



RADIO WORLD

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INSIDE

I CAN HAZ GUD GRAMMERZ?

• Rod Schwartz on how to improve essential communication skills. — Page 30

DEAR PARENT'S GUARDIAN'S FOR THE SAFETY OF YOUR CHILD THE ATE'S ARE TO BE CLOSED AT ALL TIME'S

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SIR MIX-A-LOT

• The Radio Road Warrior cogitates on the role of small mixers in the arsenal of news tools. — Page 32



HAM, NOT SPAM

• Radio World readers had a lot to say about what amateur radio has done for them. — Pages 36-37

EXPERTS TALK CODECS

SEE PAGE 14



Kevin Campbell
WorldCast Systems



Kirk Harrack
Telos Systems



Tom Hartnett
Comrex



John Lackness
Tieline



Keyur Parikh
Harris Intraplex

Harris Broadcast Has Its New Owner

The Gores Group set to take over equipment maker early this year

BY RANDY J. STINE

The Harris Broadcast Communications Division soon will have a new owner. Barring some unforeseen complication, the transfer to The Gores Group LLC will be finalized early this year.

The announcement settles uncertainty over Harris Broadcast's immediate future. Now the focus moves to questions about how the owner will operate the long-time manufacturer of radio and TV transmitters, STL equipment, consoles and other systems.

Harris Corp. met its self-imposed year-end deadline of selling the division in early December. It reached an agreement to sell the division for a package worth up to \$225 million. Gores is a private equity firm that has a variety of holdings including a partial stake in syndication giant Dial Global. Its founder has been described as a "fixer-upper" and once said he has a "formula to save companies" (see sidebar).

Division President Harris Morris wrote to employees: "Being owned by The Gores Group as a privately-held company will enable Harris Broadcast to capitalize on our market-leading position, continue to pursue growth opportunities, and aggressively respond to continually evolving market trends and customer needs."

The sale price includes \$160 million in cash at closing, which is expected to take place early in 2013. Some broadcast observers questioned the price, calling it low in light of past Harris purchases to bulk up. For example, Harris spent \$340

million to acquire Encoda Systems in 2004 and \$450 million to acquire Leitch Technologies in 2005.

In a note to clients, Devoncroft, a market research firm, compared the cash portion of the deal to a price of \$200 million or more that Harris Corp. CEO William Brown had telegraphed to the market. As recently as October, officials had put a net book value of \$287 million on the company's broadcast communications business, which Brown said at the time "gives an indication of the value we expect to receive" from the sale, according to Devoncroft. The analyst speculated about whether Gores Group might use Harris Broadcast as a platform for further expansion into the broadcast industry or break up the division and sell it off.

'GREAT PRODUCTS AND A GREAT TEAM'

The Gores Group didn't comment publicly on the purchase other than a press release statement from Ryan Wald.

(continued on page 6)



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Greg Landgraf, Senior Engineering Manager, Corus Radio Western Canada

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Benjamin Brinitzer, Regional VP Engineering Clear Channel Media & Entertainment

“By far the most elegant and feature rich control surface on the market. The attention to detail and functionality is remarkable. Its architecture, such as “hot swappable” modular design, is a winner. A traditional meter bridge is appreciated by users and your millwork guy will appreciate the fact that it’s a table-top design.”

Kris Rodts, Director of Engineering, IT & Facilities, CKUA Radio Network

“Wheatstone’s innovation continues to make AoIP a viable product for professional broadcasting facilities. Just a few things that make the LX-24 stand out to me are the clear and decisive metering, individual fader modules, and “out of the box” thinking with faders for the headphone and monitor volume controls instead of rotary knobs.”

Phillip Vaughan, Chief Engineer KFROG, CBS Radio

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Tim Schwieger, President / CEO, BSW - Broadcast Supply Worldwide

“I didn’t think Wheatstone could improve upon the E-Series of consoles, but they have done it with the new LX-24. This is a beautiful, well designed console and the individual faders, integrated meters with overload indicators and low profile table-top design make this a must have for our facilities.”

Michael Cooney, Vice President of Engineering & CTO, Beasley Broadcast Group, Inc.

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Norman Phillips, Vice President of Engineering, Townsquare Media

“I am very impressed with the sleek new design that incorporates single channel-strip architecture, integrated metering and stereo cue speakers in a thin, sloping chassis that needs no cabinetry cut out. Well done.”

Erik Kuhlmann, Senior Vice President of Engineering, Clear Channel Media + Entertainment

“Wheatstone continues to hit balls out of the park and this year they did so again with the LX-24 control surface. This new product marries the best of the old (modular design architecture) with the new (Audio-over-IP). Continuing in that theme was a Wheatstone module that marries their bridge router system to the new “BLADE” audio-over-IP system. This has the potential to extend the life of bridge router facilities indefinitely.”

W.C. Alexander, CPBE, AMD, DRB, Director of Engineering, Crawford Broadcasting Company

“The LX caught my attention on the NAB Show floor. The look, form and function are unlike any other IP console available today. The easy-to-read buttons and displays are just second to none, not to mention the most bang for the buck. I can’t wait ‘til I have the opportunity to deploy my first LX.”

Anthony A. Gervasi, Jr., Sr. Vice President Engineering & Technology, Nassau Broadcasting



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World Radio History



Reese: 'Unreasonable' Royalties Need to Go

Radio leader says the rate-setting process discourages streaming and should be changed

Hubbard Radio President/CEO Bruce Reese recently testified on the behalf of the NAB before the House Judiciary Subcommittee on Intellectual Property, Competition and the Internet. The topic was streaming music royalties.

NEWSMAKER

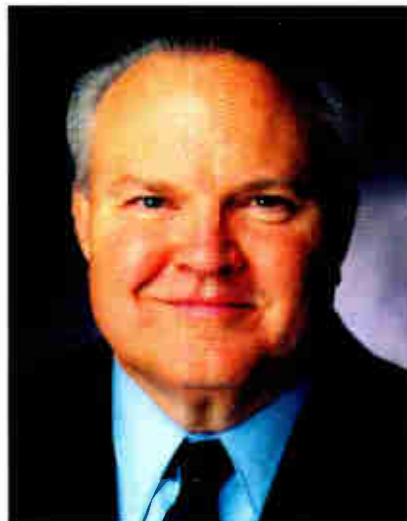
Here are excerpts of his testimony. Hubbard has 20 stations in five markets. Reese chaired the NAB joint radio and television boards from 2004 through 2006.

