBC's "News Raw RawNews," coverage that the station described as "transparent as it comes," when it launched in April.

"News Raw is the unprocessed, or very lightly processed, stream of news coming into this newsroom," said KNBC News Director Bob Long. "It takes only one person—a news jockey—to do what we're doing here."

Long believed the next chapter for news was moving into the digital spectrum asap. He made his spectrum bid last September to NBC Universal's Chairman and CEO Bob Wright, NBC Television Stations Division President Jay Ireland, and Paula Madison, president and general manager of KNBC.

"If I didn't do something, GE [could] sell it off to American Express for credit card numbers," he said. "We're trying to settle a little quarter of that [digital real estate] before someone else squats there."

That "little quarter" is digital channel 4.4, a sliver of KNBC's larger spectrum.

Long got the nod by year-end, hired "news jockey" Mekahlo Medina in January, and has witnessed the program evolve ever since.

"There is no schedule—we do what's appropriate at the moment," said Long. "It's a series of events."

Medina, the one-man-band responsible for the product mix as well as anchoring, said he does a minimum of two 5-10 minute news updates (though usually four to five), as well as a 5-minute segment called "The Buzz" (what's hot online), an introduction to "News Raw Inside" (video of KNBC News' morning meeting), and teasers for the evening news. In addition, he recaps breaking news, hosts Q&A debriefings with reporters on stories they've worked on, and

NEWS RAW, PAGE 20

Pappas

CONTINUED FROM PAGE 1

Correspondent, which can only come from the community itself. Even with a larger staff and unlimited resources, there's still no way a typical local newscast can adequately report on all the small out-of-the-way events going on in a local community. However, Pappas believes the citizen journalist initiative like CommunityCorrespondent.com can do just that.

"When given the chance to create a grass roots news site, the community will have its own one-of-a-kind voice—and it won't necessarily be the same kind of information traditional broadcasters would choose," said Desiree Hill, vice president of news development at Pappas Telecasting and project leader with Community Correspondent.

At NTV, that voice is replete with surprisingly well-shot photographs—from summer sunsets and fireworks displays—as well as short but clear snippets of local information, such as the news that local church members were about to board a van to Baton Rouge, La., to help care for children displaced by Hurricane Katrina.

According to Hill, Pappas Telecasting initially targeted the Nebraska market because the NTV community of viewers had previously been active in sending weather photographs and other information to the station Web site.

"People in central Nebraska have shown they are eager to participate in the creation of news," Hill said, and NTV is welcoming them with open arms.

Viewers themselves can capture breaking news when conventional news crews cannot get to the scene in time, and Community Correspondents hopes to take advantage of this technology trend.

"Local expertise is better than national expertise," Danon said. "Sometimes, an image from a cell phone is the only way of getting material" about an event, she said, such as the notorious footage taken from video-enabled cell phones during the London subway bombings in 2005.

Contributors' stories are being published simultaneously on the home page and in one of the following subject categories: news, weather, community, sports, fun and a category known as "Our Troops." The site also archives material each day, creating a day-in-the-life of the community as it happens.

"It's a lot of fun to get things from the far ends of our viewing area that we don't get to travel to on a regular basis," said Sara Linner, executive producer of new media at NTV. "This way we can still report on what they're doing, and they get the chance to be a reporter as well."

In the month since its debut, the Web site has 300 registered users and has had more than 22,000 page views. Traffic has grown from 2,000 page views the first week to 11,000 in the third week.

A citizen journalist tapped into the Community Correspondent Web site to share news about a plan to donate laptops to a Nebraska high schoool. The segment then made its way onto the local evening news that very night.

Pappas plans to roll out Community Correspondent at all of its 27 stations over the next several months, beginning with KMPH-TV Channel 26 in Fresno, Calif.

During staff briefings at Pappas stations, the network has seen—perhaps surprisingly—a healthy amount of support for the citizen journalist initiative from traditional broadcasters themselves. After all, Hill said, the media is known to be a bit of a snobbish bunch when it comes to handing editorial decisions over to the general public.

Yet more and more stations are seeing the benefit of a program such as this one, particularly the industry's younger staff members who are well versed with the power of sites like YouTube and MySpace. "After all," said Danon, "who are we to say what's newsworthy?"

"Every community is so different, and what unfolds in San Francisco may be very different that what happens in Baton Rouge," Hill said. "As we unfold Community Correspondent in each community, the flavors of America will come out." ■

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Serving Up Cyber Security

Humans often pose biggest vulnerability

by John Merli

FALLS CHURCH, VA

As digital technology advancements affecting all levels of a broadcast operation's infrastructure allow greater storage and faster, more sophisticated manipulation of proprietary content, so, too, do the consequences increase for any possible intrusion or corruption in the system. As servers become more malleable to software upgrades instead of replacement hardware, security, remote accessibility and other issues require constant scrutiny.

For broadcast shops, there is no realistic way to connect a server even indirectly to the outside world without at least some security concerns, according to analyst/author Wes Simpson, president of Telecom Product Consulting.

"There are many methods that offer very high security, but these methods depend on proper design and implementation," Simpson said.

"People, either users or administrators, are often the weakest links in any security system, so it is important to make sure that proper security policies are in place and that everyone adheres to them."

Simpson points to the number of recent identity theft cases outside broadcasting caused by people violating company policies by bringing laptops home containing masses of personal, sensitive data that were lost or stolen.

"Don't attach your server to a public network connection unless you absolutely have to," Simpson added. "And make sure you know about all the connections to your server—such as if another PC on the same LAN as the server is connected to the public Internet. If so, then there is a potential connection between the server and the Internet. This is why some smart companies supply their employees with one PC for e-mail, Web browsing and so on, and another workstation that is used exclusively for video editing and production."

Tab Butler, director of broadcast sales for the Northeast Region at SeaChange International in Maynard, Mass., said broadcasters should make certain their server is highly scalable to support large amounts of SD and HD content, as well as to allow for future technical schemes that will continue to develop.

"It's important to employ servers that can support increased compression technology and that come with software-based architecture [for encoders and decoders] with an open system for storage," Butler said.

COMPRESSION FORMATS

One lingering issue between server vendors and clients continues to be content compatibility of files, according to Tim Slate, vice president of strategic marketing for Leitch Nexio Servers at Harris Corp. in Burbank, Calif.

"MXF is starting to make this possible, but there are still subtle issues to resolve, both with compression formats and metadata support," Slate said. "And not everyone is supporting the [MXF] standard yet."

Slate said vendors also are keeping an eye on the proliferation of new video compression formats such as MPEG-4, VC-1, JPEG 2000, HDCAM-SR, DVCPRO HD and DNX-HD.

"Server vendors are really forced to support all these standards in order to be viable suppliers; one positive aspect to this dilemma is that Harris is moving to software codecs in our Nexio XS server, which enables new formats to be added as they are formalized," Slate said, again underscoring the need for built-in flexibility that is more easily enabled by updating software, not replacing hardware.

> "It is increasingly important for vendors to provide solutions where information can flow seamlessly between applications, and do it securely."
>
> —James Frantzreb, Avid

Yet broadcasters have to be careful that all parties are speaking the same language, said James Frantzreb, senior manager of product marketing for at Avid. He cautions that the term "server" can describe a broad range of devices.

"For servers providing storage and I/O services for production, the ability to scale much higher in terms of storage and number-of-clients-served has made high availability and fault-tolerance even more important," Frantzreb said.

Servers for play-to-air systems, too, are better at meeting broadcasters' needs by moving rapidly from "box" to "integrated systems" solutions, Frantzreb said. Such systems can easily interface with production workflow involving other servers, as well as editors, graphics, archives and automation systems as integration becomes increasingly complex.

"It is increasingly important for vendors to provide solutions where information can flow seamlessly between applications, and do it securely," Frantzreb said.

REMOTE MONITORING

Remote monitoring is a popular server-centric activity that also requires highly reliable security. According to Geoff Stedman, vice president of worldwide marketing at Omneon in Sunnyvale, Calif., remote monitoring by clients can be done safely with appropriate IT measures such as Firewalls and Virtual Private Networking. These techniques, he said, have been widely deployed to secure wide area networks and to connect enterprises of all sizes to the Internet.

"To allow remote administrators to monitor a server from the 'outside world,' a VPN should be used which encrypts all communications between the user outside the facility and the server inside the facility, to ensure no malicious third-party can intercept communications," Stedman said. "A VPN will also authenticate a remote user to ensure that only someone authorized to access a server inside a facility is allowed in."

One of Simpson's favorite remote-access tools is the RSA SecureID system which gives the user a mobile hardware "token" that automatically generates a six-digit code that changes every few minutes.

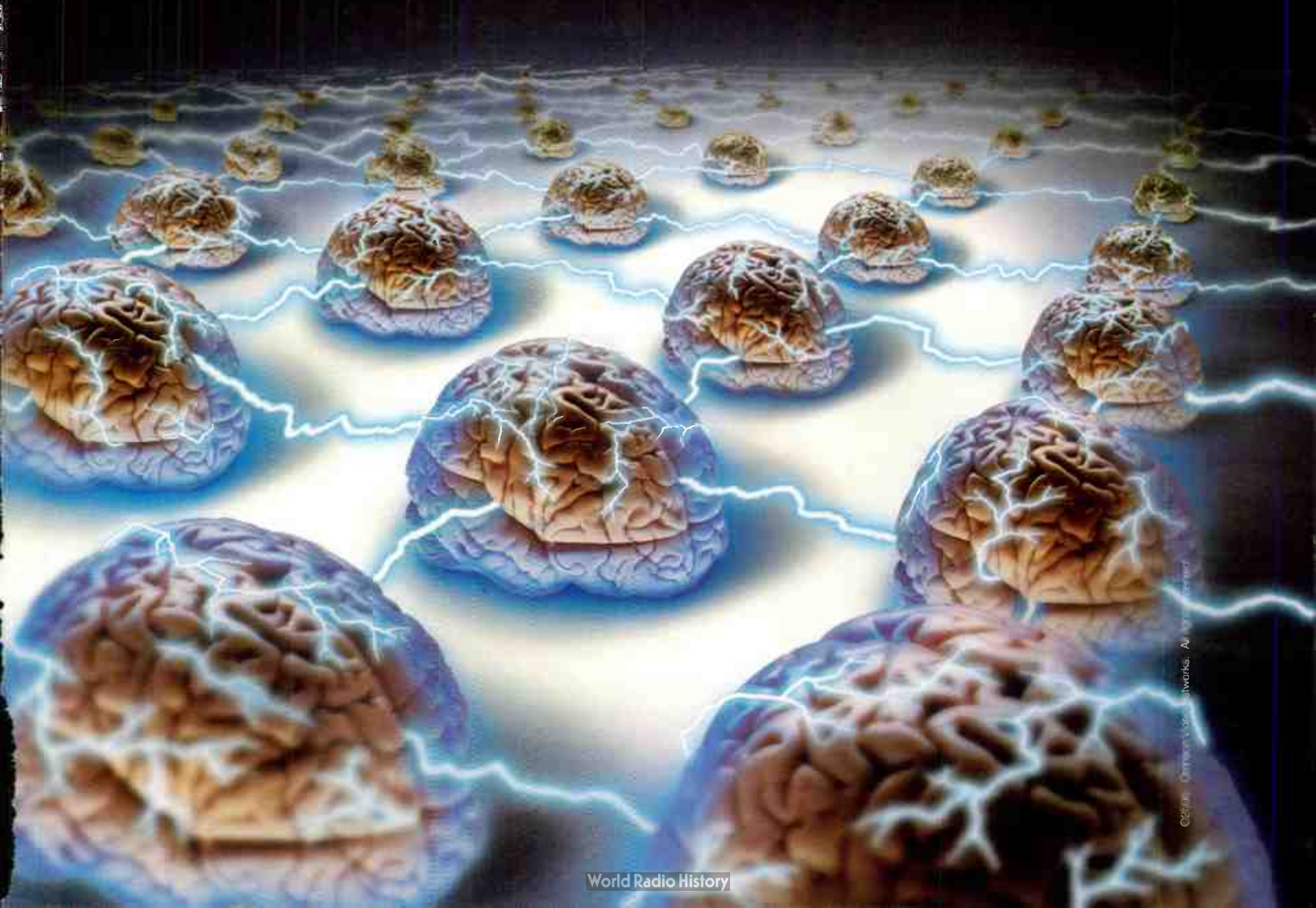
"For users to gain access, they need to have both their own secret 'PIN' number and the number that is currently displayed on the token they carry with them. This is a hard system to break," said Simpson, who also likes some of the new biometric scanners (such as fingerprint readers) to verify user identity.

Microsoft issued its newest server in June. According to a Microsoft spokesperson, the firm's ISA Server 2006 more aggressively addresses the growing prevalence of Web-based threats by providing Web access protection with a new "hybrid proxy-firewall architecture"—along with deep content inspection, granular policies, and comprehensive alerting and monitoring capabilities. (Neither Apple nor Linux had responded yet to inquiries at our deadline.)

BUYER BEWARE

Omneon's Stedman suggests broadcasters make certain that any new server supports the standard IT network protocols (FTP, CIFS, AFP, NFS, etc.) and provides an open file system that can be mounted as a network drive to applications that need access to video-audio clips within the server. Also, he said look for servers that use industry standard "media wrapper" technology such as MXF or QuickTime to ensure that multiple applications can access clips without unnecessary transcoding.

"There is no security technology that is completely foolproof and that does not need to evolve over time as new threats emerge," Simpson concluded. "Make certain you have a plan to manage your security system—and a budget to install and maintain it." ■



Surround Sound the Goal for HD Sports

Today's consoles sport ergonomic design, flexibility, programmability

by Claudia Kienzle

HAMILTON, N.J.

While many of the latest digital audio consoles offer the ability to mix 5.1 channel surround sound, most live sports telecasts are still produced in stereo audio. But there is strong demand to have 5.1 mixing capability available on any new console so that it's there and ready to go when HD productions finally go all the way with surround sound.

SURROUNDING VIEWERS

CBC Canada is ahead of the pack in that its live coverage of the Canadian Football League and National Hockey League games are broadcast in 5.1 surround sound on CBC's HD channel.

"Premiere," CBC's all-digital HD truck, has an SSL-C100 digital broadcast console, which was designed with 5.1 surround mixing in mind. It was also designed to make it very easy to move between the 5.1 surround mix and the stereo show.

"I can always see all my inputs and outputs at a glance, and for a live guy, that's very important," said Howard Baggley, freelance audio engineer for CBC in Toronto. "The console has intuitive metering, so if I make a 5.1 channel, I automatically get a 5.1 input meter, which can also be easily broken out on the console to its separate channels."

Baggley said that another critical factor for live audio mixing is the console's ability to store all user settings for recall at a later time. On the SSL C100, settings can be stored by project, such as CFL; and by event or location, such as Ottawa, Montreal, or Toronto, because different arenas require different set-ups. Also, if an NHL game must be covered between two CFL games, Baggley said, "the board can be instantly restored to its last saved positions—EQs, faders, signal routing, everything—saving considerable time."

While Baggley is taking a very conservative approach to mixing 5.1 channel surround sound to protect for a good stereo fold-down, he's looking forward to the day when 5.1 channel surround sound is more widely received and supported, and he can really explore its creative possibilities.

ADVANCED DSP FOR 5.1

The fleet of 17 trucks at Game Creek Video in Hudson, N.H. includes three all-digital 53-foot expando trucks: the Patriot, Yankee Clipper, and Freedom. Patriot and Yankee Clipper are equipped with Calrec Alpha 100 digital audio consoles. Freedom has a Calrec Sigma digital console.

For Fox Sports, Game Creek Video is taking delivery of a third Alpha 100 console with Calrec's new Bluefin processing technology, as well as another Sigma with Bluefin. Also on order is a third Calrec console, another Sigma to be installed in Game Creek's Intrepid, an SD truck being converted to HD.

"Bluefin has been designed specifically with 5.1 surround in mind," said Kevin Emmott, Calrec's marketing coordinator. "By utilizing improvements in chip size and speed in an innovative way, Bluefin technology meets production needs for HD production and live-to-air delivery far into the future."

ESPN books Patriot for live Major League Baseball, college football, and NBA basketball. Yankee Clipper is primarily booked by The Yes Network for Yankees baseball and N.J. Nets basketball.