In the broadcast community, there is a wide array of opinions as to the viability and value of streaming. Some broadcasters see streaming as an essential, burgeoning revenue stream. Others regard it as tangential but also important to their

work very hard to monetize the streams.

Generally speaking, on a cumulative fiscal basis, we break even, with modest profits from the revenue from streaming our non-music stations offsetting the losses from streaming the music stations. Each year we revisit our streaming strategy and consider anew whether it's worthwhile to continue the service.

Since webcasting began, the chief obstacle to developing a profitable streaming model has been the egregiously high royalty rates for sound recordings. The streaming rates that have resulted from proceedings by the Copyright Royalty Board under the so-called "willing buyer/willing seller" standard have been artificially inflated, to the detriment of both services that wish to stream and the songwriters and performers who would benefit, in the



Hubbard Radio President/CEO Bruce Reese: 'Broadcasters cannot create predictable business plans for streaming if we don't know with any reasonable degree of certainty what future rates will be.'

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core business of over-the-air broadcasting. Still others consider it as being not worth the investment, since it is nearly impossible for broadcasters' streaming revenue to exceed the associated costs and royalty payments.

Regardless of the camp, every broadcaster's expansion into Internet radio is impeded by the unreasonable costs of webcasting royalties. Whether you are a large broadcaster or small broadcaster ... the revenue that can be generated from streaming simply does not offset the costs. This imbalance is impeding the growth of Internet radio among broadcasters.

Hubbard Radio streams our stations primarily as a service to our over-the-air listeners. We stream all our stations in all our markets. We believe that listeners expect to be able to access our stations through the Internet in addition to listening to their radios, and in a way we consider the cost of streaming a promotional expense. Nevertheless, we

form of increased exposure and royalties, from increased streaming. ...

Broadcasters favor abandoning the "willing buyer/willing seller" standard and transitioning to the "801(b)(1)" standard for setting sound recording performance royalty rates. The 801(b)(1) standard (so named because it is found in that section of the Copyright Act) has effectively, efficiently and equitably balanced the interests of copyright owners, copyright users, and the public for decades, in various contexts and proceedings.

As currently codified, this standard considers the interests of all stakeholders and the public, recognizes the value of all contributions of licensors and licensees, and has long been accepted and ratified by Congress. It reflects a congressional intent not to set rates so onerous that they would stifle new businesses and uses of creative works. ...

But the flaws in the CRB rate-setting process go beyond the excessively high royalty fees themselves. Broadcasters can-

not create predictable business plans for streaming if we don't know with any reasonable degree of certainty what future rates will be. Further, the broadcasting business has been one built on fixed costs. It costs a radio station very little more to reach its millionth simultaneous listeners than it costs to reach its first. The statutory streaming fees, which increase on a per person, per listener basis, with none of the advantages that scale brings to most business models, are difficult to reconcile with the standard business practices of the broadcast industry.

There is also a clear need to improve and update some of the CRB rules and procedures. This includes how stations report their music usage and how evidence is presented in CRB rate-setting proceedings.

CURRENT RATE-SETTING 'DYSFUNCTIONAL'

Recent developments have further illustrated the dysfunction of the current

(continued on page 5)

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Gores Values 'Operational Transformation'

The investment group isn't saying much but seems a good match for Harris Broadcast

Harris Corp. found a buyer for its broadcast business in relatively short order. The efficiency of that process and the announcement of its outcome (see page 1) are good news for customers and employees who understandably may have been unsettled by the decision to sell such a legacy part of its business.

To my eye, Harris Broadcast has long been something of a special case among U.S. radio manufacturers.

Its parent company is publicly held, so its financial reports are subject to open scrutiny. The size of the division, if not unique in broadcasting, is uncommon in radio; and its products are used widely around the industry. These factors make the Harris broadcast business a market bellwether.

Also for those reasons, its business decisions, such as staff reductions during soft markets or changes in leadership and sales structure, tend to be reported by the general and broadcast trade press, more so than at other radio companies.

Such corporate changes have at times frustrated some fans of the company's

legacy, who felt that upper executives (never the ground troops) were not fully cognizant of Harris' role in the history of our industry. The company seems to attract a circle of past employees who are vocal about how it is managed; this phenomenon is common with large business organizations but unusual in radio manufacturing, where the majority of companies are relatively small.

Further, its size and reach sometimes made Harris Broadcast a target of comment over the years by competitors who could not match its economy of scale.

And then there is the company's long and rich history in radio. This has engendered affection for the brand but also strong feelings about any change.

For all of these reasons, the sale of its broadcast business attracts more interest than others might.

MESSAGE OF CONTINUITY

Now comes The Gores Group.

Its website cites its "ability to create value in situations characterized by complexity and operational challenges."

It says it specializes in buying businesses that are undergoing "change in capital structure, strategy, operations or growth and can benefit from Gores' operational and strategic approach."

It tries to buy companies that have "a defensible core business, mature products or services, sustainable revenues, established customer relationships, and that have reached a transition point in their lifecycle presenting an opportunity for transformation."

That sounds like a reasonable description of Harris Broadcast (indeed, of broadcasting).

Harris Broadcast fits the Gores Group's investment model, offering among other things a 'defensible core business,' mature products and a transition point in its lifecycle.

Private equity brings a different kind of management model. Will this new ownership bring a shift in Harris products, resources or corporate culture? What kind of an owner will Gores be; how well will it tolerate the challenges of the broadcast market; how long is its horizon? How will these questions affect equipment users?

Answers remain to be discovered. But Gores appears to be a careful buyer that knows what it is doing, one that will not overpay. It has a broad spectrum of interests, with current or past investments in networking and communications firms, health care and women's apparel. According to news reports, a proposed buyout of Pep Boys fell through last spring; earlier it was in discussions to buy some Borders stores before that company liquidated.

I would like to hear more about the buyer's perceptions of the broadcast marketplace (in which it is also active through its investment in Dial Global). Does the driving force behind this purchase include a belief in the power of radio and TV? Presumably yes; then why? What does Gores see, with its fresh perspective, that makes broadcast manufacturing worth its money? Share your vision with us.

Gores sent a welcome message of

FROM THE
EDITOR

Paul McLane



continuity in its early moves; and broadcasters value continuity. They want a personal relationship with their manufacturers, particularly RF suppliers. A station wants to know that the builder of that box will be around in five or 10 years.

Of course, Gores could turn out to be an owner that seeks to squeeze out costs and flip its asset to the next buyer as soon as possible; that's not the vibe I get, on admittedly early evidence. What broadcasters want to see, and what Harris division managers appear to believe they have, is an owner that will bring new resources as well as new flexibility that might not have been possible under its previous corporate structure.

Nevertheless it seems realistic to expect Gores to make big changes at some point, given that the new owner highlights "operational transformation" as an important part of its strategy. And, because we're talking about a private equity firm, one founded "with the single vision to buy, fix and sell businesses," it seems reasonable to expect an eventual sale rather than decades of Gores ownership, though such a process typically would take years.

Meantime, some observers find the price Gores paid to be low, considering past Harris acquisitions that are now part of the division. If so, that is only good news for the buyer, which for its money has acquired a strong brand, an established product base, a broad international presence and talented people. This could well turn out to be a value buy.

Recent years have been challenging for many broadcast manufacturers. The industry they serve is subject to so many economic and marketplace headwinds, and the task of maintaining and growing an international business based on that infrastructure is difficult and costly.

Harris Broadcast fans can hope that this transition will allow the company to react to market forces more quickly and be freed at least from the unrelenting demands of a public quarterly financial report. Now, it will face different demands.

We'll watch with interest to see how and whether Gores nourishes it to encourage expansion and product development, or restructures to save money, or some combination of both. We wish the company and its employees success though. We're pleased when *any* company invests in broadcasting; further, this particular broadcast business holds a unique place in radio history; and its ongoing challenges and successes will likely mirror our industry's own.

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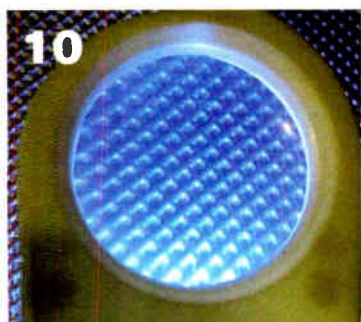
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THIS ISSUE

JANUARY 2, 2013

NEWS

Harris Broadcast Has Its New Owner	1
Reese: 'Unreasonable' Royalties Need to Go	3
Gores Values 'Operational Transformation'	4
Who Is the Gores Group?	6
Newsroundup	6

**FEATURES**

A/C Color Code Is for Your Own Good	10
Marketplace	12, 24
Let's Talk About Codec Trends	14
People News	19, 22
How About a Little Bathroom Humor?	26

**GM JOURNAL**

Key Elements to a Marketing Plan. . . .	28
Dont U Make These Mistake's	30

STUDIO SESSIONS

Small Mixers Do Pack a Punch	32
Free Software	33

**OPINION**

Reader's Forum	36-38
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NEWS**ROYALTIES***(continued from page 3)*

rate-setting procedures. The constitutionality of the appointment of the CRB itself was recently called into question with an appeal before the D.C. Circuit Court of Appeals. And an additional complication to the broken CRB system came earlier this year when SiriusXM filed a lawsuit against the CRB's chosen collective, SoundExchange and A2IM [the American Association of Independent Music] claiming anti-trust violations. This suit alleges that SoundExchange and A2IM conspired



with radio's rich history and consumer familiarity and affection, styling themselves as offering "radio" services. But simply marketing digital audio transmission services as "radio" does not make them so.

Whether you are a large broadcaster or small broadcaster ... the revenue that can be generated from streaming simply does not offset the costs.

to prevent SiriusXM from negotiating direct licenses, which would take music out of the statutory royalty scheme administered by the CRB and SoundExchange.

If anything, efforts should be made to facilitate and encourage direct licensing between the recording industry and those streaming music. Certain performers have argued that direct licensing would reduce their compensation. However, I would respectfully submit that, to the extent this subcommittee might consider this to be a significant issue, it is imperative to evaluate performers' royalty payments in the larger context of their various streams of income, including how they are compensated by record labels.

NO 'PERFORMANCE TAX'

In beginning this important dialogue over how best to encourage the growth of Internet radio, Congress should not allow this debate to be bogged down by past fights over the performance tax, to which NAB remains staunchly opposed. ... Record labels and performing artists profit from the free exposure provided by radio airplay, while local radio stations receive revenues from advertisers that purchase airtime to sell their products and services.

Despite technological improvements, radio broadcasting retains the same basic character that it has had for decades. It is local. It is free to listeners. It is supported by commercial advertising. Local stations use on-air personalities and DJs to differentiate their programming, including by commenting on the music they play. ...

Many digital audio transmission services are eager to associate themselves

tional radio.

Now challenged by the economic downturn and financial threats posed by the rapidly changing digital environment, the recording industry is in search of additional revenue streams. But it is important to recognize that broadcasters are not responsible for the recording industry's financial woes.

Broadcasters have continued to do their part in presenting music to the public in the same manner that they have done for decades. Particularly in the current highly competitive environment, where broadcasters are struggling to adapt their own business models to address the realities implicit in new media, it makes little sense to siphon revenues from local broadcasters for record labels to prop up the recording industry's past failings and ill-advised business decisions. ...

The radio industry looks forward to a robust future that embraces the fundamental nature of broadcasting, as well as new opportunities arising from evolving digital technologies. But as we seek to develop business models that include streaming, we are continually thwarted by one consistent problem — statutory royalty rates and the dysfunctional rate-setting system and procedures.

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HARRIS

(continued from page 1)

managing director of The Gores Group: "In Harris Broadcast Communications, we are investing in a proven technology leader with great products and a great team. We are excited to provide the capital and support to transition this division to a strong and independent company further enabling it to continue developing and delivering market leading technologies."

Morris remains with Harris Broadcast, as does the rest of the executive staff, Morris said.

Harris Broadcast headquarters will remain in Englewood, Colo. Its facilities in Quincy, Ill., Mason, Ohio, and all others will be retained, Morris said. Harris Broadcast has 15 U.S. locations and 29 more in Canada, Mexico and other countries.