"There is an expectation on the part of high-end clients that you're going to have a Calrec on the truck. It's become an industry standard for very high-end events like Super Bowl, World Series, NBA Finals, and Stanley Cup Finals," said Pat Sullivan, president of Game Creek Video.

"Since our HD trucks are used by many different networks and audio professionals, the fact that Calrec audio consoles let operators store their setups is a huge plus," said Sullivan.

While the Calrec Alpha 100 consoles are easy to use, Sullivan said they have enormous power and capabilities that really sophisticated audio directors can take advantage of. They're also flexible enough to handle all types of surround sound. For example, ESPN uses Circle Surround, while Fox Sports does its shows in Dolby 5.1 channel surround sound.

COMPACT YET POWERFUL

Sure Shot Transmissions, a Youngstown, Ohio-based production/uplink truck company, has a fleet of trucks that serve the "mid-market" of live productions, including live college, high school, and community sports events. When the company began building its newest truck, a 40-foot HD unit called Abbey Elizabeth, they chose a new digital audio mixing console from Yamaha, the PM5D.

While the system looks like a streamlined 24-channel console, it offers 130 input connections, simultaneous mixing of up to 64 inputs to stereo or LCR stereo, and 24 mix busses. It also offers 500 scenes of total recall, advanced digital patching capability, sophisticated monitoring, and surround panning up to 6.1.

NHK Japan often books the Abbey Elizabeth for 1080i HD coverage of Major League Baseball, including the Chicago White Sox and Seattle Mariners games.

"NHK uses this board to full advantage," said Timothy Dailey, chief engineer for Sure Shot Transmissions. "Everything audio engineers need for live sports is integrated into the system, including digital motorized faders, delays, equalizers, and digital controlled amplifiers."

STATUS AT A GLANCE

Flexibility in handling the unexpected is a big factor in choosing the right audio equipment says Jamie Dunn, western regional sales manager

SURROUND, PAGE 22

Inside Games Creek's Patriot Expando HD production truck

"The live sports field is one area of broadcast that is making extensive use of surround sound."

—Phil Owens, Wheatstone

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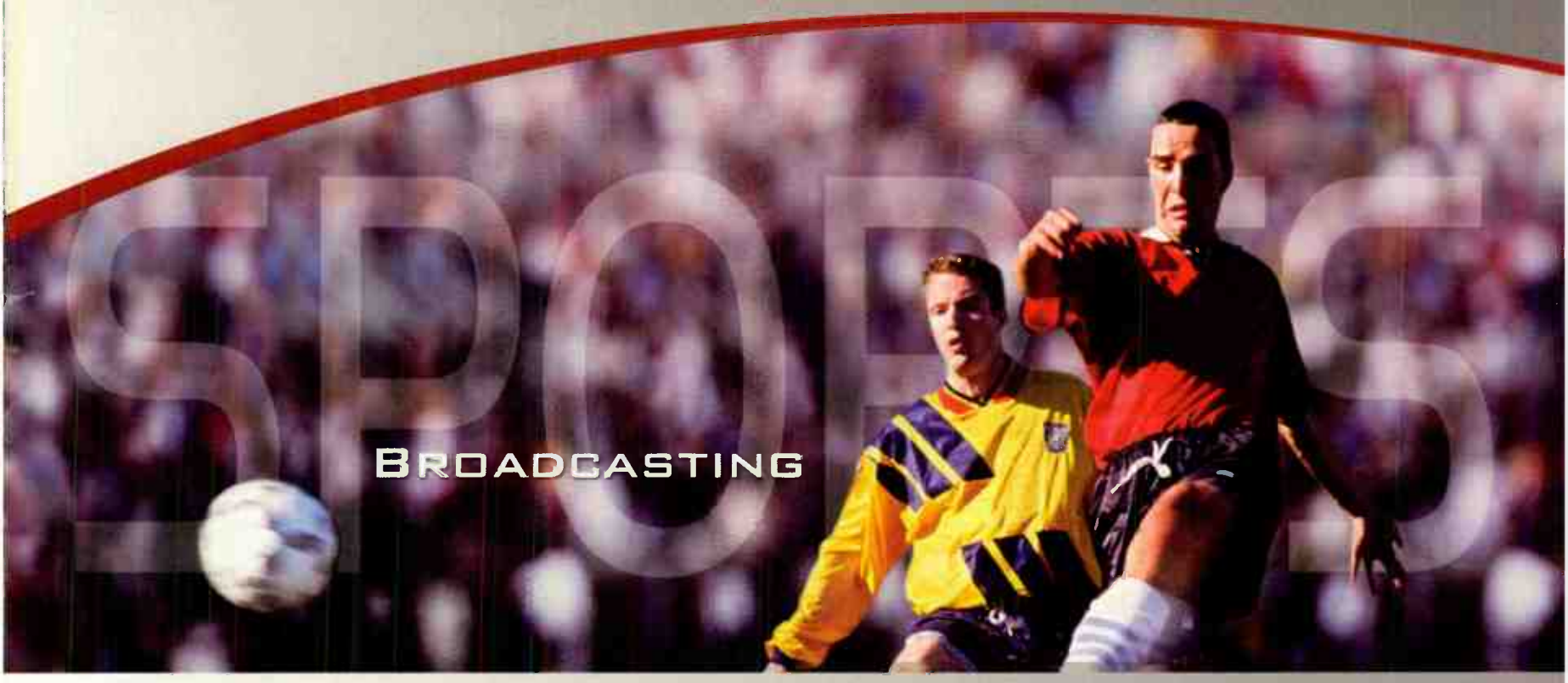

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Protecting Your Most Valuable Asset

SAMMA system automates, accelerates video transfer

by Craig Johnston

NEW YORK

In recent years, a lot of attention has been paid at stations and other video repositories to video asset management, cataloging and business operation software to allow these entities to know where their archive material is and maximize the value received for use of it.

But most of this video material exists on videotape. Many owners of videotape archives are whistling in the dark about whether an aging videotape will actually play back, if and when it is accessed. (See accompanying story "Protecting Videotape.")

At the same time that business managers are worried about their videotape assets disappearing, they weigh that risk against the time-consuming, labor-intensive, and expensive task of migrating video material on those tapes to a better storage medium. This has meant that for the most part, only the few, most obviously valuable tapes have been rescued.

Enter SAMMA Systems, founded by long-time videotape preservation expert Jim Lindner. His goal: Create a system that could migrate video materials 10 times faster, and at one-quarter the cost of previous migration methods.

SAMMA (System for the Automated Migration of Media Assets), consists of two systems: the basic SAMMA system for cassette videotape media, and SAMMA Lite for reel-to-reel videotape media. The difference is that the basic SAMMA uses the robotic possibilities of cassette-based media, where SAMMA Lite requires an operator to load and unload reel-to-reel tape machines.

PREPROCESSING

Both systems require a small amount of pre processing of the videotape materials, which can be done by an employee with little or no technical skills.

For cassette media, the first step is to make sure the label on the cassette matches that on the box, and to generate a Uniform Material Identifier (UMID) barcode label, which is affixed to the tape. This is scanned and tied into whatever database, if any, the customer uses to catalog taped material.

"[From there,] we're going to check it for any kind of obvious physical damage," said Bland McCartha, SAMMA Systems vice president for business development. "Smoke damage, water damage, roaches inside, mildew, mold, anything that's obvious, the door's broken, the cassette shell's cracked."

The pre processor is prompted through the routine by a computer screen, and he estimates time spent will be around 45 seconds per tape.

The tapes can then be placed in the SAMMA robot, which can hold from 40 to 60 cassettes at a time from the U-matic, Beta and/or VHS families.

"There isn't very much labor," said Lindner, who is also SAMMA CEO. "It's basically people unload and load the machine in the morning, and the machine is ready. That's basically it."

The robotic system contains a tape cleaner/analyzer and playback machines. Since the cleaner/analyzer runs at 20-times the speed of real-time tape machines, it can quickly get the first few tapes cleaned and analyzed, inserted into the tape machines and migrating.

The cleaner/analyzer spits out metadata on the condition of the videotape and its cassette cartridge: Is the tape sticky? Are the hubs stuck? Is the leader torn? Does it have crimps or tears or edge scalloping? In addition, it documents how dirty the tape was and how many passes it took to clean it.

As the cassette machine in the robot plays the tape back for migration, more metadata is gleaned: video levels, audio levels, luminance, chrominance, time code, RF level among them.

For reel-to-reel videotape, the SAMMA Lite system has the same controls and benefits, but without the

SAMMA, PAGE 24

A certain amount of pre-processing is required before the SAMMA System transfers videotape to the customer's preferred codec.

The Lifespan of Videotape

NEW YORK

A memorable line in the movie "Top Gun" goes: "This is going to be complicated." If ever there was an apt description of the factors that go into the lifespan of videotape, that line spells it out.

Conditions under which videotape is stored are some of the most important circumstances that affect the lifespan of videotape. While SMPTE standards spell out the details, it comes down to a clean environment featuring consistent temperature and humidity.

SMPTE also used to recommend that videotape be exercised, but that part of the standard was removed because they found exercising the tapes on poorly maintained machines caused more harm than good.

Some tapes get too much exercise, often the visual record of historic events that are pulled out every year or so to be included in newscasts throughout the day. Sitting in pause at the same edit point again and again can be damaging.

Damage to older videotapes was often done by smoking in an edit room. Bad reels and cassette hubs can also cause videotape damage.

Happily, older 2-inch, 1-inch and 3/4-inch U-matic tapes were made with thicker bases which may contribute to their longevity. As storage on tape stock becomes denser, the same particle of dust obscures more information; a particle that might affect a line or two of video on older tapes can wipe out a frame or more on modern, high-density tape stock.

Videotape archive owners have no control over this now, but batches of tape made years under different conditions of humidity will have different life expectancies. And who knows how long the tape sat in a warehouse before it was delivered to the station?

The only thing everybody agrees on is that videotape is not a permanent storage media. Other than that, it gets complicated.

Craig Johnston

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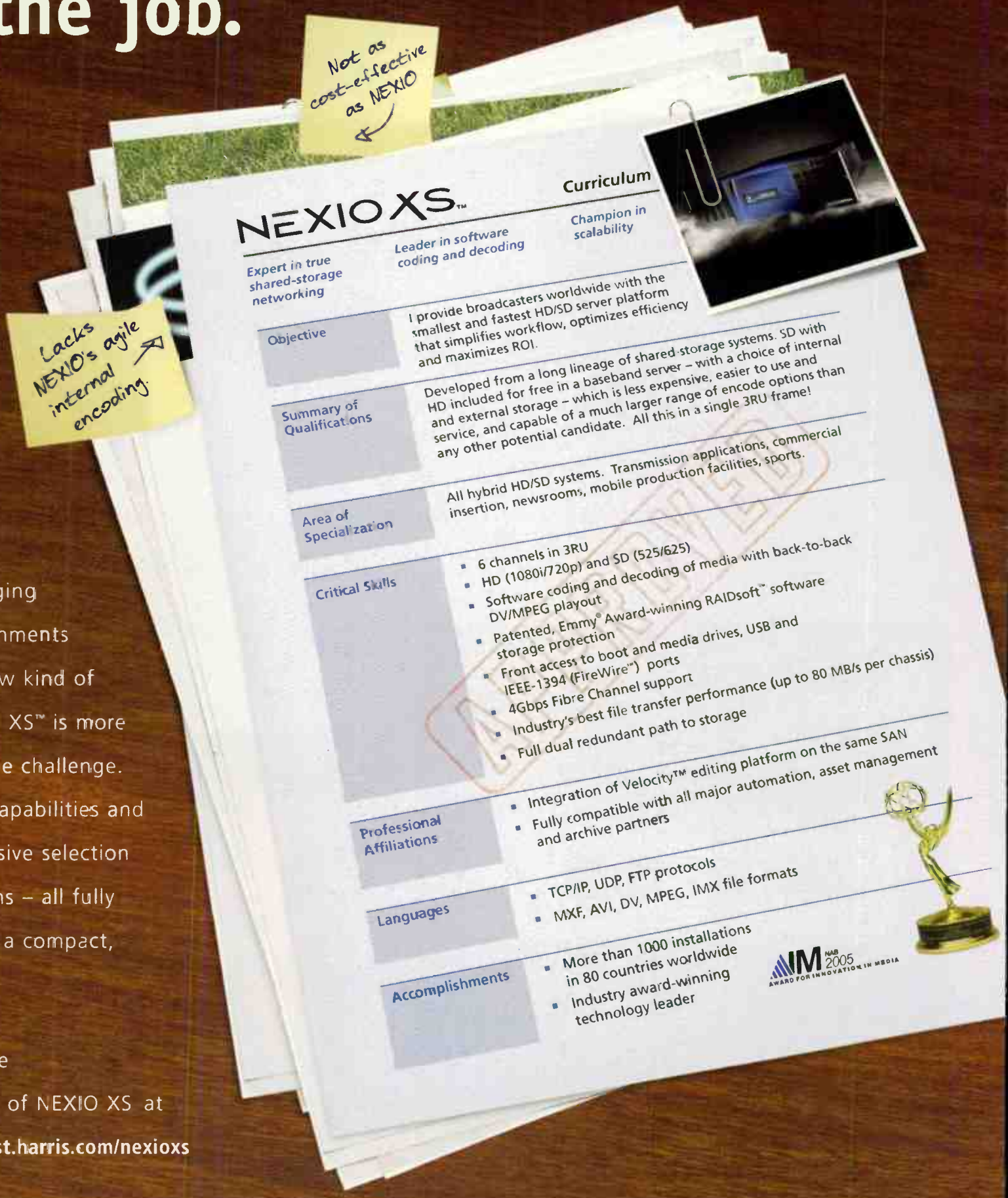

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News Raw

CONTINUED FROM PAGE 12

introduces behind-the-scenes packages they've compiled on how their stories were made.

In the future both he and Long anticipate more interactivity between News Raw and its audience, and packages provided by "citizen journalists." Long said he has already received submissions, though none have yet aired.

FLASH SET

Medina broadcasts from the "Flash Set," which was already in place for KNBC's breaking news. The set is equipped with two Sony BVP-750 cameras, lighting and monitors. A custom-built PC loaded with NewTek VT4 Integrated Production Suite lets Medina select and import feeds, edit, build and animate graphics macros, choose music, synchronize the mix, build a rundown, and play out the program.

"With one keystroke you can bring in a live camera feed, animated lower third, and music," Medina said.

Mike Bosdet, manager of on-air and studio operations engineering for NBC4 said he chose VT4 because it was flexible (especially in regard to configuring the display), cost effective, and had a broad range of built-in features, such as titling, downstream keying, a built-in audio mixer, and the ability to accept different inputs (NTSC, RGB, SDI signals).

PIZAZZ Productions, a NewTek-authorized dealer based in Beaumont, Texas, did the integration and customization, modifying some of the off-the-shelf product scripts and programming to make it easier for the non-technically trained on-air talent.

"In the VT system there are six virtual DDRs that are feeding into the software mixer, along with the four live SDI inputs," said PIZAZZ Productions owner Jef Kethley. "We adjusted some of the names and terminology so it was easier for the on-air talent to understand and operate."

Playback is also enhanced.

"One of the most powerful features of the VT system is it can record the live output to the hard drive for later playback while simultaneously mixing the six virtual DDRs, two cameras and live router inputs," he said. "We take those recorded clips and loop them for playback as soon as the live show is finished—all with the same VT system."

Mekahlo Medina, news jockey for News Raw

Grass Valley CP3000/CP3010 routers and an RTS KP-32 intercom system give Medina access to everything in the station. His kit also has an AEQ audio monitor.

Live feeds travel from the Grass Valley routers into a VT4 breakout box (SX-84), which is attached to the VT4 card. From the VT, the signal is transmitted from the VT4's SDI card.

Recorded news packages, saved in the station's Grass Valley-Thomson Profile editing system in a GXF format, are converted to NewTek's proprietary format via Telestream's Flip Factory Pro.

Mike Bosdet, manager On-Air and Studio Operations Engineering, NBC4

VT4 sends the SDI signals to Harmonic Divicom MV100 encoders, where they're converted to ASI signals and sent to Harmonic MediaNode MN20 multiplexers, then to the transmitter.

The VT system's power and security functions were duly noted.