Headquarters shifted to Englewood from Mason around 2010; Harris officials say many of its broadcast executives are based in Denver, along with a large part of its media software business operation. The Mason office handles business operations for the transmitter business unit. Quincy is transmitter manufacturing. Other notable operations include the Toronto, Canada, office housing a majority of the business



Harris Broadcast President Harris Morris calls The Gores Group a 'well-capitalized owner.'

operations for the workflow, infrastructure and networking business unit; and the Pacific Design Center for PR&E studio solutions, in Vista, Calif.

The division had some 1,700 employees as of late last year. According to a story in the Quincy Herald-Whig newspaper, there were 348 employees at the Quincy facility when the company announced its intentions to sell early last year. There were layoffs there in the fall prior to the sale; at least 17 were

WHO IS THE GORES GROUP?

The Gores Group, founded by Alec Gores in 1987, is a private equity firm with approximately \$3.3 billion in assets under management. The firm is headquartered in Los Angeles with offices in Boulder, Colo., and London.

The investment firm has acquired and operated 60 companies since its founding, according to its website. It acquired Westwood One radio network in 2008 and reduced costs by \$65 million before merging the company with Oaktree Capital's Dial Global in 2011, the site states. Gores Group still holds approximately 35 percent ownership in Dial Global.

Its portfolio of technology, telecommunications, health care and entertainment holdings now includes Harris' broadcast division. The Gores Group currently owns or has an interest in Siemens Enterprise Communications, Sage Automotive Interiors, Scovill Fasteners and Stock Building Supply.

Founder Alec Gores, 58, has been described as a "fixer-upper" and told USA Today in a 2002 interview that he has a "formula to save companies." The firm's single vision is to "buy, fix and sell businesses," according to the website.

The Gores Group declined further comment, citing the fact that its deal with Harris has yet to close. The parties expect that to happen early this year.

Alec Gores, 59, was ranked 250th on the Forbes 400 list of the richest Americans in 2012 with an estimated wealth of \$1.9 billion, according to his profile on LinkedIn.

laid off in November. Some observers confirmed to Radio World that some senior engineer positions were among those eliminated.

GORES HAS 'EXPERTISE'

Harris Morris will report will report to a Gores board. The company also has sought out satellite television executive

Carl Vogel as a senior advisor.

Morris expects service and support of its products will not suffer through the ownership transition, though he acknowledged that the broadcast market historically doesn't react well to disruption and uncertainty.

"We have a well-capitalized owner

(continued on page 8)

NEWSROUNDUP

RATINGS GIANT: Nielsen Holdings N.V. signed an agreement to acquire Arbitron Inc. for \$1.26 billion. The companies said they have combined total revenues of \$6 billion. The agreement is subject to regulatory review. Nielsen CEO David Calhoun stated, "U.S. consumers spend almost two hours a day with radio. It is and will continue to be a vibrant and important advertising medium." He said the addition of Arbitron will help Nielsen "better solve for unmeasured areas of media consumption, including streaming audio and out-of-home. The high level of engagement with radio and TV among rapidly growing multicultural audiences makes this central to Nielsen's priorities."

LPFM: Barring an unforeseen complication, new rules implementing the Local Community Radio Act become effective Jan. 10. That's also the deadline to file any petitions for reconsideration. Federal Register publication of the Nov. 30 FCC actions on LPFM triggered the effective date.

LPFM 2: A group of low-power FM advocates formed a coalition aimed at convincing the FCC to okay higher power levels for LPFMs. The current authorized level is 100 watts. In its recent LPFM decision, the agency didn't act on proposed 50 and 250-watt classes of stations, saying it didn't have enough information; it also eliminated the 10-watt class, calling them spectrally inefficient. The Power Boost Coalition plans to file a Petition for Rulemaking in 2013, asking for the commission

to take action in 2014 — after the LPFM filing window has closed.

FM TRANSLATORS: Translator hopefuls with more pending applications than allowed under new commission caps soon will have to choose which to pursue; the FCC would dismiss the rest. Commission officials said at the Nov. 30 meeting they plan a public notice detailing the deadlines. The FCC raised its national cap to 70, with no more than 50 applications in spectrum-limited markets; the agency also increased the per-market cap from one to three applications in spectrum-limited markets, subject to certain conditions. The commission also clarified how it will handle processing of FM translator applications in embedded Arbitron Radio Metros. The FCC intends to treat each embedded market as a separate market for the purposes of the per-market cap.

LAST.FM: CBS-owned Last.fm is eliminating its radio streaming service in most countries and putting part of its music offering behind a pay wall in other countries including the U.S. and U.K. and Germany. It has already made the pay wall move in Canada, Australia, New Zealand and Brazil. The additional changes take effect Jan. 15. Last.fm has struggled during the economic downturn, and says it's making the changes "due to licensing restrictions." CBS purchased Last.fm for \$280 million in 2007.

COX: Cox Media Group promoted Athens market VP/GM Scott Smith to the newly created position of radio technology director. Smith will oversee

the company's radio signal improvements, radio portfolio opportunities and regulatory changes that affect radio. He'll also continue to manage the company's Athens cluster.

ARBITRON: Audience research firm Arbitron EVP/COO Sean Creamer will replace the retiring Bill Kerr as president and chief executive. Kerr, who has held the position since 2010, will remain on the board. The change was effective Jan. 1. The move was expected.



Sean Creamer

HD RADIO: The Best Buy Insignia Narrator HD Radio receiver has won the FCC Chairman's Award for Advancement in Accessibility for 2012. Now in their second year, the awards were created to encourage technological innovation in communication-related areas and to recognize engineers, research and other technologists who help the disabled obtain jobs and succeed. The AM/FM unit retails for around \$100. The Narrator, marketed under Best Buy's Insignia brand, is designed for both sighted and visually-impaired users; it is certified by the International Association of Audio Information Services as a radio reading services receiver. The buttons are larger than normal, with raised lettering. The user is prompted to tune the radio with voice commands and a sighted user can turn off the accessible feature. The tabletop receiver also supports Artist Experience, in which the audio and is synched with visual images.



1664: Just what it looks like. Two tin cups and a string. But it transmitted sound!



1876: Alexander Graham Bell's commercially viable telephone.



1900: Phones become fixtures in more well-to-do and steam-punk homes.



1920: Every home is working toward having a telephone!



1936: The advent of the dial desk phone. No more asking the operator to connect you.



1963: Push buttons usher in the thoroughly modern world. Touch tones enter pop culture.



1983: The mobile phone is a reality. Plots in all TV shows get a boost!



2004: IP Telephones begin to become the staple of modern business.



2007: Smartphones are complete communications centers. AND they can sound great!



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HARRIS*(continued from page 6)*

that's very committed to this business and space, and it's going to help us keep a steady hand on the tiller," he said. "Harris will keep driving great service, support and continued innovation. Early customer reaction is very positive."

Morris said Gores was looking for a "strong broadcast brand to add to its media portfolio," which includes Dial Global. The latter calls itself America's largest provider and distributor of audio content to 8,500 radio stations.

Morris believes The Gores Group brings expertise that will help accelerate some of the division's goals "as well as help us carve out cleanly from Harris" without bumps. Gores will bring "operational expertise" and "sector expertise" to manage the exit of the broadcast division from the umbrella of Harris Corp.

"The Gores Group thinks Harris has a great deal of growth potential, with a lot of growth coming from abroad," he said.

Harris products will retain the Harris name for three years before being rebranded.

Without getting into specifics, Morris said the company is working on product releases to unveil at the spring NAB convention. In digital radio, it remains excited about HD Radio products, he said. "I think we are quite happy those products, such as the Flexiva line. Those things are growing nicely and doing well."

Morris said employees have handled the stress of the sale process well. "We tried to make this as uncomplicated as possible. Uncertainty always brings stress. At the same time our team here was very patient. They believe in our vision and products. [Employee] reaction has been very positive to the sale." In a letter announcing the sale, he thanked the staff for the loyalty they exhibited as the process unfolded.

Harris Corp. announced its intentions to sell the broadcast division in May 2012; officials explained the decision was based on a six-month review that showed broadcast had become less aligned with its core business and long-term strategy. At that point, Harris Broadcast was classified as a discontinued operation.

At one time Harris reported financial results for the broadcast division separately, but in 2011 it rolled its broadcast business into a segment called Integrated Network Solutions. A report by Devconcroft last summer said Harris's third quarter 2012 sales were \$111 million, a decline of 14 percent from the same period in 2011.

MORGAN STANLEY MANAGED SALE

Harris Corp., which worked with investment banker Morgan Stanley to manage the sale of the division, never characterized the level of interest from potential buyers. Some broadcast industry observers had pointed to the San Francisco-based private equity firm Francisco Partners as a potential suitor. The investment group acquired Grass Valley, which produces technology and services for the video and TV industries, in 2011.

"I can't share how many companies wanted to bid. Scores of companies were interested and dozens sub-

mitted initial indications of interest," Morris said. "There were companies who wanted pieces or the whole thing."

One prominent industry observer, Vice President of Radio Engineering for Greater Media Milford Smith, said he's pleased a deal is now complete, with a seemingly well-funded buyer.

"Folks are understandably hesitant in some case to purchase equipment with long-anticipated lifetimes not knowing the 'lifetime' of the manufacturer," said Smith. "Hopefully this announcement puts that uncertainty to rest and both the Harris Broadcast Division and the industry can move forward with confidence in their business dealings."

Those in the radio broadcast equipment manufacturing space followed developments surrounding the sale. Broadcast Electronics officials acknowledged being interested in parts of Harris Broadcast.

The Gores Group likely will make operational improvements looking to find synergies, reduce costs and raise cash, according to Broadcast Electronics President/CEO Joe Roark.

"There could be further work force cuts and consolidation at Harris. The culture at Harris will likely be one of absolute performance," Roark said.

He too expressed surprise at the



These photos show the transmitter assembly line at the Harris Broadcast facility in Campinas, Brazil.



cash price considering the company had spent hundreds of millions of dollars acquiring brands like Encoda Systems and Leitch Technologies in the past decade.

"The \$160 million cash price is low but an indication of how tough the broadcast manufacturing industry is right now. There is a \$15 million promissory note and another \$50 million bump based on future performance, but the cash payment might be about all the Gores Group has to pay," Roark said.

HISTORIC TIES

Harris has long held a position of significance within the broadcast equipment market.

Harris Intertype Corp. purchased Gates Radio in 1957 and entered the TV transmitter market in 1969. It later added Intraplex's STL business and Pacific Research & Engineering consoles.

Harris Broadcast consists of four business divisions: transmission; media software; workflow, infrastructure and networking; and digital out-of-home, according to company officials.

The transmission unit includes radio and TV transmission products, exciters, PR&E studio consoles, networking solutions, studio furniture and Intraplex STL systems and IP codecs. It encompasses digital radio solutions for HD Radio, DRM/DRM+ and DAB. The unit's large television transmission portfolio includes analog and digital transmitters for LPTV, medium-power and high-power and Mobile DTV solutions.

The media software portfolio includes traffic and billing software, business intelligence and analysis software and digital asset management.

Harris' workflow, infrastructure and networking business unit includes servers, routers, multiviewers, signal processing and distribution, video networking, audio solutions (including loudness control) and test and measurement. The digital out-of-home division covers digital signage solutions and serves markets outside of broadcast like retail, hospitality and sports venues, according to Harris officials.

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A/C Color Code Is for Your Own Good

Why make load balancing and maintenance harder than they have to be?

Charles S. "Buc" Fitch, P.E., was reminded of the issue of electrical wiring color code a few days ago. He opened a panel and found the entire "hot/phase" side wired in black wire. This doesn't help the tasks of load balancing and maintenance.

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Although the National Electrical Code doesn't require a specific color code for ungrounded conductors, electricians often use the following color system for power and lighting conductor identification:

- 120/240V, single-phase wiring — black, red and white
- 120/208V, three-phase wiring — black, red, blue and white
- 120/240V, three-phase wiring — black, orange, blue and white
- 277/480V, three-phase wiring — brown, orange, yellow and gray; or, brown, purple, yellow and gray

On the grounded side for neutrals, the wires have to be white or gray. Buc prefers white at 120/240 (208) and gray for 277/480 circuits. Green or bare wire is always the grounding conductor.