"It's a dual core, AMD Opteron-based system, each processor has the equivalent of two processors in it, so it's running four processors at a time," said Kethley. "There are two gigs of RAM and two terabytes of RAID5 storage space. The 280 operating system drives are configured in a RAID1 [drives run parallel, insuring back up], and there's a 160-watt redundant power supply."

Backroom racks contain a tray of Evertz products (7700 multiframe, 8084 digital closed-caption encoder) and RDL FP-ALC1 leveling audio amplifiers. The custom VT4 computer-based rack-mounted PC here (mentioned above) uses Avocent remote KVM extenders to feed the monitors and keyboard/mouse back at the Flash desk, some 250 feet away.

Cost was negligible.

Looking toward the future, Bosdet is hopeful about upgrading News Raw's "station in a box"—to NewTek VT5, which he saw at NAB2006.

"VT5 is supposed to have a new SDI switcher to bypass some of the conversion and multiple downstream keys," said Bosdet. "It would allow us to have separate branding elements, a time clock and animation."

VENUE

Currently News Raws' home is KNBC's over-the-air digital channel 4.4. Viewers can watch its over the air or access it from *www.nbc4.tv/newsraw*, (News Raw is not yet on iTunes' registry).

Down the road, the station hopes for full clearances from the local cable and satellite providers to offer News Raw to their subscribers with one click of a remote button.

Long believes the target demographic is anyone with access to these receivers.

At press time there were no commercial sponsors.

"I'd like to see 'commercials raw,' in the spirit of keeping with the broadcast service," said Long, who favored selling airtime "by the pound" to clients who couldn't otherwise afford TV.

On the other hand, he admitted, if the sales department can't find this clientele and had "a hot prospect with a bag full of money," he'd take the bag full of money. ■

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Surround

CONTINUED FROM PAGE 16

for Studer USA in Northridge, Calif.

"During live sports productions, audio technicians must react quickly to many common challenges, including inclement weather affecting the game, and last minute changes to the show rundown, all while operating the board."

The Studer Vista 8 and (compact, lower-priced version) Vista 5 digital audio consoles' control surfaces tackle these problems head-on by mounting rotary encoders and switches on top of a TFT screen—a patented technology from Studer known as "Vistonics."

"This graphical user interface approach provides the user with not only a highly comprehensive and immediate overview of console settings but, equally important, a 'where you look is where you control' philosophy," said Dunn.

Vista consoles can activate automatic fader ramps from video switcher tallies. "In this case, cross-fading in and out of the correct channels corresponding to the camera selection, is automatically handled without user intervention," Dunn said. "This frees up the operator to focus on the production elements and commentators. This capability is especially useful for sports productions, such as motor racing or downhill skiing where camera selections often correspond to camera mics."

GOOD BUZZ

Fox Networks Engineering and Operations (NE&O) in Los Angeles chose Studer's Vista 8 as part of an extensive upgrade of the audio facilities on two of the production stages used for Fox Sports. A 96-input Studer Vista 8 will replace an analog console on Fox Network Center Stage A for pre- and post-game coverage of Major League Baseball, including "MLB on FOX Pregame Show" hosted by Jeanne Zelasko. Starting in September, the console will also be used for "Fox NFL Sunday." Prior to selecting the Studer Vista 8 console, the Fox NE&O engineering team called users of the console, including the BBC and Chelsea Television Studios/All Mobile Video in New York to see what they thought of the console.

"A number of freelance mixers sat in on a few of the meetings where we discussed the Vista 8 and their comments were they had personally used the desk and really like it—particularly the Vistonics interface which makes it easy to use," said Fox NE&O Vice President Chris Bauer. "Knowing that this desk was embraced by that community assured us that it would be a good choice in helping us smoothly transition from analog to digital."

VENDOR SUPPORT

Denver-based Mobile Television Group has installed the Euphonix System 5-B digital audio broadcast console on six of its 53-foot expando HD trucks, including the 7HDX, 8HDX, 9HDX, 10HDX, 11HDX, and 12HDX. The trucks are primarily used for live sports production on Fox Sports Net, including Major League Baseball and NHL Hockey events.

Mobile Television Group selected the Euphonix digital mixing console because Euphonix worked to integrate their console with the Jupiter and PESA router control systems on the truck which use the ES-Control protocol.

A1 audio engineer Mike Stock mans FOX Sports' new Studer Vista 8.

"By taking advantage of the System 5's router integration capabilities, we have one system that handles both audio and video in the truck," said Phil Garvin, general manager of the Mobile TV Group and president of Colorado Studios. "We were looking for a manufacturer with the ability and willingness to adapt their console's routing control system to the same one we use for the video side of our operations, and Euphonix stepped up to the plate and made it happen. With the System 5's PatchNet feature, it's very easy to configure your signal routing requirements and it enables us to make changes to the mix by simply pointing and clicking."

Euphonix offers two digital audio mixing systems suitable for sports broadcasting: the System 5 for complex applications and the compact version, Max Air. Both use the same DSP core, router, I/O, and redundancy features. In particular, System 5 features a built-in programmable interface for audio follow video; and high-resolution stereo LED meters next to each fader for fast recognition of source levels.

"All our sports clients need surround capability which comes standard with our consoles," said Andrew Wild, vice president of marketing for Euphonix in Studio City, Calif. "Currently very few events are mixed in surround, not because the operator or the console can't handle it but because of the server and distribution infrastructure. As more events are broadcast in HD, 5.1 surround will become more commonplace."

SURROUND EXPERIENCE

Wheatstone's D12 Television Control Surface for its Bridge Audio Network Routing system packs 64-channels on 32 faders in a surface 52-inches wide, ideal for mixing surround sound, especially on trucks.

"A 32-fader D12 can generate up to 72 mix-minus outputs with direct talkback interrupt…[plus] full input surround panning, surround subgroups, and a channel spread feature that allows individual surround elements to be mixed on individual faders and then recombined to a single fader," said Phil Owens, sales engineer for Wheatstone in New Bern, NC.

"Audio techs need to create surround mixes of their commentators, interviewers, crowd elements, field audio, and special effects," Owens said. "The live sports field is one area of broadcast that is making extensive use of surround sound. [It] can help capture the excitement and 'feel' of the venue, whether it's a large stadium or indoor arena." ■

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SAMMA

CONTINUED FROM PAGE 18

robotic equipment; the cleaner/analyzer and tape machines must be loaded and unloaded manually.

What happens when the taped material is played back? The SAMMA people recommend encoding the material with a lossless codec such as JPEG Motion 2000, though the customer is free to encode it in any format desired. Some customers choose to have a high-quality copy as well as a proxy, lower-resolution copy for moving around the network.

SAMMA can configure the system with up to two terabytes of storage attached to the migration system, or can interface with a customer's in-house storage. From there, it is migrated to a media with real shelf life.

Since the limitations of magnetic tape media necessitate the need for migrating videotape materials in the first place, it may be surprising that SAMMA's McCartha gives three reasons for migrating archive material to magnetic tape media, data tape.

"One, is it's cheaper," he said. "You can store more program content per dollar on data tape," versus either videotape or disk-based media, and he fact that it's smaller.

Second, "the hardware [for data tape drives] is cheap compared to videotape recorders."

And his third reason is the relative ease of migrating from one data tape, before its useful life is up, to a new piece of data tape stock.

"If you're storing stuff on tape, you're going to have to migrate it periodically," said McCartha. "No matter what kind of tape it is, the signal's going to degrade, but migrating from one digital videotape that's five years old or 10 years old, to another digital videotape, is kind of a background task."

Pricing of the SAMMA systems can get complicated because of the variety of configurations, tape machines and storage. But the company has some guidelines as to whether it makes sense to purchase or lease, or use a service bureau.

The SAMMA robot can hold from 40 to 60 cassettes at a time from the U-matic, Beta and/or VHS families.

For customers with up to about 2,000 tapes or hours of content, the cost of leasing and installing the SAMMA system probably outweighs the cost of having the migration done by a service bureau. This entails moving archive tapes out of the facility, however temporarily, which is not necessary under the other two options.

From 2,000 to upwards of 20,000 tapes or hours of material, leasing is the most cost-effective route. "It could go as high as 50,000; it depends on a lot of factors," said McCartha. "But if they've got more than about 50,000 tapes, chances are it's going to be cheaper to buy it."

At least one television station group owner has decided to buy and then migrate the migration system from station to station until tapes for them all have been migrated.

To date SAMMA's biggest client is the Library of Congress, which will migrate its massive video collection to the lossless motion JPEG 2000 codec in preparation for moving its video materials in 2007 to the National Audio-Video Conservation Center in Culpepper, Va. ■

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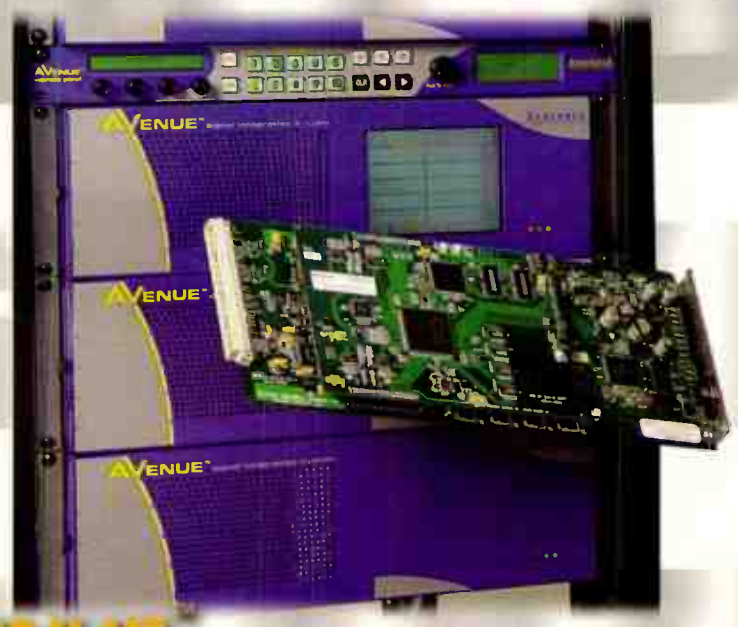

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DIGITAL JOURNAL

Bill Hayes

Mapping a Route to an All-HD Facility

State contract rules complicate the process

JOHNSTON, IOWA

My staff and I spent last NAB evaluating the hardware, software and services needed to convert the IPTV production facilities from analog baseband to high definition digital.

Since the vast majority of our field acquisition and editing is already done in HD, we want to make sure that, as we bring our studio operations into the digital realm, that we maintain the quality of the product and take advantage of the opportunities that digital workflow present. Just pulling out the analog hardware and replacing it with an HD equivalent could be done, but it would be short-sighted and fail to make the best use of what the technology can accomplish.

I suspect that in many ways, our facility is like every other facility. We have a staff of hardworking professionals who've been making content for some time. We know what works and what doesn't. Therein lies part of the dilemma: since our evaluation of the technology is colored by our experiences, traditions and habits, our decisions may be based more on feelings than facts.

FROM THEN TO NOW

IPTV's current studio facility was commissioned in the early 1980s and has undergone very little change since then. The operational areas consist of master control, the tape/server room, linear editing facility, graphics room, online control room with associated audio booth and three studios, including a 300-seat auditorium with associated multitrack audio booth. The majority of these facilities (except the auditorium) form a central core of the building around which the rest of the editing and office complex are built.

The vast majority of the hardware and systems that are in service today are from the original construction. This is kind of a mixed blessing in that very little hardware is being considered for retention in the new digital infrastructure; however we have a tremendous legacy with these components and have been doing business the same way for so long that we are set in our ways and reluctant to change.

Prior to leaving for NAB, the team going to Las Vegas met to review the basic plans and determine who would look at what. We also broke the conceptual plan into three functional sections or phases.

Phase one involves contracting with a firm to develop the detailed plan of what IPTV will look like at the end of the conversion. In broad strokes, we'll be contracting with a firm to perform a complete workflow analysis of our current operation and work with our staff to develop complete plans for the new

Compression

CONTINUED FROM PAGE 10

digital terrestrial broadcasting's weaknesses is marginal or no reception inside buildings, in fringe areas, or in mobile applications. In such situations, it is acknowledged that the 8-VSB channel coding scheme may not be sufficient. One new technology, in the form of a secondary delivery stream, is being explored in an effort to address these weak spots.

"The Advanced Television Systems Committee recently published a revised version of the DTV specification that includes a channel coding scheme called 'Enhanced 8-VSB' that is backwards-compatible and enables the transmission of a secondary 'robust' stream," said Goldman, "Other channel coding schemes are being discussed within the industry as well that will improve reception for fixed, pedestrian and mobile applications. An existing receiver would only see the main stream. Advanced receivers will decode the enhanced/robust stream and this will improve signal recovery."

Goldman added that regardless of the secondary channel coding scheme used, they all use part of the existing available payload bandwidth and MPEG-2 is just not viable at the lower bit rates required.

"[The] industry will have to look elsewhere for a coding standard," he said. "In my opinion, if the industry accepts a next generation coder, AVC is the most likely candidate. The ATSC has so-called proposed 'candidate standards' for advanced compression, but there's no published standard yet. It's still out for comment, but there's been a lot of work done to define the use of advanced compression for broadcast use." ■

operation. The plans will include all of the build to drawings an integrator would need.

There will also be a recommended equipment list and a construction plan that allows IPTV to continue to function as the the new systems and hardware are installed and training is conducted. One limitation that is placed on the new facility is that no significant structural changes are planned or budgeted, so the new HD facilities will have to be implemented in the existing spaces. That particular factor was one of the driving forces to seek outside expertise in the project.

If at all possible, we also plan on having this contractor work with us on evaluating integrations plans and equipment proposals which are phases two and three of the plan, respectively.

For phase two, one of the deliverables from phase one is a complete facility plan that will be part of the RFP documents for integrators to respond to.

Because of limitations placed on us by the State of Iowa's purchasing requirements and code, potential bidders can essentially bid on any two of the three phases but not all three. It creates an interesting dichotomy for us, since most integrators want to do the plan and supply the equipment as well as integrate the system. So we'll issue an RFP for integration that will allow respondents the option to bid on the recommended equipment list when it is released.

Phase three is the equipment list. This is one area where we are really struggling to make the State of Iowa requirements conform to the reality of digital systems.

PLUG-IN EQUIVALENTS

When bidding on equipment in the good old days of analog, we would throw in the open-ended phrase "or equivalent" when specifying a specific piece of hardware. This allowed us to do our homework and determine the specific piece of equipment that met our needs. It also allowed other manufacturers to quote a plug-in equivalent.

This allowed us to be sure that IPTV received exactly the hardware necessary to meet our needs, but still provide for open bidding. Our experience in the digital world is very different. There are very few plug-in equivalents any more, and even when manufacturers tell you that their version is an equivalent, it is very common to find that there are external components needed because one manufacturer's implementation of the "standard" is incompatible or different than the one specified.

These items, which now fall under the broad term of "digital glue," add costs, take up space and increase system complexity. It is therefore critical to either nail down the equipment list so tightly so as to eliminate the need for equivalent options, or write the specifications so tightly as to require any manufacturer or vendor proposing an equivalent proposal to include all ancillary components and those costs as part of the price proposal.

This is another key reason to have the firm that is responsible for the design in phase one be part of the evaluation team for phase three.

Of course, it also may preclude the phase one vendor from bidding on phase three since there is the potential conflict of interest in them evaluating proposals that compete with their own. As of this writing, we are still working with the State of Iowa on reconciling the needs of IPTV with the requirements of the code.

The vision at IPTV is that at the end of this process we'll have a facility that produces all content in high definition. Our belief is that by picking high definition as the universal format throughout the facility, we will reduce the complexity of the plant by eliminating the need for managing multiple resolution formats.

The idea is that all of the conversions happen at the edges and the plant handles one flavor for the most part. Of course this vision is based on the histories, traditions and preconceived notions of the staff and we'll see how that plays out once we begin working with the planning consultant. ■

Bill Hayes is director of engineering for Iowa Public Television.

DIGITAL TV | Charles W. Rhodes

White Spaces Are There For a Reason

I have recently written about the hot topic of sharing broadcast spectrum with unlicensed devices.