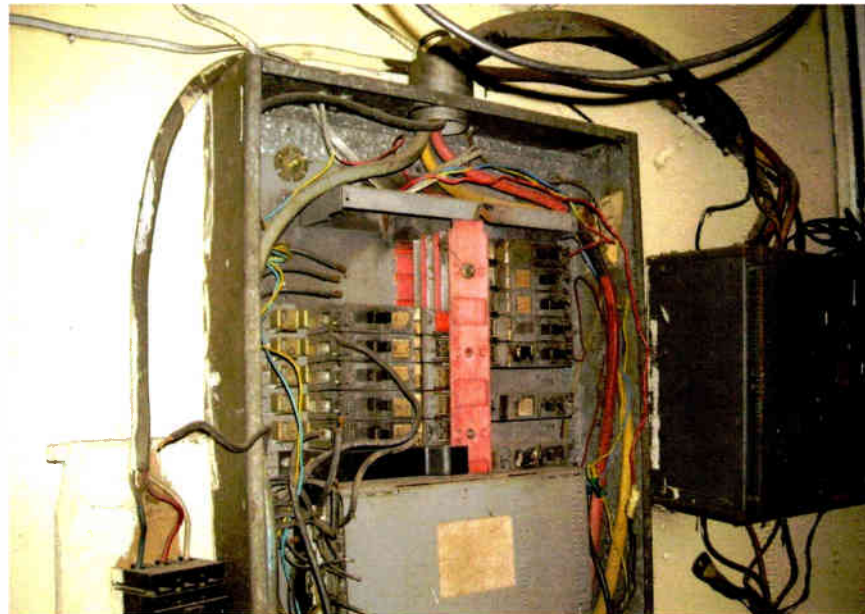


Fig. 1: Take note of the wiring colors inside your electrical panels.

Personally, Buc specifies the latter 277/480 color grouping; that removes the "orange" wire color and any confusion. Why? Orange is the only *specified* ungrounded conductor and marks the "wild leg" of a 120/240 center-tapped neutral delta configuration. For those unfamiliar: In wild leg configuration, the two end phases on the center-tapped winding provide 120 volts to neutral, but on the wild leg you will find nearly 208 volts to the neutral.

If you see an orange wire in a panel, alarm bells of caution should go off in your head. You don't want to wire a 120 VAC outlet across the wild 208 volt phase.

Reach Buc Fitch at fitchpe@comcast.net.

Previously we solicited feedback on the use of those laser-sighted infrared thermometers.

Dave Doherty of Skywaves has a Fluke 62. It has a 10:1 ratio and claims

accuracy to within 1 percent. Dave can testify that it works great in high RF AM environments like that of 50 kW WCRN.

Dave has not tried it in a high-RF FM or TV environment. The instrument works fine at Rhode Island's WBRU (FM) and WHJY(FM), though the FM RF level in the building is low there.

What have you experienced? Write to me at johnpbisset@gmail.com.

If you see an orange wire in a panel, alarm bells of caution should go off in your head.

These are useful devices for spotting overheated components. Dave writes he's also used long tie-wraps to keep J-plugs in place inside AM ATUs and phasors. That won't keep them from burning if the connections are loose, but he uses the Fluke to keep an eye on that.

The meter also is useful for checking the heat on those Lapp insulators — *before* messing with the drain holes. (Dave loved the idea about putting foam peanuts inside the insulators. It's just too bad you have to shore up the tower and disassemble the insulator to do it!)

Dave Doherty can be reached at dave@skywaves.com.

And speaking of those foam peanuts, Cumulus Boise Engineer Bill Frahm liked the idea of putting a few foam packing peanuts inside a new base insulator to give any water a place to expand, should the drain holes become clogged and the water freeze.

But ... Bill cautions to choose your peanuts wisely. Don't use the ones that are "eco-friendly" — sorry, but they will disintegrate when wet.

Bill Frahm is at bill.frahm@cumulus.com.

From Kuala Lumpur comes a neat idea from engineer Paul Sagi. He found the white LED-lighted magnifier
(continued on page 12)

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Let's Talk About Codec Trends

We asked manufacturers to share thoughts about the state of their art

TRENDS IN TECHNOLOGY

Radio World asked several codec suppliers about trends in their area of expertise and we got back some great information. Here and on the following pages, Radio World shares their responses.



John Lackness
Tieline
VP Sales, Americas

How have codecs changed in recent years?

Lackness: Advertising and therefore revenues are down — so there is a drive to be more profitable and look for ways to improve the bottom line. Satellite and synchronous links over transports such as ISDN and the like are costly to run, and more and more broadcasters are looking at ways to send audio reliably and more affordably over the public Internet using IP.

IP is the primary network transport evaluated in many situations, with many codecs now IP-only. This has primarily been driven by cost imperatives and the flexibility IP provides. The ability to globally manage IP codecs via Web-browser control mechanisms over the



More **Control**

Internet has extended the reach of engineers to enable global management of networks from a single point.

In what direction is codec design heading?

Lackness: From a remote perspective, there is a bigger focus on delivering more live and local content cost effectively. Smartphones have revolutionized newsgathering in particular, to the point where every reporter in a network can now afford to use an IP codec application to transmit high-fidelity remote audio to the studio live, or as a recorded

endorsement of Opus by the IEEE, and this is generating a lot of interest given its characteristics. The EBU has listed it as an optional algorithm as part of its Audio Contribution over IP standard for interoperability among codec manufacturers — so watch this space for more news on Opus in the next few months.

What role is HD Voice playing and what other important developments on the network provider side do we need to know about?

Lackness: This is an interesting one and everything has its place, but it is important

Entire networks continue to arm every reporter with a pocket-sized audio codec application to improve the overall quality of the audio content broadcast.

— John Lackness

report. Entire networks continue to arm every reporter with a pocket-sized audio codec application to improve the overall quality of the audio content broadcast.

From an audio distribution and STL perspective, the latest designs consolidate much more powerful capabilities over IP in compact hardware designs. They include multichannel, multiple unicast and multicast capabilities, as well as interoperability over multiple transports, including redundant Ethernet streaming ports in many cases.

Are engineers still leery of relying on the Internet for mission-critical audio transport?

Lackness: Tieline has been designing and refining IP codecs since 2005 and views IP now as an established transport with a significant track record of reliability. We have acquired significant knowledge over the past nine years by refining remote IP codecs and have added multiple layers of redundancy through SmartStream IP software to ensure engineers are confident about transporting perfect audio over imperfect networks like the Internet.

What's the "state of the art" in bitrates and algorithms these days?

Lackness: There is a vast array of algorithms out there and it really depends on the application and available bandwidth.