There are those who believe that the television broadcast spectrum is being under-utilized, since there are channels with nothing on them in each locality. They call these "white spaces," like an empty piece of paper.

Moreover, they believe that new wireless services could make use of these white spaces.

I've always wondered about the number of these white spaces, or channels, and in how many communities will they be available.

In mid-June, written testimony submitted to the Senate Commerce Committee gave me new insight.

"Even after the digital television transition ends early in 2009, every one of the 210 TV markets will have unassigned and vacant channels reserved for broadcasting, but not being used," testimony from the New American Foundation reads. "Many markets will have dozens of open channels. Vacant TV channels are perfectly suited for WiFi and other unlicensed wireless Internet services."

This made me curious about the number of such channels after the Feb. 17, 2009 analog shutdown. I downloaded "Measuring TV White Space Available for Unlicensed Wireless Broadband," from the New America Foundation Web site at *www.spectrumpolicy.org*, dated Jan. 5, 2006.

This paper analyzes 22 TV markets for the number of white spaces they will have after 2-11-09. Having just moved to within line-of-sight of the Portland, Ore. DTV towers, I looked at the data provided in this document. After 2-11-09, the paper says there will be 10 high-power TV channels, five Class A TV channels, five low-power TV channels and one "other."

I believe the most efficient use of spectrum by white channels would be in a band of their own.

These 21 TV facilities occupy 126 MHz of spectrum. The broadcast spectrum at that time will be Channels 2-36 and Channels 38-51, or 49 channels occupying 294 MHz. So, it is argued only 126 MHz of this spectrum is being used. The implication is that the remainder is white space.

FIRST ADJACENTS

I wondered how 1 watt transmitters can operate in first adjacent channels to any of these 21 transmitters whose ERP can be up to 1 million watts (60 dB above 1 watt). This column and several professional papers have noted that the power in first adjacent channels is 44.5 dB below the power radiated within the authorized channel.

Therefore the sideband splatter into each first adjacent channel is up to 60 dBW – 44.5 dB = 15.5 dBw.

That is a lot of interference in the channel of a 1 watt transmitter to overcome. The proposed ERP for these unlicensed 1 watt transmitters is 2.4 watts, so the noise in first adjacent channels is much stronger than the signal being radiated by these unlicensed transmitters. For reception, the co-channel noise must be less, not more than the signal. Furthermore, broadcasters employ very tall towers, typically 1,200 feet, which gives them the ability to transmit strong signals over large distances.

The IEEE has a Working Group 802.22 devising a protocol for unlicensed transmitters that may operate within broadcast bands. The chairman, Carl Stevenson, has written to me that the use of first adjacent channels is "off the table." I note that MSTV and Dr. Oded Bendov and I all agree that first adjacent channels must not be used by unlicensed transmitters.

As my readers may already know, I am also concerned that strong DTV signals on first adjacent channels may generate third-order intermodulation products, which appear as noise in these first adjacent channels. I am also deeply concerned that large number of DTV receiving appliances will be sold with tuners having little if any RF selectivity to keep signals on taboo channels from jamming DTV reception.

It seems that the testimony cited implied that first adjacent channels could be used. I strongly disagree.

As an example, I considered my own backyard. I used FCC channel selection data to construct a Table of Primary Allotments for full power TV and Class A TV stations in the Portland Ore. area.

All five low VHF channels might be usable by unlicensed transmitters. None of the high VHF channels would be usable by unlicensed transmitters.

The number of vacant channels that are not first adjacent channels is nine. Some of these may be used for displacement purposes or for translators and low-power allotments.

Existing DTV channel allotments on first adjacent channels are or may have to be co-sited to avoid harmful interference. Unlicensed transmitters cannot be co-sited; they will be randomly sited throughout the community, slowly at first, but eventually they might be commonplace.

If these wireless services involving unlicensed transmitters are successful, there will be a large number of base stations. These will operate at the maximum authorized power and radiate from higher elevations than rooftop consumer's antennas.

The New America Foundation testimony indicates 20 white channels in the Portland market. Using the FCC DTV tentative channel designations for the first and second rounds, which include only full-power TV stations, 10 stations are listed.

However there are also five Class A stations in this market, which will be allotted a DTV channel and at least three LPTV/translators for which DTV channel assignments have yet to be made. In addition, there are seven LPTV/translators with out-of-core channels. These have a priority.

As the use of first adjacent channels as white channels is now known to be impractical, very few of the previously reported white channels are viable.

I believe the most efficient use of spectrum by white channels would be in a band of their own, with a suitable guard band separating it from broadcast spectrum.

Perhaps the best place for these unlicensed transmitters is within the low VHF band, where there are very few allotments (43) found in the Table

SPECTRUM, PAGE 37

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FOCUS ON EDITING | Jay Ankeney

Changes Mark the NLE Landscape

Now that the dust has settled from the changes in some edit system ownerships over the past year, it's time to track the new topography of the NLE landscape.

The final acquisition of Media 100's assets by Boris FX was announced only last October, but already Version 11 software was released just last month. Boris Yamnitsky, president and founder of Boris FX, actually worked at Media 100 from January 1993 to April 1994 to lend his insight to the system's effects option back when it was owned by Data Translation and has stayed close to the system ever since.

Now that he is riding the helm, Yamnitsky tells us the system is as strong as ever.

"The reason I decided to go ahead with the Media 100 acquisition is that I am dedicated to the market it is addressing," Yamnitsky said. "And, of course our Boris FX product has been bundled with Media 100 systems for over a decade."

The new software release will be based on OEM AJA video boards that signals an evolution of Media 100 itself to a software-based product. Although they will continue to support their legacy Mac-based turnkey systems, there will be no future releases of their discontinued 844/X effects-oriented system on Windows.

"Media 100 is a significant niche product with a dedicated customer base and we will continue to make sure they have the best NLE possible under its new ownership," Yamnitsky said. "As one of the oldest nonlinear editors on the market, once you started with us we want to keep you in the family."

The sale of Canopus Corp. to Thomson Grass Valley closed last January, but not everyone knows that Canopus, the makers of EDIUS HD editing software, has had the largest market share of high-end multiformat HD edit systems in Japan for the past two years.

MORE MEETINGS

"The biggest difference after the sale is that now I have to attend a lot of meetings," laughed Canopus founder and CEO Hiro Yamada. "Other than that, the Canopus editing system has remained the same. We are already working on the next version of EDIUS, thanks to the great support from Grass Valley's corporate technology re-sources."

Perhaps the biggest change for Canopus is access to a robust marketing channel. Already being used by 63 of Japan's 150 TV stations, they are starting to make significant inroads into the U.S. market. Among 20 other domestic TV stations editing with EDIUS, San Francisco's independent KRON 4 has purchased more than 100 EDIUS software licenses as the realtime nonlinear editing component of BitCentral's Précis play-to-air server system.

"That's because EDIUS is so easy for video journalists to learn, running the same software on studio desktops as on laptops in the field," Yamada said. "Also, we are the only system that can mix any format on the timeline and play it out in real time without rendering. With the power of Grass Valley behind us, you are going to be hearing a lot more about Canopus in the future."

When Avid purchased Pinnacle Systems last August, they not only eliminated a potential rival in the editing game, they also acquired the Deko on-air graphics technology and the family of MediaStream playout servers. The line of NLEs that had originally been developed under the FAST Electronics brand and had introduced the first real-time dual-stream NLE, the Video Machine, back in 1992, is now the centerpiece of Avid's new consumer division.

"We've used the acquisition to broaden our portfolio and start a set of integration projects that will deliver more complete workflows to our customers," said David Schleifer, vice

Studio UI showing steps to export footage to an iPod

Liquid UI showing the multicam feature

president of broadcast and workgroups at Avid Technology. "All of the professional products Pinnacle had are now Avid branded."

That means Pinnacle Studio, based on the original Pinnacle Liquid engine, will be sold through Avid's consumer side under the Pinnacle name. Now in version 10.5, you can get Pinnacle Studio at Best Buy for as little as $79.

The original Liquid and high-end Chrome products themselves will be sold through Avid's professional video division as Avid Liquid and Avid Liquid Chrome, geared for event videographers and mid-level corporate users.

The recent national Avid Liquid Big Splash Tour from May through June gave professionals across the country a

look at these systems mixing DV, SD, MPEG, Windows Media, DIVX, and HDV all on the same timeline without transcoding. Similar exhibitions are scheduled for later in the year.

But how are the Avid Liquid products differentiated from Avid's other offerings such as the Avid Xpress line?

"The Avid Liquid family provides all-in-one applications with a streamlined interface for the content creator who is working alone," Schleifer said. "Avid Xpress is an entry-level system into the whole Media Composer hierarchy. It involves more collaborative workflow with more tools in the toolbox. As a result, Avid Xpress is targeted toward people who will ultimately need more sophisticated tools to finish their projects for high-end broadcast editing or film post production."

'ONELINE' EDITING

Finally, it would be remiss not to use this opportunity to check in with one of the most prominent points on our NLE landscape, Discreet, purchased by Autodesk back in 1999. Fortunately, the names of the Discreet Fire and Smoke edit systems survived the 2005 rebranding of many of their software siblings by Autodesk's Media & Entertainment division.

"The most recent change is that although Fire remains on an Onyx 350 platform, the three flavors of Smoke (HD, SD and 2K) are now available on Linux," said Maurice Patel, product marketing manager for Autodesk Media and Entertainment, "but both systems share the same data-centric feature capabilities depending on their platform's capabilities."

The biggest evolution Patel sees is the concept of "oneline" editing that blurs the traditional paradigm of offline/online.

"These days it is more of an iterative process where you begin with digital storyboard pre-visualization and carry the whole project through finishing on the same system," Patel said. "This includes adding picture value such as visual effects integration and color correction. Our two core competencies have always been a strong editorial toolset along with a robust creative toolset, giving a project an increasingly sophisticated look by making it more graphically compelling."

Today, thanks to decreased storage and processing costs, Patel feels these processes can be combined into the same oneline system. "Now," he said, "the 'oneline' concept is merging all of these capabilities, both human and technical, into one super editor." ■

Jay Ankeney is a freelance editor and post-production consultant based in Los Angeles. Write him at 220 39th St. (upper), Manhattan Beach, Calif. 90266 or at JayAnkeney@aol.com.

THE MASKED ENGINEER | Mario Orazio

Getting to Home Base With A Cast of Multi

You *might not have noticed* that the term HDTV doesn't necessarily guarantee quality. For instance, take an HDTV camera. Aim it at a wall. Start transmitting its pictures. See how long your ratings stay above an asterisk.

Indeed, content matters. So do such other trivial pursuits as lighting, makeup, lenses, and stuff like that there.

Methinks Canon's Larry Thorpe still points out the importance of contrast ratio on image sharpness; someday you must go through the frightening exercise of calculating contrast ratios for ideal reconstruction filters for various HDTV-imager resolutions. Then you can look at diffraction, too. There are good reasons for those beyond-HDTV cameras with giant imagers, even if the ultimate outlet for the pictures is broadcasting.

Anyhow, those are exercises for you to perform when you're done reading this month's rant; they ain't why I shoveled coal into my computer this lunar cycle. No, my cause of the moment is multicasting.

Perhaps you have heard of the term. The idea of forcing cable operators to carry broadcasters' digital multicasts was put on the agenda for last month's meeting of Our Beloved Commish (aka the FCC) and then—over a weekend—pulled. Religious broadcasters raised a ruckus, and don't think it was on account of the item's deletion on a Sunday. The NAB and NCTA are among others weighing in on the issue.

That issue ain't got much to do with quality. Broadcasters want cable ops to carry whatever they transmit; cable ops don't want to have to carry more than a broadcaster's primary service.

The cable ops say they ain't got room, but that doesn't make any sense. If a broadcaster they've got to carry transmits HDTV in 18 Mbps, they've got to carry that 18 Mbps; if the same broadcaster divides the 18 Mbps into six, 3 Mbps standard-definition multicasts, just how does that require more capacity from the cable system?

On the other hand, if a broadcaster's trying to compete with cable by transmitting multicast channels (for instance, see USDTV's off-air channel line-ups), it's hard to understand why a cable op needs to encourage the competition. If a broadcaster wanted to hold its annual picnic on a cable op's premises, that might not cost the cable op anything extra, but why should they have to provide the space?

Anyhow, those are issues best left to bureaucrats and politicians so they'll keep busy and not do things that can really screw things up. I've also been wondering a lot about the multicast economic model for commercial broadcasters. They get paid for ads based on the viewers they provide. If they divide their channels, they provide fewer viewers per subchannel. Meanwhile, they pay for programming based on market size. Pay more; earn less. Methinks I'm missing something.

On account of my not being able to figure out the economics of commercial multicasting, I figure I'll use noncommercial stations for my 20 cents, or, as fancy-word users like to say, pair o' dimes. For instance, try KQED-DT in San Francisco.

According to their schedule, they carry HD on channel 9.1. They carry something called Encore on channel 9.2. Something called World is on channel 9.3. A subchannel called Kids is on channel 9.5 (something called Life is on channel 9.4, but not when HD is on).

They have a couple more channels—as well as video on demand—available on cable only (see, broadcasters and cable can be friends). The analog channel could also be important; a bunch of public stations carry stuff on their analog service that never shows up on the digital. But I want to concentrate on the digital multicast.

SMPTE's HD-SDI carries about 1.5 Gbps. Strip 1080i HDTV down to its 8-bit, "4:2:2" minimum, and you've got 1920 x 1080 x 29.97 x 8 bits x 2 (for 4:2:2). That's still up over 994 Mbps. But Our Beloved Commish allows broadcasters only around 19 Mbps, including audio and housekeeping signals—figure around 18 Mbps maximum for HD video. So, that's a compression ratio of more than 55:1.

That's one whole heck of a squeeze, but that's if a broadcaster is using the entire capacity of a digital channel for HD. KQED ain't. They've got three standard-definition multicasts running full time with the HD. If they happen to devote 3 Mbps to each, that drops the HD to just 9 Mbps, a compression ratio over 110:1! Zounds!

Methinks maybe 9 Mbps ain't quite enough to deliver quality HD for some noncommercial-type programming like maybe a ballet. They could also drop the standard-definition subchannels to maybe 2 Mbps each, leaving a whopping 12 Mbps for the HD and screwing up the quality of the standard-definition multicasts to boot.

The aforementioned USDTV is sending some standard-definition stuff at about 1.5 Mbps, and it looks reasonably okay, thanks to their encoding it as MPEG-4 Part 10 (AVC) instead of MPEG-2. They can do that on account of their supplying the boxes used to receive their signals. For older boxes, they made an MPEG-4 USB dongle; the hard part was getting it to work with USB 1.1.

Unfortunately for non-USDTV broadcasters and viewers, none of the other set-top boxes or digital TVs that have ever been sold includes MPEG-4 decoding. Our Beloved Commish requires broadcasters to use MPEG-2 for their primary video, but they could go to MPEG-4 for the multicasts unless they're picky and want to have viewers.

Before the 100 percent 25-inch-and-up "tuner mandate" kicked in on March 1 of this year, there were only a few million of those non-MPEG-4 boxes and digital TVs to worry about. These days, manufacturers sometimes ship close to 700,000 to U.S. dealers in a single week.

Here's a recap: You can screw up HD with multicasting. You can screw it up less by screwing up the multicasts, too. You could screw it up least with MPEG-4 multicasts, but not if you want viewers for them. Got it? ■

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

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TUNING IN — Gary Arlen

Feature Creep Impedes Digital Appeal

Consumers are fickle, and electronics shoppers are poster children for that problem your mom warned you about: "Your eyes are bigger than your stomach." Now, University of Maryland business school researchers have quantified the problem of "feature fatigue," validating that high-tech gizmos have too many bells and whistles for their own good.

More significantly, the studies show that consumers may think they want dozens of features in their new digital devices, but eventually resent paying too much for functions they cannot use or do not even know are available.

Independent industry reports on the "retail return rate" of high-tech gear—sometimes as high as 50 percent—further supports the feature fatigue study, which was conducted by Professor Roland Rust, Rebecca Hamilton and Debora Viana Thompson of the Robert H. Smith School of Business at the University of Maryland.

The research found that customers annoyed by feature creep take their business elsewhere when they replace equipment. Moreover, unhappy customers vocally complain about the company to other consumers.