For high-quality low-delay audio distribution and STLs, the most widely used would be the AAC range and aptX Enhanced. Also of note is the recent

to understand HD Voice has limitations.

First, it not supported over 2G and requires the 3G network. Second, a number of broadcasters find it is restrictive because only a select number of cellphone operators support it; both ends must be on the same network and this has proven to be a frustrating point for many Europeans where roaming agreements are in place; i.e. if Operator A supports it but operator B doesn't, you only get a standard voice call (Italy is a great example of this).

With the advent of 4G-LTE and its fairly rapid rollout, the contention issues on 3G IP networks are less evident and the network architecture is improved to ensure better utilization of available spectrum.

What is the next big challenge facing codec designers?

Lackness: Interoperability over WANs.

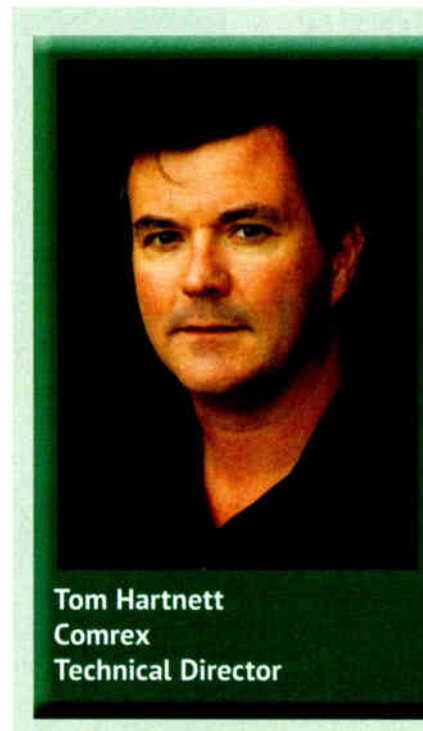
What else should a smart buyer know?

Lackness: Always ask if your new codec is IPv4/IPv6-compatible. The IPv6 static IP address system has been chosen as the successor to the original IPv4 version and will transition over time to become the new Internet of the future. IPv6 hardware supports virtually unlimited numbers of public IP addresses, so broadcasters will be able to avoid complicated network address translation and firewall routing that is often associated with IPv4 networks.

What is your newest or most notable codec product?

Lackness: The 1RU Merlin rack-mount IP codec is designed to transmit bidirectional high-fidelity IP audio and full-duplex communications between the studio and a range of Tieline remote codecs or smartphones using Tieline's Report-IT application.

Merlin is capable of two independent mono connections with different Tieline IP codecs or smartphones using Report-IT, to save money on hardware at the studio. The codec includes Tieline's renowned SmartStream IP streaming management software for ultra-reliable remotes over IP. It also has dual power supplies and is future-proofed via IPv4/IPv6 compatibility. Merlin is ideal for studio and remote truck installations. ■



Tom Hartnett
Comrex
Technical Director

How have codecs changed in recent years?

Hartnett: Besides the general movement from ISDN to IP, codecs have certainly made inroads in providing solid performance over "average-quality" wired IP links.

Most good modern codecs have dynamic buffer managers and other tools to compensate for the "raw" nature of the public Internet. We hear of very few operational issues these days, beyond initial setup, from wired IP users.

On the wireless end, seamless integration with things like 4G and Wi-Fi is hot. Also codec manufacturers now deploy compatible modes so they can talk to each other. And finally, several manufacturers have introduced lower-cost, simpler devices that bring the benefits of IP codecs to a larger user base.

(continued on page 16)



TO SAY THIS AUDIO PROCESSOR MULTITASKS
WOULD BE AN UNDERSTATEMENT



CODEC TRENDS

(continued from page 14)

In what direction is codec design heading?

Hartnett: The industry hasn't seen a mass migration to laptop-based codecs, although they exist. We've been concentrating on providing easy interface to existing smartphone apps as companions our hardware codecs, as there is a definite segment of user who is excited about that. But there are limits to smartphone codecs — like form factor, wireless-only operation and lack of stereo — and there are many users (e.g., voiceover, sportscasting, studio-studio, backup STL) for which they'll never make sense.

I feel strongly that it's time to leverage the benefits of IP codecs into the station's on-air phone system. We've introduced an IP-based multi-line call in system that does all the old-fashioned telephone integration, but can also take calls from codec users (and wideband smartphone apps) and blends them seamlessly into the same conference.

Are engineers leery of relying on the Internet for mission-critical audio transport?

Hartnett: Engineers just need to be smart about where they are applying these tools. Most smart customers know not to show up to a ballgame with 30,000 smartphone users and expect good results on 3G. And not to buy a \$35/month consumer-grade DSL as your STL backbone.

Of course there's a lot of different kinds of users, and sometimes projects are green-lighted only because they can be done cheaply. I find those the most interesting and fun, but in most cases those types of projects can survive some rocky performance.

But as far as real pros with budgets and reliability needs, they can be met with smart design and planning, and installation of wired Internet whenever possible.

This is an important point: Wireless services can be a nice shortcut for quick-shots and reporters, but will never rival the reliability of wired. And mission-critical wired IP requires QoS arrangements and Service Level Agreements. In the early days, it was pretty common for users to try IP coding, have a failure and announce the technology "not ready." There's too much cost-savings at stake to ignore IP codecs anymore.

What is the "state of the art" in bitrates and algorithms?

Hartnett: For pro-grade studio-studio and STL, it's often cost-effective to go linear, or with a lossless codec like FLAC. This will require a reasonably

"fat" IP pipe, but is often doable these days at reasonable cost, and removes any concerns about codec cascading.

Short of that, a relatively high-bitrate (at least 256 kbps) AAC coding works well. For budget broadcasters this can be lowered, and HE-AAC can be utilized below 100 kbps and sound quite good.

binary in their performance (i.e., either working, or if faulty, blocking all your data).

What about HD Voice and other developments on the network provider side?

Hartnett: For general users, HD Voice

I feel strongly that it's time to leverage the benefits of IP codecs into the station's on-air phone system.

—Tom Hartnett

The premiere "remote broadcast" coding algorithm is definitely AAC-ELD, which can provide good-sounding mono with low delay at 48 kbps, and stereo below 100 kbps. This means the same algorithm can be deployed on wired links, Wi-Fi and 3G/4G without much regard to how "fat" the network is. We used to believe algorithms that work down in the sub-20 kbps range offered an edge. We find this is less so these days — networks seem much more

has an "Achilles heel," which is its inability to work if the standard public telephone network is involved. But since service providers are willing to deploy it (I suspect mostly for marketing impact), it could be a real boon for radio.