WHIZ BANG EFFECT

In their research summary "Defeating Feature Fatigue," published in the Harvard Business Review early this year, the marketing academics skewer over-complicated consumer technology ranging from Mercedes-Benz cars to dual-firm mattresses. But the focus of their research is on home electronic devices—especially digital video and audio recorders and players—that frustrate consumers.

"As faster and faster chips offer ever-increasing memory capacity at lower cost, engineers can't resist the temptation to equip existing electronic components with more functions," Rust and his colleagues write.

They acknowledge that software-based features incur virtually no incremental costs, hence increasing profitability "is purely a matter of increasing revenue."

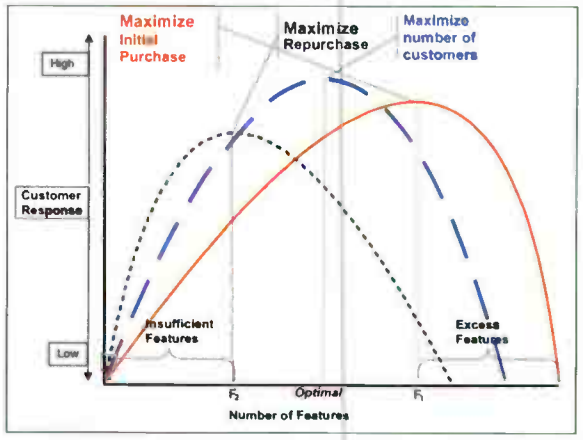
Rust and Hamilton were even more specific when we chatted about their study. Rust pointed out that new video devices are typically sold on the basis that they contain a couple dozen functions. Ultimately, he noted, consumers use only about seven.

Advertising and in-store spiels convince customers that they want all the functionality—but when they get the products home, customers are satisfied with that useful handful of features.

As a result, digital customers feel ripped off by the avalanche of unused—or unusable—functions. By analyzing usage and purchase patterns, the Maryland team created a marketing/business model that demonstrates how to optimize the number of features.

Their formula is built on an equation R = C – D, in which R is incremental revenue from extra features that derives from two perceived effects: a capability bonus (C) and a usability penalty (D).

Chart 1 shows that adding features or functions generates maximum initial sales, but that curve (red) tapers off very quickly. In follow-up products



The effect of tech features on profits. Source: R.T. Rust, D.V. Thomson & R.W. Hamilton, University of Maryland Robert H. Smith School of Business, 2006

(dotted line), fewer features actually become more attractive.

The center curve, which reaches higher levels (i.e. a more favorable customer response), is the one that should be product makers' target, said Rust, who chairs the Smith School's marketing department and is executive director of the Center for Excellence in Service.

He concludes that this approach can help companies "discover the optimal number of features" that accommodate financial requirements and customer loyalty.

PERPLEXED YOUTH

One aspect of the Maryland study's methodology is particularly disconcerting. Like many academic studies, the professors used the handiest consumers they could find—students.

That demographic potentially skewed the results to represent tech-savvy users. Nonetheless, the finding that this tech-tolerant, cadre of 20-somethings was frustrated by feature fatigue underscores the problem.

If they were turned off by too many bells and whistles, what does it mean for older, less competent consumers?

The electronics industry's continual *mea culpas* do little to reassure consumers about the ease of use of digital products. For several years at the January Consumer Electronics Show in Las Vegas, the chief executives of companies from Intel and Microsoft to Panasonic and Sony have publicly admitted their products are too complicated. (Notably, this past year that verbal self-flagellation disappeared, possibly a multilateral decision to stop publicizing the problem.)

Fee-based installation for new digital TV products and services is also a reminder that these devices are still very complicated. One of my favorite personal experiences was at a tradeshow when I asked an exhibitor how many buttons were on the TV remote control she had been using for three days.

She said "17"—but I had already counted the buttons and knew there were 48. Neither of us understood how to use at least two-thirds of those buttons, or knew precisely what services could be available if we clicked the right connections.

The Maryland researchers compliment the Apple iPod as a product that does one thing very well, which raises questions about impending complexity as video and phone features may be added to that simple device.

The vaunted friendliness touted by so many electronics makers can be overpowered as feature creep makes easy products downright surly.

For example, Rust and his colleagues point out that Mercedes-Benz packed some of its cars with so many electronic features that important parts began to malfunction and annoy drivers. The extra capabilities also made it more costly to test for failures. As a result, the carmaker eventually removed more than 600 electronic features from its vehicles, with relatively few consumer complaints.

"Too many companies today are endangering their brands, and their customer relationships, by adding feature upon feature to their products," the Maryland researchers conclude. "They are increasing product capability at the expense of product usability."

That is an incisive lesson as electronics makers expand the digital environment. The jokes about old VCRs that always flashed "12:00" become paltry in an era where customers cannot find multicast channels or services they think they are paying for but do not know which button to push.

After all, customers usually had another clock if they wanted to know what time it was (and were probably not using the VCR's time-shifting function, which was why the clock was there in the first place).

As the University of Maryland study affirms, "less" actually means a lot "more" for most viewers. ■

Gary Arlen has tracked the convergence of media, telcom and consumer electronics for more than two decades; he can be reached at GaryArlen@columnist.com.

Photo: Steve Jordan

NET SOUP

Frank Beacham

Revisiting a '50s Audio Classic

In the rush of new production technologies that constantly come and go, it's easy to forget valuable tools that have been around for a long, long time simply because they do a single job very well.

That's why it's important to periodically reintroduce these classics to a new generation who might react: "Wow, I never heard of that!" In fact, that was just my reaction long ago when an old timer made me aware of an obscure, but very special, 1950s-era British microphone.

Now, you have to be wondering why anyone would care today about a microphone designed more than five decades ago. Let me respond with a little quiz.

Let's say you need to go on the air from a location where the background noise is so piercingly loud that you have to shout to the top of your lungs to be heard by the person next to you. In this situation, what microphone would you use to guarantee that your listeners hear natural, well-balanced voice quality with a dramatic reduction of that ambient noise?

There's really only one correct answer to this question and, if you were like me, you probably don't know it. Give up? The answer is the Coles 4104 Commentator's Ribbon Microphone (aka "the lip mic"), one of the best kept secrets in American broadcasting.

The Model 4104 was designed by D.E.L. Shorter and H.D. Harwood of the British Broadcasting Corp. in the mid-1950s and has been in constant production ever since. Today, Britain's Coles Electroacoustics manufactures the 4104, as well as another Shorter/Harwood-designed classic, the Model 4038 studio ribbon microphone.

In Europe, the 4104 is a well known and widely-used tool for broadcasting voice commentary from noisy locations. It offers better than 30 dB average discrimination between voice and background noise while maintaining a rich, natural quality to human speech.

Often called the "lip mic" because the user places the mic's metal positioning bar across the upper lip, the 4104 is a pressure gradient ribbon design with a high degree of acoustic damping. It offers a flat frequency response at the controlled talking distance and is completely free from breath noises.

The microphone is not unduly affected by wind noise and can be used in air stream velocities up to 20 mph without notable difference in speech quality. With the use of a simple windshield attachment, good quality speech reproduction can also be achieved in winds ranging up to 40 mph or more.

So think sports, hurricanes, fires, helicopters, war zones, noisy industrial plants—anywhere on-air voices typically have to shout to be heard over background noise. This is why the 4104 has a proven reliable performance record over the years and why it's still used by crews for ABC, CBS and the BBC worldwide.

Though the 4101 certainly does its job well, that's not to say the mic's "on your face" appearance is not unusual. In fact, the user could be mistaken for biting the end of a hammer.

The tough-as-nails mic element in the 4104 is housed in a rugged brass perforated case with stainless steel woven mesh nose and mouth screens. Weighing 10 ounces, the mic is handheld by a PVC covered handle with an XLR connector embedded in the end.

Over the years, I have used 4104 in a variety of situations. I once did a vocal commentary in the back of a taxi cab driving through New York City streets as a large tractor-trailer rig passed only a few feet away and loud jet engines roared overhead. It was so noisy I could barely hear myself speak into the mic.

Yet, back in a quiet studio, I played the cab recording to find that nearly all of the background street noise had disappeared. It was at that moment that I recognized the potential of the lip mic as a very powerful production tool. News reporters could use it to do voiceovers from virtually anywhere. It was like having a portable narration booth in a shoulder bag.

There can be an interesting side effect when using the lip mic. Because the outside noise is often so great, speakers sometime raise their voice in order to hear themselves speak. Not only is this unnecessary with the 4104, but it can sound a bit strange with the lack of background noise. A normal speaking voice sounds best when using this microphone.

Often called the "lip mic" because the user places the mic's metal positioning bar across the upper lip, the 4104 is a pressure gradient ribbon design with a high degree of acoustic damping.

NOT SO DELICATE

One misnomer that's been carried over from the old days of RCA 44 and 77 studio microphones in broadcasting is that all ribbon mics are a very delicate breed and should be used only indoors. Not so with 4104. This mic can withstand the rigors of daily use in the field without special care.

Though the Coles 4104 is an child of the 1950s, it remains a valuable tool for innovative broadcasters today. For producers working in hostile environments, its benefits can be a godsend.

The 4104, list price: $796, is represented in the United States by Wes Dooley's Audio Engineering Associates in Pasadena, Calif. *www.wesdooley.com/aea/index.html/* ■

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

Spectrum

CONTINUED FROM PAGE 28

of Tentative DTV Allotments. These allotments (in parenthesis) are Channels 2 (12), 3 (five), 4 (four), 5 (15), and 6 (seven).

A simple low-pass filter at the output of each unlicensed transmitter in the low VHF band would eliminate interference to TV, FM and aviation. Channels 2, 5 and perhaps the lower portion of 6 would be white space for unlicensed transmitters. The upper portion of Channel 6 would serve as the transition bandwidth of the low-pass filter needed to protect FM, aviation and military spectrum users.

This buffer band may be significantly less than 6 MHz. The FCC rules presently proposed for unlicensed transmitters in broadcast bands would allow a transmitter power output of 1 watt in Channels 4-51. If 1 watt is sensible in the UHF band, it makes no sense in the VHF bands, especially the low VHF band.

There it would scale to 10 milliwatts based on the dipole factors for these bands. This is made clear in OET Bulletin No. 69. But, why not leave the proposed power level alone? Let the transmitter power output level remain 1 watt in the new 54-85 MHz wireless band.

Possibly some spectrum immediately below 54 MHz could be made available. The fact is that at low VHF, tuner-generated noise is not the limiting factor, manmade noise is.

Furthermore, if this wireless service is for sparsely populated areas, the people living out there have the space to erect tall Yagi-type receiving antennas to capture low VHF signals, much as they already do for TV reception.

Clearly, the FCC might have to decide the priorities between broadcast and nonbroadcast uses of the public's RF spectrum if the planning of this new wireless service is not done expertly. Complete testing is clearly necessary because we do not know the performance characteristics of DTV receivers being marketed, or about to enter the market.

Realistic specifications must be adopted for the spectrum of these unlicensed transmitters. Field testing will be required to prove that due diligence in testing has been accomplished.

In particular, translators provide millions their only TV signals. Will it come down to whether TV is to be or not to be? Perhaps the only practical compromise is for Channels 2-5-plus to be used for new wireless communications exclusively.

This sounds like the familiar broadband-over-power-lines notion, but without the power lines. Whatever happened to BPL anyway? As always, your comments are most welcome. ■

Charlie Rhodes is a consultant in the field of television broadcast technologies and planning. He can be reached via e-mail at cwr@bootit.com.

Low VHF Band Channels	
2-6	Vacant, might be deemed white
High VHF Band Channels	
7	KOAC, Corvallis
8	KGW, Portland
9	Vacant, but both first adjacent channels are allotted locally
10	KOAP, Portland
11	Vacant, but both first adjacent channels are allotted locally
12	KPTV, Portland
13	Vacant, but is first adjacent channel to 12
UHF Band Primary and Secondary Allotments	
14	K14HN
15	Vacant
16	KORS (Class A) will probably get this channel
17	Vacant but 16 and 18 are allocated locally
18	KOXI (Class A) will probably get this channel
19	Vacant but both 18 and 20 are allocated locally
20	K20EH
21	Vacant, but first adjacent to 20 and 22
22	KPXT, Salem
23	Vacant but both first adjacent channels are allocated locally
24	KNMT, Portland
25	Vacant but first adjacent to 24
26	K26EJ
27	Educational reservation
28	Vacant but 27 is allocated to Portland
29-31	Vacant, may be deemed white
32	Vacant but 33 is allocated locally
33	KWBP, Salem
34	Vacant but both 33 and 35 are allocated locally
35	KORK (Class A) will probably get this channel
36	Vacant, but 35 is allocated locally
37	Reserved for Radio Astronomy by International Agreement
38	KKEI (Class A) will probably get this channel
39	Vacant but both 38 & 40 are allocated locally
40	KOIN, Portland
41	Vacant, but 40 is allocated locally
42	Vacant, but 43 is allocated locally
43	KATU, Portland
44	Vacant, but 43 is allocated locally
45	Vacant, may be deemed white
46	Vacant but 47 is allocated locally
47	KPOU will probably get this channel
48	KPDX, Portland
49	Vacant, but 48 is allocated locally
50	Vacant, but 51 is allocated locally
51	KOXO (Class A) will probably get this channel

Notes: (Class A) denotes a Class A station and enjoy protection against interference the same as that provided for full power stations. They will get DTV channels after Round 3. LPTV and Translator stations will get DTV channels after Round 3 as they are secondary in priority. The FCC has not set dates by which LPTV & Translators must cease analog signal transmission. Out-of-Core broadcasters must find an in-core channel before the end of the third round of channel selections.

Primary table of allotments in the Portland, Ore. area

USER REPORT

Pixel Power Gets It On-Screen Fast

by Laverne E. Goering
Director of Programming & Production
KWCH-TV

HUTCHINSON, KAN.

One of the reasons KWCH-TV is the number one station in the Wichita-Hutchinson DMA is because of our weather coverage. Severe weather is life threatening, and seconds matter. To get weather information on-air as fast as possible, we automate as much as we can.

About 15 years ago we approached Quest Research & Development Corp., a software development house, to help us develop a weather alert system that would auto-capture and quickly and automatically display the National Weather Service's severe weather watches and warnings. We were on-air with that system in nine months.

Over the years, as technology has evolved and progressed, the system has been updated and now includes more powerful software and hardware, including the advanced graphics provided by Pixel Power's Clarity system.

KWCH-TV uses Pixel Power Clarify/Quest to handle multiple tasks beyond just the weather.

USES FOR CLARITY

Our use of the Clarity/Quest system has evolved as well. We're using it for multiple tasks beyond just the weather—sports score tickers, the CBS eyeliner, breaking news crawls, Amber Alerts with pictures and squeezed primary programming during severe weather, with an additional smaller squeezed feed for live radar.

Due to the size of the Wichita-Hutchinson DMA, we operate four stations with one master control and separate feeds to each of those stations. We cover the western stations with one channel of Clarity/Quest and the main station with a separate channel.

Weather is an important issue in Kansas, and getting information to our viewers in a timely manner is critical. Without an automated system we would have to have a dedicated operator manually type in a crawl, which would take too much time to get the information out.

ON-AIR IN SECONDS

Now the operators can key in the breaking news story and with Clarity/Quest control we can get it on-air with seconds. We no longer have to go to a second system and wait for it to go on-air. This is not only useful, but essential if there is severe weather, breaking news, school closings or a posting of "mud-routes." (Here in our part of the country, due to bad weather, school busses sometimes can't travel their normal routes. They travel a different route—a "mud-route" and the parents have to know where their children should go for pick-up.)

Another advantage of the Clarity/Quest system is that it allows us to develop a professional graphic "look" at the local level.

Clarity's animation quality is excellent, and that, combined with its reliable master control capabilities, means we can get breaking news stories to air quickly. This gives us a strong competitive advantage in our market. ■

Laverne E. Goering is currently director of programming and production at KWCH-TV. He can be contacted at lgoering@kwch.com

For additional information, contact Pixel Power at 954-943-2026 or visit www.pixelpower.com.

USER REPORT

Avocent Helps Preserve the Past

by Doug Warner
Director of Engineering
Museum of Television & Radio

NEW YORK

The Museum of Television & Radio is a national, nonprofit, educational organization founded to collect, preserve and interpret television, radio programming and advertisements, and to make them available to the public.

The museum's collection includes more than 140,000 assets (television, radio programs and advertisements) that cover more than 85 years of television and radio history including news, public affairs, documentary, performing arts, children's drama, sports, comedy programs and advertising.

The volume of information stored within the museum is huge, and the task of digitizing and storing all of the content can be difficult.

ARCHIVING CONTENT

As with most broadcast-related operations, the Museum of Television and Radio is concerned with digitizing and storing large amounts of audio/visual material.

AVOCENT, PAGE 39

Avocent

CONTINUED FROM PAGE 38

For the past two years we have focused on archiving tapes into a digitally stored format and now have processed more than 1,400 hours of content. This process was not without problems, however. One of these was the requirement for six of our engineering personnel to access more than 30 video file servers.

The Avocent AMX KVM system

As is often the case in areas of new technology implementation, space was tight. There just wasn't enough room to set up multiple computer terminals for everyone requiring server access.

As director of engineering, I needed to find a cost-effective solution that would provide the engineers with complete control of all the server systems. The solution was the Avocent AMX KVM switching system. Avocent was able to provide multiple video server access from a central location and give the engineers complete control of the production computers.

The Avocent AMX KVM matrix switch enabled us to use less physical space and work more efficiently. The system allows any of the six operators running the digitizing process to access any of the 30 video servers currently in use. In addition to keyboard, mouse and video display information, passing audio signals through the Avocent system was also an important feature for us. With Avocent, we are can ensure the quality of our archiving process.

As I've worked with a variety of other broadcast industry companies in my career, it was quickly clear to me that Avocent was the top of the list when it comes to KVM switching systems. Avocent's reputation for very reliable operation also played a key role in our decision for choosing them. Added to this is Avocent's support for their products used by the broadcast industry. Avocent easily and effectively proved to be the solution that best fit our needs.

As we look to expand our operations to 50 servers, additional users will have to be accommodated in the same physically small space. As the operation grows, we are definitely planning to use the Avocent AMX KVM switching system with a video router. The Avocent system has provided an easy and cost-effective solution solved for switching video, audio and serial content. ■

Doug Warner is director of engineering for The Museum of Television & Radio. He may be contacted at dwarner@mtr.org.

For additional information, contact Avocent at 866-286-2368 or visit www.avocent.com.

BUYERS BRIEFS

The **For-A** UFH-72RS is a multi bit-rate SD/HD video router on a card. The device supports bit rates of up to 1.485 Gbps and performs reclocking of input signals. It can switch DVB-ASI and standard or HD-SDI video. The router features reclocking of signals and has built-in cable compensation for cable lengths of up to 200 meters.

The UFH-72RS allows users to perform crosspoint switching from the front of the card and fits into a For-A UFH card frame. Remote control is available via RS-232 or RS-422 ports, or from a 25-pin D-sub connector. The router also has a GPI port. The router provides four inputs and two outputs. Power consumption is 10 watts.

For additional information, contact For-A at 212-861-2758 or visit www.for-a.com.

The DVS series of routing switchers from **Multidyne Video** are designed for SD, HD-SDI and AES/EBU audio and are available in matrix sizes from 8x8 to 32x32.

Multidyne offers a family of nine basic frames and dozens of system configurations to fit the needs of broadcasters and post production houses. The frames can accept any mixture of the company's digital and analog crosspoint cards and can be controlled with a variety of Multidyne's AVS and WVS programmable router control panels and software GUI control solutions. Audio connections to the router frame are made via removable screw terminal connectors.

For additional information, contact Multidyne Video and Fiber Optic Systems at 800-488-8378 or visit www.multidyne.com.

USER REPORT

Fast Channel Routes With Grass Valley

by Robin Shahid
Chief Engineer & Broadcast Product Specialist
Fast Channel Network

NEEDHAM, MASS.

Fast Channel Network has served the broadcast and cable industry for the past 10 years. We were one of the first organizations to help media companies deliver radio commercials over the Internet.

We now distribute video commercials as well, but our mission hasn't changed. The goal is to deliver the correct spot to the right station on time.

As we've grown, so has the need to manage operations in disparate locations throughout North America. Fast Channel has constructed a flexible and sophisticated spot delivery and audience/competitive measurement service unlike anything else in the industry.

We have implemented a remotely monitored system that includes Grass Valley Concerto multiformat routing switchers and NetCentral remote monitoring software in four separate network operations center locations—Chicago, Los Angeles, Memphis, Tenn., and New York. NetCentral allows us to diagnose and monitor all of the servers and the network as a whole.

CONCERTO ROUTERS USED

The Grass Valley Concerto routers at each NOC receive, process and distribute commercials as audio and video files. With this new delivery system, Fast Channel is now able to log into any of the locations, from anywhere in the world. Using NetCentral, we can track any individual file, and make changes if necessary.

Robin Shahid with some of the Grass Valley Concerto routers used by the Fast Channel Network

Commercials go from a post house or production company to a TV station, anywhere in the country, via our main server locations. We work with all networks and hundreds of affiliates.

Most often, a videotape is delivered to a Fast Channel location and encoded onto our proprietary servers and software with TeleStream's ClipMail system. This file is then passed through a Concerto router, which automatically sends it to a server at each station subscribing to the delivery service.

In this, quality is key. Using an IPTV infrastructure, Fast Channel sends files at 18 Mbps, which is better quality than what goes out over the air to viewers.

At the heart of this system is the Concerto routers, controlled by Grass Valley Encore software at each site. The Encore software, which controls the router at each location, is tightly integrated with our PC-based video servers and other custom equipment.

The Grass Valley routers are very cost-effective to operate and maintain, and also allow us to deliver spots faster than ever before. Our guarantee is delivery within one hour, but we can actually have a 30-second spot at a TV station in 15 minutes.

Fast Channel's system uses metadata associated with each commercial to send it as soon as it is approved for distribution. Participating stations are just a mouse click away from any file. The selected clip goes through the router at one of our NOCs and is at the specific destination within minutes.

We provide a service that never fails and chose Grass Valley for the same reason. The Concerto routers can be populated with different formats—SD, HD, analog and digital audio—in the same frame. Also, an analog audio file can be converted to AES without external equipment, thus saving money, time and space.

This technology allows us to grow and change our business models as needed. Although competition is fierce, Fast Channel has emerged as a leader in digital spot delivery because it has evolved with the times and implemented next-generation IT technologies. In a business where that 30-second spot absolutely, positively has to be there on time, Fast Channel uses Grass Valley technology to make sure it is. ■

Robin Shahid is chief engineer and broadcast product specialist for the Fast Channel Network. He may be contacted at pchdnet@hotmail.com.

For additional information, contact Grass Valley at 800-547-8949 or visit www.thomsongrassvalley.com.

USER REPORT

Televisa Uses Miranda for Cup Coverage

by Armando Medina
Director of Engineering for Televisa Master Control
Grupo Televisa

CHAPULTEC, MEXICO

Grupo Televisa has been a leader in bringing high-quality programming to the Spanish-speaking world for many years. With the 2006 FIFA World Cup garnering extremely high interest, we decided that this would be an excellent opportunity for us to air this monumental event for the first time in high definition.

To assure our viewers and advertisers that our broadcasts would offer matches and related programming worthy of this tournament, we decided to launch Mexico's first three HD channels.

In building a master control area for these new HD channels, we wanted to integrate best-of-breed systems that would provide the reliable and flexible performance necessary for our World Cup coverage, as well as the versatility to operate within our broadcast infrastructure for regular programming, once the final match concluded.

After evaluating our options, we selected master control switching, monitoring, channel branding and signal processing systems from Miranda Technologies for World Cup coverage.

FLEXIBLITY IN MASTER CONTROL

We implemented Miranda's Presmaster master control switching system because of the flexibility it offers for multichannel manual and/or automated environments.

The Presmaster provides full control of video and audio mixing and DVEs. It also provides extremely rich channel branding graphics to create a dynamic, informative and exciting HD broadcast for World Cup fans.

The Miranda HD master control was extremely easy to integrate within our master control, and the level of redundancy, as well as the reliability of the technology on which it is built, made us feel very comfortable with the solution.

The Presmaster master control system is composed of the Presmaster panel,

MIRANDA, PAGE 44

USER REPORT

WISC Builds for the Future With Nvision

by Leonard Charles
Director of Engineering
WISC-TV

MADISON, WISC.

WISC-TV is the flagship station of Television Wisconsin Inc., a subsidiary of Morgan Murphy Stations, the broadcasting division of the Evening Telegram Co. WISC-TV is a CBS affiliate and provides analog programming on Channel 3, and digital multicasting on Channel 50. The station also operates UPN14.

As director of engineering, I'm responsible for technical oversight of the company's Midwest assets, including analog and digital multicast TV and radio stations, a multimedia production company and a monthly magazine.

Existing analog transmission paths limited our growth in both broadcast and Internet program streaming. And with an increasing number of our viewers possessing HDTVs and demanding better picture quality and program choices, we needed to eliminate the bottleneck caused by our analog master control. I realized that we needed a digital infrastructure that would allow our technical plant to meet the future business needs of the station.

Leonard Charles with one of the Nvision NV5128-MC master control switcher panels at WISC-TV

That's where Nvision came in. We chose Nvision routing and master control switchers based on their extreme reliability.

We were also impressed with their platform approach for addressing future requirements. With Nvision we could initially implement SD routing and later use the same core infrastructure to add HD by replacing I/O cards.

Currently the only HD sources available to us are from the network and tape. However, we see the need for HD routing in the future and also realize that tight integration between the core station infrastructure and master control/release would be a key feature.

NEW INTERFACES

We installed the Nvision NV8256 digital video router with embedded audio, and operate it through a redundant NV9000 router control system. We also have three channels of NV5128-MC master control switching.

Two MC-FFCP master control panels allow total control over the three release channels. Four 9601 X-Y and 16 type 9602 control panels provide user access to any of the router levels. A 3128 data router adds a machine control layer.

Nvision also worked with our other suppliers to develop new interfaces, including a bridge between the NV9000 and our new Sony digital production switcher. The master control system is operated under the Sundance Titan automation control, running two playlists and an ancillary event list.

The NV5128-MC platform supports up to four independent digital master control switcher channels. Channels are added by installing a plug-in module. The system accepts up to 128 digital or analog video and audio inputs. The internal DVE can be used with the internal logo store to allow the switcher to produce a completely composited squeezeback. We added an option that allows processing of Dolby E from CBS without having to first convert it to baseband. To monitor audio, the NV9000 handles monitor switching and provides output through an analog audio card.

Nvision has given us a solid base and migration path that will enable WISC-TV to follow television's evolutionary path, wherever that might lead. ■

Leonard "Chuck" Charles is director of engineering for WISC-TV. He may be reached at lcharles@wisctv.com.

For additional information, contact Nvision at 800-719-1900 or visit www.nvision.tv.

PRODUCTS & SERVICES SHOWCASE

PRODUCTS & SERVICES SHOWCASE

Miranda

CONTINUED FROM PAGE 40

Presmaster control system, Imagestore HD video and audio processor and the Intuition HD graphic co-processor. By selecting the Presmaster, our graphics workflow has also been standardized, since Televisa previously incorporated five Intuition SD graphic co-processors to enhance our current standard-definition master control systems.

Now, a centralized graphics department creates graphics templates for both our SD and HD systems.

Miranda's HD terminal gear and multi-image display have also been part of this integration, selected mainly because the quality level was above and beyond competing systems.

Miranda products offer the best signal and image-handling capabilities available today, and the quality these systems bring to our broadcasts has been critical in delivering World Cup play with all the stunning detail and impact of the HD format.

We already extensively use Miranda's 32-input, Kaleido-K2 multi-image display processor to monitor both local and remote production. Advanced end-to-end facility monitoring was part of the project specification, and the Kaleido-K2 fits these requirements perfectly, because, in addition to offering mosaic generation, it also generates alarms that are collected by the iControl application server.

This is where we also control and manage the HD terminal gear. The Kaleido-K2 lets our operators display SD, HD and analog video signals in any variety of window configurations.

The Miranda Presmaster 100 master control switcher panel

Our Miranda systems have met the challenge of supporting one of the world's highest-profile live events, and we look forward to putting them to the test on an everyday basis when bringing general programming to viewers. ■

Armando Medina is director of engineering for Grupo Televisa master control. He may be contacted at amedina@televisa.com.mx.

For additional information, contact Miranda technologies at 514-333-1772 or visit www.miranda.com.

BUYERS BRIEF

The Sequoia family of multiformat mixed matrix routing switchers from Sierra Video Systems is available in matrix sizes from 32x32 up to 1024x1024. The Sequoia routers accommodate analog component, analog composite and SDI SD and HD video signals, as well as analog or AES/EBU audio.

RS-422 machine control routing is also supported by the Sequoia routers. The router architecture allows 64x64 analog and 64x64 digital video switching to coexist in a single frame.

For additional information, contact Sierra Video Systems at 530-478-1000 or visit www.sierravideo.com.

REFERENCE GUIDE

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

Manufacturer	Product	Capacity in KVA or Watts	Regulation Range	Shutdown Voltage	Harmonic and Noise Filtering	Line Noise Suppression	Number of Power Outlets	Weight	Special Features	Price
Equi=Tech Corp. 877-378-4832 *www.equitech.com*	ET20WQ	20 kVA	+/- 2 percent	350 V TVSS only	Yes	100 dB+	10 circuits	256 lbs. + 216 lbs. (2 cabinets)	Balanced voltage output, very low harmonics, low noise grounding and signal reference	$15,289
ETA Systems 330-677-4424 *www.etasys.com*	Conditioned Power Center	10-300 kVA (Three phase)	N/A	Normal mode: less than 10 V; common mode: less than 1/2 V	Yes; harmonic filter optional	-60 dB at 100 kHz; -80 dB at 1 Hz to 5 MHz	Customer specified	520 to 3,350 lbs.	Voltage matching isolation transformer, safety interlocks and lockout/ tagout breaker	$10,211
Furman Sound 707-763-1010 *www.furmansound.com*	AC-215	1,800 W	90-140 VAC	188 VAC	Yes	10 dB at 10 kHz; 40 dB at 100 kHz; 100 dB at 10 MHz	2	3 lbs.	The highest level of protection available and in a compact design	$249
Juice Goose 713-772-1404 *www.juicegoose.com*	FE Series	80-75,000 W	+10 percent to -20 percent under full load	Complete isolation	Both	60 dB normal mode; 120 dB common mode	Various	11 to 3,320 lbs.	Plug-in and hard-wired	$250-$42,000
Middle Atlantic Products 973-839-1011 *www.middleatlantic.com*	PD-915RV-RN Rackmount unit	1,800 W	N/A	No shutdown limit	Yes	More than 20 dB	9	9 lbs.	Surge suppression health indicator and notification; 3 USB style gooseneck light ports	$150
Monster Cable Products 415-840-2000 *www.monstercable.com*	HTS 2600 PowerCenter	1,800 W	90-140 VAC	330 V	Yes	-80 dB	10	8 lbs.	Ultra low-loss RF circuitry; component color coding with matching power cord labels	$349.95
Panamax Corp. 800-472-5555 *www.panamax.com*	MAX 5500-EX	1,800 W	90-142 VAC	330 V	Yes	60-120 dB	11	30 lbs.	AVM AC monitoring, AC regeneration transformer and new noise elimination design	$999.95
PS Audio International 866-406-8946 *www.psaudio.com*	PS Audio P1000 Power Plant	1,000 W regenerated 1,800 W filtered	90-130 V	Regenerated is user defined	Regenerated	70 dB regenerated; 40 dB filtered	6 regenerated; 2 filtered	95 lbs.	Regenerated power, filtered outputs, user-defined voltage and frequency levels	$3,495
SurgeX 215-766-1240 *www.surgex.com*	SEQ	2,400 W	N/A	User programable	Yes	50 dB at 5MHz	14	16 lbs.	Brownout and over-voltage protection and continual display of AC line voltage	$969
Tripp Lite 733-869-1111 *www.tripplite.com*	HT7300PC	1,440 W	N/A	330 V	EMI/RFI filtration-Digital and analog	up to 90 dB	12	19 lbs.	Four ir controllable outlets, two LCD meters for current usage and input amperage, and 12 diagnostic LEDs	$499.95

USER REPORT

Ensemble Directs Aims to Digital

by Dev Multer
Senior Producer
Telelearning and Media Services
Aims Community College

GREELEY, COLO.

Telelearning and Media Services is the media support department of Aims Community College. Our production staff of four staff members—two producers, a graphic artist, and a photographer—is responsible for much of the media production for the college and as well as television production. As the senior producer, I'm responsible for every aspect of our facility from scheduling, to shooting and editing, to studio design, to maintenance and engineering.

Several years ago when we decided to move our TV studio into the digital realm, we were faced with a common problem: How do we interface our existing analog equipment with new digital technology?

Because of our past experience with Ensemble Designs—we were already using several TC400D TBC remote controls and a Carbon analog video I/O for an SGI O2 based character generator—we turned to them for A-to-D and D-to-A solutions.

FLEXIBILITY

Ensemble's Avenue Signal Integration System would give us the flexibility and upgradeability that we were looking for and the company's product support has been nothing short of outstanding.

When we asked if an MII format input could be added to their analog to digital converter, we were told that this would be no problem. When we had problems with a few early versions of the converter modules, they were replaced overnight with no questions. Since those early issues, the frames and every module in them have worked flawlessly.

As our needs have grown, so has Ensemble's product line. So, when we needed a digital video router to handle the growing number of devices in our production environment, we naturally turned to Ensemble Designs which

Dev Multer found Ensemble Designs the right choice for migrating to digital television.

ENSEMBLE, PAGE 50

USER REPORT

Network Electronics Gives ATLAS Muscle

by Bret Mann
Technical Manager, ATLAS
University of Colorado at Boulder

BOULDER, COLO.

The University of Colorado's Alliance for Technology, Learning and Society is an innovative, campuswide institute that broadens the benefits of the information age by providing multidisciplinary curricular research, both inside and outside the university.

We broke ground for our new $34 million dollar Atlas Center in February of 2005 and classes are scheduled there this fall.

This five-floor building encompasses 66,000 square feet, and includes a performance studio, production studio, distance learning-equipped auditorium, film screening room, several classrooms and an exhibition lobby.

It also will house the National Center for Women and Information Technology, the Film Studies Program and the new Teaching and Learning Center.

NOT A NORMAL INSTALLATION

Obviously, this is not a normal broadcast TV installation; it's more of an experimental theater tied to a conventional broadcast facility. It presented a great opportunity not just for including new learning technology, but also for designing a core system to serve diverse user needs. When we did our budgeting, HD prices were out of reach and we went with SD.

As a new state-of-the-art facility and one of the more important developments on the campus in 50 years, I wanted a fully capable, well-designed router. Our original budget only allowed for patchbays, but then I

A small portion of the equipment installation at the Boulder Campus of the University of Colorado ATLAS Center

NETWORK, PAGE 49

Network

CONTINUED FROM PAGE 48

heard about Network Electronics and checked out their equipment at NAB2005. I was impressed. The Network Electronics price fit nicely within the budget we had allowed for patchbays, but their equipment also provided a great deal of functionality.

We purchased a package that included their VD6464 for SDI, the V3232 for analog video, the A6464 for analog audio, the A1616 for timecode, and a number of control panels.

These units are all slim, have low-power requirements, stay cool and will not be a burden on our HVAC system or power bill. The Network Electronics system was simple to install, offered the versatility for upgrading to HD and can easily mix analog and digital formats.

Best of all, the user interface is simple for our students to use. They can easily understand how to assign input and output signals; some routers aren't that simple to figure out. The P-64 PROXY panel makes it simple to see exactly where the signals are being routed. This is not only good education, but helps us avoid switching catastrophes.

Our systems integrator, Denver-based CEAVCO, has been pleased with Network Electronics equipment too. Their installers remarked at how easy it was to connect the Network Electronics equipment. They had no problems with the installation and completed ahead of schedule.

I feel very comfortable with the Network Electronics equipment. Like a lot of businesses and institutions these days, we've cut back on personnel and I don't have a true engineering staff. I have to look for equipment that is going to hold up and not require a lot in-deep technical knowledge. I'm not an engineer, but I can certainly play one when necessary. The Network Electronics routing system stood out as the best, easiest and most cost effective solution to get all our signals soundly around the miles and miles of wire in our new Atlas Center. ■

Bret Mann is technology manager for the ATLAS project. The opinions expressed are solely those of the writer. He may be contacted at mannb@colorado.edu.

For additional information, contact Network Electronics at 800-420-5909 or visit www. network-electronics. com.

BUYERS BRIEF

The Platinum series of routers from the Leitch Division of Harris Corp. are designed for large switching applications and can be configured for up to 512 inputs and outputs. The routers support any mixture of analog, SD and HD SDI and ASI video signals, as well as analog and AES audio.

The Platinum routers feature optional built-in conversion of analog signals on the input or output sides and can handle signals up to 1.6 Gbps. Digital signals are automatically reclocked and the router also provides automatic cable equalization. All modules are front loading and can be hot-swapped to ensure continuous operation.

The routers have redundant power supplies, resource modules and signal paths for enhanced reliability. The Platinum line supports all legacy Leitch control protocols, as well as CCS Protocol and SNMP. Drivers are offered for interfacing with most third-party routers.

For more information, contact the Leitch Division of Harris Corp. at 800-321-9673 or visit www.leitch.com.

USER REPORT

College Department Grows With PESA

by Ralph Gnann
Chief Engineer
Film & Television Department/
Sound Design Department
Savannah College of Art & Design

SAVANNAH, GA.

The Film and Television Department of The Savannah College of Art & Design has grown phenomenally over the years. At each step of the way, the college has been able to stay up-to-date with the state-of-the-art for industries in which our graduates will find employment. This hands-on experience with current industry standard equipment has been one of the keys in helping students find jobs at graduation.

Years ago, when it became necessary to move from machine-to-machine editing, we invested in Avid nonlinear editors. We needed to provide multiple edit stations access to a limited number of playback/record decks.

A vendor suggested that I look a PESA. I compared prices and features and also recalled audio connectivity issues I'd had with another brand of router. After some research, I found that the PESA Cougar, with digital video, AES/EBU audio and machine control routing a very good match for our needs.

BUILDS LAB AROUND COUGAR

We built a lab with 10 Avid Media Composers, four MII decks, a Betacam deck and a DAT machine. The lab was built around the PESA Cougar. The MII decks were eventually replaced with DVCPRO, and later DVCPRO 50 was added.

The Avid stations have been upgraded and a teachers' station has been added to the configuration. The Cougar router has continued to give good service throughout all the changes.

As the department continued to grow, a second Avid lab was built, this time with DVCPRO and DVCPRO 50, DigiBeta and 12 Avid Symphony editors. Again a PESA Cougar was chosen for routing. Later, Sony and Panasonic HD decks were added. This lab can now do SD off-line edits with material that was originally shot in HD.

PESA routing equipment, including the Cougar and Ocelot models used at Savannah College of Art & Design

I chose to build each lab as an independent system because of the teaching style of the department as well as the locations of the two labs. The college tends to purchase, replace, or upgrade equipment and systems based on class offerings. These standalone labs have worked best for us.

The department needed to be able to do transfers between the several tape formats in use. Students make backup copies of their original material and want VHS and DVD copies to send to parents, and more importantly, to prospective employers. To meet these and other needs, I built a dub facility for making digital and analog copies from and to all formats in use. Everything is tied together with a PESA Ocelot router.

EXPANDING OPERATIONS

The Film and Television Department has been in another growth phase this summer. By the fall, part of the original lab described above will move to another building and become fully HD-capable and will be expanded to 21 Avid stations. The existing router will be replaced with a new PESA HD-capable unit.

The 12-station lab will be upgraded to all HD-capable Avid systems. An older adjoining facility will be integrated into the routing system. New PESA modules are on hand to add HD to the existing Cougar and expand machine control capabilities.

Through the years we have had good experiences with PESA in areas of both engineering and service. PESA worked us through a machine control incompatibility problem and the service center has provided loaner service when lightning took out our machine control modules. Would I go back to PESA? I already have. ■

Ralph Gnann is chief engineer of the Film & Television Department and the Sound Design Department at The Savannah College of Art & Design in Savannah, Georgia. He may be contacted at (912) 525-6455 or rgnann@scad.edu.

For additional information, contact PESA at 800-328-1008 or visit www.pesa.com.

Ensemble

CONTINUED FROM PAGE 48

had, by that time, introduced the model 5430 8x1 digital video router and the model 5440 module to expand it to an 8x8 configuration. The router can be controlled through a touch screen panel, a Web browser, Avenue PC or the Avenue external X-Y router control panel.

We use the 8x8 configuration and the X-Y control panel in a fairly straightforward manner. The inputs are fed from two of the AUX outputs of our production switcher, two playback channels from a DDR, the key and fill signals from a secondary CG, a VTR output and also from a nonlinear edit system.

The router outputs feed a digital waveform monitor/vectorscope, inputs of two digital VTRs, three inputs on the production switcher and an NLE. This setup allows us to route any input of the switcher to the waveform monitor/vectorscope though the switcher AUX output so we can adjust levels during a live shoot, if necessary.

It also effectively expands the number of inputs on our switcher, and allows us to record isolated cameras during a shoot, and to record a live studio program directly on the NLE.

The 5430/5440 8x8 Digital Video Router and X-Y Control Panel has expanded our production capabilities and given us some much needed and desired flexibility. This was all achieved at a reasonable price and is backed with excellent product support and a company staffed with knowledgeable and helpful people.

As our signal integration, distribution, and other needs change and grow, Ensemble Designs will be the first company we look to for solutions. ■

Dev Multer is senior producer of Telelearning and Media Services at Aims Community College in Greeley, Colo. The opinions expressed are the author's alone. He may be contacted at dev.multer@aims.edu.

For additional information, contact Ensemble Designs at 530-478-1830 or visit www.ensembledesigns.com.

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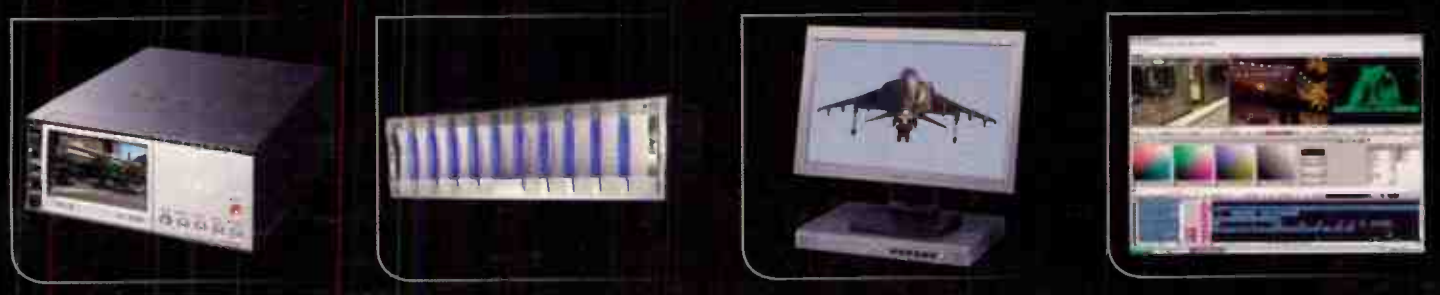

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USER REPORT

Ross Plays Key Role for Scotiabank Place

by Stan Kertesz
Audio and Video Production Manager, Ottawa Senators
Scotiabank Place

OTTAWA

Scotiabank Place, a multipurpose sports and entertainment facility, is home to the NHL's Ottawa Senators, who attract more than 19,000 fans per game to the venue. It's also one of North America's leading concert and special event facilities.

As the audio and video production manager for Scotiabank Place, my responsibilities include directing, editing and switching video for productions; managing a freelance crew of technicians; and coordinating equipment repairs and upgrades.

During an NHL game, I direct and switch the video that appears on the video scoreboard. We have five in-house cameras, and six feeds from the broadcasters to choose from during each game.

Our production includes many video and graphic elements that entertain the fans. It can get hectic, and you need reliable equipment to ensure everything runs smoothly.

CONTROL ROOM UPGRADE

Two years ago, we upgraded our video and audio control room. When the new control room was created, we needed a production switcher that could handle SDI and we also needed a new router and terminal equipment. We chose Ross because of the value and quality of the equipment.

Our choice for the signal routing part of the upgrade was the Ross Kondor 32x32 router, it's very easy to use and I've had no problems with its operation.

The one thing I really like is the Geneos Router Control System. It has allowed me to design and control the entire router setup; it's a beautiful thing. I can't stress highly enough the convenience of this router control system. It's easy to design your own layout. The amount of immediate feedback the Vpanel provides is amazing.

I can verify router assignments at a glance. It was also a no-brainer operation to train my crew. They just have to point-click-route; simple. The crew can look at it and know exactly where everything is routed. Actually, the immediate response from some of the crew who are experienced working with other routers in broadcast environments was, "Wow, that's easy!"

Ross Video equipment in use at Scotiabank Place

The Ross router eliminates potential for errors, right off the bat and there are no mistakes. It's worked very well.

We have had several power outages caused by thunderstorms, ice storms, heat waves, and the router has performed well through all of these. I would definitely recommend Ross to anyone who might be in the market for a new system. In fact, we are currently planning to expand our Ross system.

Ross products provide excellent performance during live shows and have improved workflow. The Ross Gear is easy to use, uncomplicated and has enhanced our productions. Ross has never failed me in any type of live production setting at Scotiabank Place. ■

Stan Kertesz is audio and video production manager for Scotiabank Place. The opinions expressed are the author's alone. He may be contacted at kerteszs@ottawasenators.com.

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

USER REPORT

Pro-Bel Sirius: Just Right for Weigel

by Kyle Walker
Director of Engineering
Weigel Broadcasting

CHICAGO

Weigel Broadcasting is a family-owned company, operating stations in Chicago; Milwaukee, and South Bend, Ind. Our flagship station, WCIU-TV, Channel 26, began broadcasting in 1964, signing on as the first UHF station in Chicago.

In fact, the call letters stand for "Chicago's 1st UHF" station. We operate an ABC and a WB station in South Bend. The majority of our content is syndicated programming, although we do carry a lot of sports—both Chicago Cubs and White Sox baseball, Bulls basketball and an occasional Chicago Bears game.

The technical operations for the South Bend station are handled from Chicago, with all of the on-air switching handled via microwave from the WCIU-TV central master control facility. The Indiana station has its own sales and production department.

MOVING TO DIGITAL

Last year, we decided last year to transition our Chicago operation from analog to digital. We handled all the design work in-house and also carried out all of the systems integration. Central to our new system planning and design was the routing technology.

We selected Pro-Bel for this task and also to provide master control switching functionality. As these stations run mainly syndicated programming, we don't have to handle live news. Our switching is done on a cuts-only basis, so we are able to use the output channels of the router for this operation. All of this is operated by our automation system.

Kyle Walker, director of engineering for the Weigel Broadcasting group with the new WCIU-TV Pro-Bel Sirius router

The router, a Pro-Bel Sirius, is equipped with a 128x128 matrix for video and a similarly sized matrix for audio. Of that, 16x16 is set up for high definition SDI, 24x24 is set aside for analog and the rest is standard definition SDI. On the audio side of things, we're using approximately 88 inputs for AES, with the rest going for analog audio. We decided to go with discreet audio, based solely on cost analysis.

As I mentioned, the Sirius router is used as the master control switcher and once the signals leave the switcher, they then pass through additional processing. We do embed the audio before moving signals through the chain. Equipment such as our DekoCast, which is used for branding, and Nielsen encoders prefer to operate with embedded audio. After passing through those devices, it is broken out and returned to a discreet signal.

We have been very happy with the Pro-Bel technology. Value-wise, the purchase was a good proposition. One of the things that attracted us was the built-in video A-to-D conversion. This clean conversion is perfect for monitoring and for older analog-only equipment.

We appreciated the cost-saving approach that this offered. Another benefit that we really liked was the router crosspoint structure. Many manufacturers are growing their router structure into larger input and output cards. Some of these now come in blocks of 32.

In our situation, that is a big number to grow by and if something should go wrong, that is a lot of failure. Pro-Bel offers 8x8 router blocks, which are much better suited to our application. It's especially important for HD.

You don't necessarily want to grow in chunks of 32 or 16. Growing by blocks of eight is ideal for us. Right now, with Pro-Bel's help, we have achieved what we set out to achieve, and are anticipating our next set of moves, as nothing stands still for long in this business. ■

Kyle Walker is director of engineering for the Chicago-based Weigel Broadcasting group. He may be contacted at kwalker@wciu.com.

For additional information, contact Pro-Bel at 631-549-5159 or visit www.pro-bel.com.

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USER REPORT

KNPB Unifies With Utah Scientific

by Fred Ihlow
Vice President of Technology
KNPB

RENO, NEV.

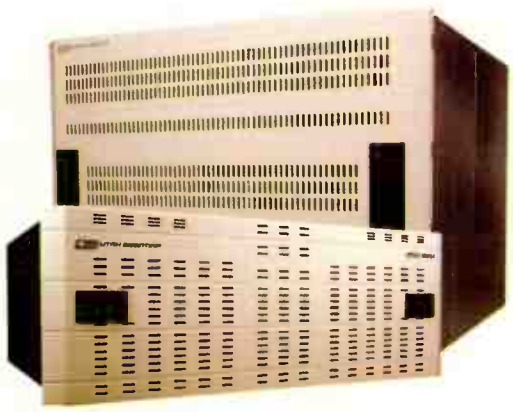
KNPB is the PBS outlet for northern Nevada and eastern California. We simulcast an analog and standard definition digital service, along with a full-time high-definition channel. Additionally, we operate a second SD channel to broadcast the PBS "Create" service.

About five years ago, we started planning a new digital plant, with the idea of building a completely integrated digital broadcast system. A crucial part of this was finding master control and routing switchers that would work with each other.

We also needed a router that could not only handle multiple incoming sources in a variety of formats, but also be able to integrate and work with older plant routing switchers. The new switcher had to work well with automation systems, servers, and other equipment in our facility.

NO RESTRICTIONS

We wanted a system that would meet our unique needs, rather than adapting our operation to the restrictions set by equipment. For instance, we wanted to be able to integrate our production and edit suites with the overall workflow.



The Utah Scientific 400 routing system

We decided to use analog audio with digital video in the plant, because of lip-sync and other problems inherent in digital audio. This required a router with analog audio, and SD and HD video switching. We would be able to transport the analog audio through the plant, encode it to digital just prior to broadcast, and sync the now-digital audio with the video.

As we would be broadcasting in HD, SD and analog video for some time, it was necessary to have a switching and routing system that could handle different formats.

Our history with Utah Scientific goes back 25 years. Considering past positive experiences and the quality and reliability of their products, it was only logical that we considered them for this project. We ended up purchasing the HD/SD MC-2020 master control switcher, the UTAH-400 digital routing switcher and SC-4 system controller. Integrated with the UTAH-400 is a UTAH-300 SD analog routing switcher; a UTAH-200 analog audio router used with the HD video; a second UTAH 200 (used as an MC bypass router); a BPS-2020 HD bypass router; and a DDS-2 machine control router. This has enabled us to integrate all of our equipment into one unified routing system, controlled through the UTAH SC-4.

The HD/SD-2020 is a true modular master control switcher, and can handle up to 10 channels. Two processing channels can fit into a single rack-mount chassis.

FULL INTEGRATION

The SC-4 control system has allowed us to further integrate all of the equipment in the new digital plant. It controls all of our routers through a central system, providing the ability to manage all the routers together, rather than as separate "islands."

Besides the reliability of the equipment itself, Utah Scientific is always there for us when we have any support issues. We have plans to add more local programming on our SD channel and are looking forward to using the capabilities of the MC-2020 and UTAH-400 for that project. Thanks to the reliability and support of Utah Scientific, we can see ourselves reaching those goals. ■

Fred Ihlow is vice president of technology at KNPB. He may be contacted at Fred@KNPB.org.

For additional information, contact Utah Scientific at 800-447-7204 or visit www. utahscientific.com.

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Fallout Over Univision Sale

LOS ANGELES

Shareholders have reportedly filed two class-action lawsuits in Los Angeles Superior Court against Univision Communications Inc. and its board members, claiming Univision breached its fiduciary duty when it was sold to a group of investors in June.

A lawsuit filed June 27 requests a court order blocking the company's sale and seeks unspecified damages, according to news reports. A suit filed June 28 claims the board structured the buyout deal with an eye on benefiting company insiders and not average shareholders.

Univision went up for sale in February, and the company accepted an offer of $36.25 a share, or about $12.3 billion, from an investor group led by media mogul Haim Saban in June. The other bidder was a group of private equity firms led by broadcaster Mexican broadcaster Grupo Televisa, and included private equity firms Bain Capital Partners LLC and Cascade Investment LLC.

Grupo Televisa, which provides programming for Univision, holds about 11 percent stake in the Spanish-language TV network in the U.S. In a letter that was filed with the Securities and Exchange Commission, Grupo Televisa said it was prepared to discuss the sale of its shares based on the present value of the per-share price.

Televisa also said that if its stake in Univision falls below 13.6 million shares, it will no longer be obligated to include Univision as a partner in any new programming opportunities in the U.S. enabling them to pursue other ventures.

SSL Purchases Sydec

OXFORD, ENGLAND

Solid State Logic has purchased Sydec Audio Engineering NV, developers of the Soundscape range of digital audio equipment and software. Financial terms of the deal were not disclosed.

SSL said the acquisition has perfect synergy with its commercial and technical development path. The company said its own workstation production toolkit has grown in the past 12 months to encompass controllers, analogue and digital rack processors and plug-ins.

"This is an excellent fit for SSL and supports our concept of providing quality tools for the DAW environment," said SSL Managing Director Antony David. "We're committed to working with a range of companies to improve and democratize the creative process and this gives us a great opportunity to accelerate our involvement."

The Soundscape team brings PC platform development experience to SSL. The combination of these skills with SSL's digital and analog expertise will lead to the development of new tools for existing and new applications, according to the companies. The relationship also opens new commercial channels and allows a broader range of SSL and Soundscape products to be distributed around the world.

Sydec's General Manager Erik Wijnen said, "I feel sure SSL will enhance our productivity through its great brand, market understanding and presence."

NHK Selects DVCPRO HD

OSAKA, JAPAN

Japanese public broadcaster NHK has officially adopted the Panasonic DVCPRO HD format for use within the organization and will take delivery of 201 camera-recorders and VTRs in August.

The new units—124 AJ-HDX900 camera-recorders and 77 AJ-HD1400 recorders—will be used for NHK local high-definition production. The introduction of DVCPRO technology is part of NHK's plans for transitioning from analog to digital broadcasting, slated to be completed in 2011.

NHK established a competitive procurement program and the Panasonic DVCPRO HD products were selected for several reasons, including the ability to record in 11 HD formats and with a wide range of interfaces to enable ease of editing with existing nonlinear equipment.

Panasonic first placed the DVCPRO series of high-definition equipment on the market in 2000 and the company has shipped more than 10,000 units to date.

Comcast Acquires thePlatform

PHILADELPHIA

Comcast has purchased thePlatform, a Seattle-based company that provides digital media publishing solutions. Financial details of the sale were not disclosed.

thePlatform CEO Ian Blaine said the two companies have worked together on broadband video for a number of years. Comcast uses thePlatform to deliver video over its "Fan" Web site, and it was this working relationship that led to the deal in June. Blaine said thePlatform will operate independently but continue to work with Comcast on The Fan, as well as pursue its own business.

"It's business as usual, with added help," Blaine said.

Founded in 2000, the company currently has 70 employees and Blaine said he would not be surprised to be at 100 by the end of the year. Although the plan is to keep the company headquarters in Seattle, Blaine said he intends to build out a sales team in important regions throughout the U.S. Blaine said the company would continue to serve its customers, and plans to pursue the broadband and mobile video market "aggressively."

Comcast could not be reached by deadline. The company reportedly intends to support thePlatform's growth plan as well as its customers.

Bosch Buys Telex

MINNEAPOLIS, MINN.

A subsidiary of Robert Bosch GmbH is purchasing Telex Communications Holding for $420 million, including the assumption of Telex debt.

Telex manufactures professional audio, wireless and communication equipment. Its brands include Electro-Voice, Dynacord, Midas, Klark Teknik and RTS.

The companies said that upon closing, the surviving company's name will be Telex Communications Holdings Inc., with its headquarters remaining in Minneapolis. If the merger goes through, Telex will be assigned to the Bosch Security Systems division.

"With the acquisition of Telex, Bosch Security Systems can significantly expand its communications systems product offerings and penetrate the professional audio equipment market. The strength of the Telex distribution network will enhance our worldwide market position as a provider of comprehensive security and communications systems," said Bosch board of management member Peter J. Marks.

Telex reported sales in FY 2005 of $308 million. It has about 2,000 employees at 14 locations in nine countries.

WIN-LOSE RATIO

TOP ADVANCERS BROADCAST STOCKS
(June 23 - July 7)

Gray	+6.60%
Tribune	+3.70%

TOP DECLINERS BROADCAST STOCKS
(June 23 - July 7)

LIn TV	-7.71%
Nexstar	-6.93%

TOP ADVANCERS TV STOCKS
(June 23 - July 7)

Harris	+6.35%
Scopus	+5.14%

TOP DECLINERS TV STOCKS
(June 23 - July 7)

Ciprico	-3.85%
SeaChange	-0.88%

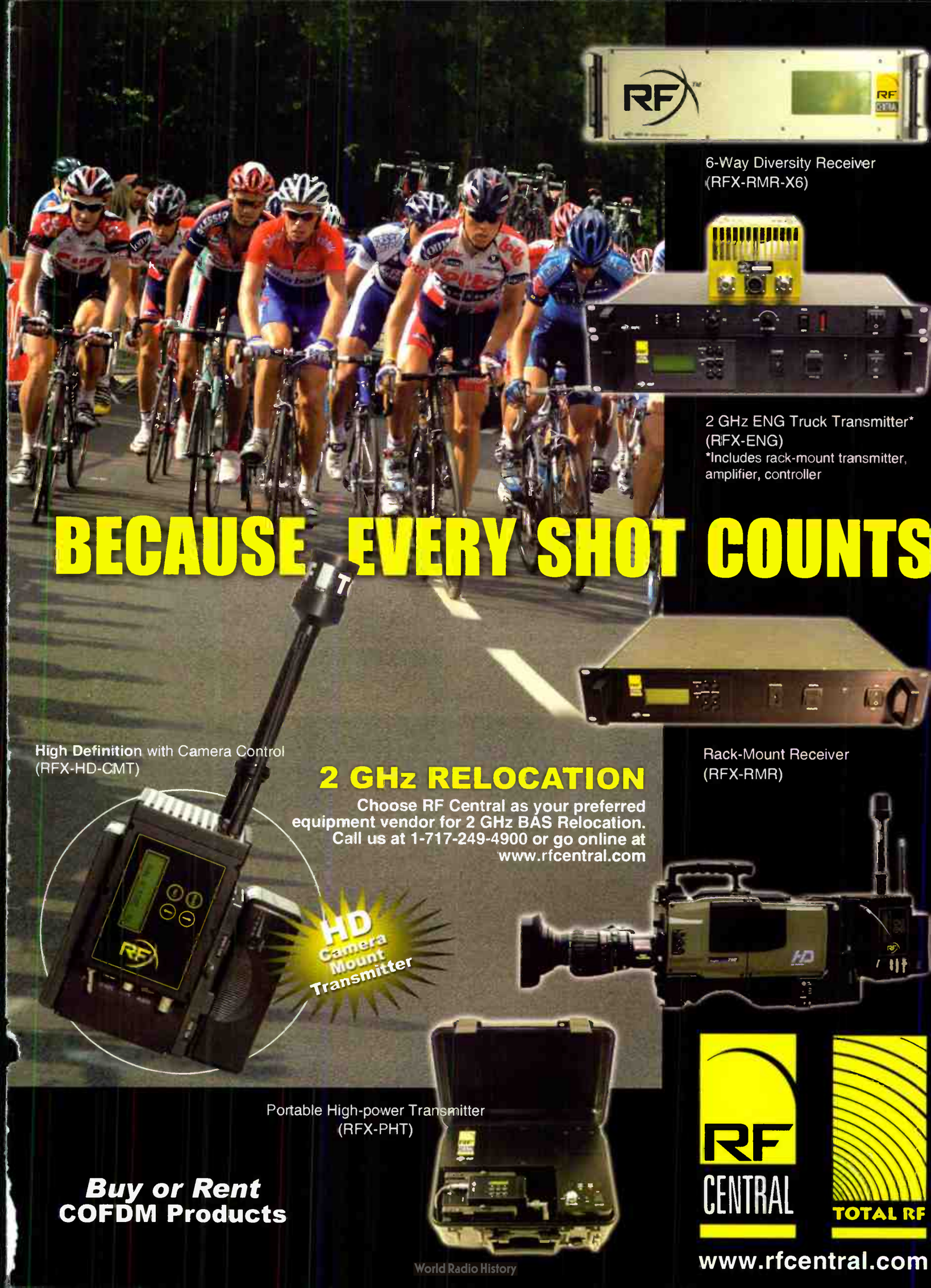
To have your company listed, contact Melissa Sullivan at msullivan@imaspub.com.

TV Tech STOCKS as of July 7

Company Name	52-Week Range	June 23	July 7	% Change
Avid	32.95 - 59.10	33.81	33.60	-0.62%
Belden	18.65 - 33.55	30.24	31.57	4.40%
Ciprico	3.70 - 6.84	6.24	6.00	-3.85%
Harmonic	3.79 - 6.95	4.17	4.30	3.12%
Harris	30.91 - 49.78	38.72	41.18	6.35%
LSI Logic	7.60 - 11.81	8.60	8.83	2.67%
Scopus	4.80 - 8.35	5.25	5.52	5.14%
SeaChange	5.07 - 9.89	6.85	6.79	-0.88%
Tektronix	22.64 - 36.89	27.99	28.16	0.61%

Broadcast STOCKS as of July 7

Company Name	52-Week Range	June 23	July 7	% Change
Acme	3.50 - 5.74	5.01	5.13	2.40%
Belo	15.36 - 24.68	16.33	15.67	-4.04%
Entravision	6.80 - 9.50	7.94	8.08	1.76%
Fisher	41.20 - 49.89	41.81	41.20	-1.46%
Gray	5.15 - 13.59	5.61	5.98	6.60%
Hearst Argyle	21.53 - 26.34	22.06	21.89	-0.77%
Nexstar	3.93 - 6.37	4.62	4.30	-6.93%
Lin TV	7.35 - 15.49	8.04	7.42	-7.71%
Ion Media	0.37 - 1.15	0.91	0.92	1.10%
Sinclair	7.18 - 10.07	8.44	8.39	-0.59%
Univision	23.52 - 36.67	32.95	33.30	1.06%
Young	1.70 - 5.04	3.08	3.00	-2.60%
Tribune	27.09 - 39.56	31.34	32.50	3.70%
Meredith	46.50 - 56.83	48.21	48.70	1.02%
EW Scripps	42.29 - 51.19	44.59	42.60	-4.46%



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- mixing router based topology
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- COMPACT – 32 faders – 53" wide / 32" deep / 9" high
- router based source / destination selection
- paging channel strips – 64 channels on 32 faders
- scalable – up to 64 input faders
- routable mixes
- event storage and recall
- eight stereo subgroup mixes
- eight stereo sends
- eight mix-minus outputs (can be expanded)
- four DCM faders (digitally controlled groups)
- Bus-Minus (w/TB & solo) on every input (direct out)
- pan/bal, blend, mode, EQ/dynamics on every input
- delay inputs or outputs (frames or milliseconds)
- fullscale digital peak and VU metering
- two studios, CR and HDPN/Studio 3 monitors
- talkback communication (programmable)
- mix follows talent / logic follows source
- 12 user-programmable switches (comm, salvos, triggers, etc.)
- automatic failsafe DSP card option
- automatic failsafe CPU card option
- redundant power supply option
- switched meters with system wide access (including all console inputs and outputs)
- dedicated master, group and DCM faders (no fader sharing)
- motorized faders
- pageable fader option
- dedicated LCD display per function (EQ, Pan, Dynamics)
- multiple surfaces can share I/O

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