Our industry has the high-quality contribution application covered with existing products, but we still often take horrible-sounding calls on-air. How many meticulously engineered stations air hours of cellphone audio per day



Kevin Campbell
WorldCast Systems
APAC/Americas APT
Sales Director

How have codecs changed?

Campbell: The most obvious development in the last few years is the level of maturity in the use of IP links for broadcast. While IP audio has been around for quite some time, it is only in the recent past that it has become an acceptable alternative for the understandably conservative broadcast engineer.

Now it has become relatively simple to install managed IP links for audio transport using MPLS technology and

protocols such as QoS and DiffServ. Broadcasters in the major markets are using MPLS in conjunction with a secondary IP link to provide "always-on-redundancy" that can truly rival (or better) the "five nines" offered by TI services. In the smaller markets, broadcasters are now able to use cost-effective cable modem DSL and microwave links for their STLs and studio-studio links, significantly reducing operational costs. Just a few years back, using these low-grade links meant that the broadcaster would have to accept a significant degradation in audio quality and a raft of reliability issues. Now, the technology exists that means these cost savings no longer have to involve such compromises to service.

Where are they heading?

Campbell: In the context of STL and audio distribution generally, as network speeds increase and bandwidth becomes more readily available, the need for heavy-duty compression is lessening. While rumors of compression's demise have been circulating for quite some time, it is unlikely to disappear completely. As networks get faster, so the quality of the content gets richer and expands to meet the growing pipe. However, bandwidth is not the precious commodity it once was, and light, gentle compression is increasingly preferred to aggressive

from listeners? It drives me crazy. It prompted us to design a product specifically to integrate HD Voice and Skype calls to the studio. We even provide a simple HD Voice app you can provide to guests and listeners.

Beyond that, the wide deployment of 4G LTE creates an environment where odds of success for IP wireless remotes are enhanced dramatically.

What is the next big challenge facing codec designers?

Hartnett: Video! Radio stations are becoming multi-platform content providers, and video is often a part of that change. There used to be a big distinction between video and audio content producers, and that's now all blurred.

What is your newest or most notable product?

Hartnett: There are two: STAC-VIP, a VoIP studio telephone system that integrates HD Voice calls, Skype, and "normal" callers; and our LiveShot codec that delivers high-quality video on poor networks with very low delay with the right set of controls and functions for broadcast, because video isn't just for TV anymore. ■

psychoacoustic methods.

How reliable is the Internet for mission-critical audio?

Campbell: I think that any engineer worth their salt is right to be hesitant about using the Internet for mission-critical audio transport. It is correct that there are major cost savings to be made and it is now possible to deliver TI audio quality and reliability over the medium with great success. However, we often forget that the Internet was never designed for real-time communication; it was designed for non-real-time data comms. Therefore the inherent ability of the Internet to offer this is simply not there.

It is up to the codec equipment to implement techniques that allow this to happen, and there are many different techniques on offer. Some techniques will scale back audio quality according to bandwidth availability, some affect delay and others will switch from one link to another causing audio glitches and dropouts. I would urge anyone interested in using the Internet for mission-critical transport to seek out a solution that does not require compromises of this sort.

Where are we with bitrates and algorithms these days?

Campbell: Ironically, new algorithms are becoming less important within

(continued on page 18)



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World Radio History

FEATURES

CODEC TRENDS

(continued from page 16)

the codec domain. Many of the new acquisition and distribution technologies that have emerged use heavy compression and therefore, in the core of the network, in the studio-transmitter and studio-studio links, it is increasingly important to maintain the integrity of the audio content. While several customers still use MPEG and particularly the AAC variants to connect to existing equipment, those establishing new networks and links typically still use linear audio or Enhanced apt-X to preserve the audio content as much as possible in the heart of their transport network.

What about HD Voice and similar developments?

Campbell: HD Voice is not something we have heard much off to be honest. On the network side, it is cost that is having the biggest impact. The affordability of both managed IP and consumer-grade IP links makes it an

increasingly attractive option for audio transport and is leading broadcasters to seek out solutions that enable them to use it in their networks.

What's the next big challenge?

Campbell: With less emphasis on compression, codec designers will compete increasingly on the core feature set of

challenge facing codec designers is to translate the intricacies of IP networking and make connections simple and quick to establish.

What question do you think a smart buyer of codecs should be asking?

Campbell: A smart buyer should be looking not just at unit price but at the

With less emphasis on compression, codec designers will compete increasingly on the core feature set of their devices, on the redundancy they offer and on the interfaces they provide.

— Kevin Campbell

their devices, on the redundancy they offer and on the interfaces they provide. With the proliferation of IP audio networks, and the ever-increasing workload and remit of broadcast engineers, the

total cost of ownership of their STL combination over the coming years. They should be asking what inbuilt redundancy is in their codec hardware. What customer references can the codec

port, we also see a shift in codec options designed to work with varying levels of latency, packet drop and other variables introduced by packet-switched data carriage.

In what direction is codec design heading?

Harnack: In the direction of options. There are sensible options from the various broadcast audio codec designers in terms of form factor, data redundancy, automatic backup, algorithm and bitrate flexibility, ancillary data and software updates.

Engineers were leery for a long time of relying on the Internet for audio transport.

Harnack: Broadcast engineers prefer to be in control of their own operations. Using their own equipment with tariffed, regulated services, such as T1 or ISDN, has been adequate in most cases. When we think of IP, we usually think of the public Internet, though that doesn't have to be the case at all; it's just usually the least expensive case. When a T1 connection carrying a station's STL feed to the transmitter is cut, waterlogged or otherwise unusable, there isn't any other good option for data transmission in that same format.

However, IP is different. IP technology and carriage is so commonplace nowadays that redundancy is inexpensive, and five nines of reliability or better is often available. Some radio networks are building out a content distribution/contribution systems using parallel satellite, private WAN and

public Internet connections. Many radio stations are handling full-time STL using a local Internet provider — cable or DSL — backed up by a high-speed wireless carrier. Automatic path switching is available in sophisticated, yet inexpensive data routers.

An important component in IP data transmission is choice. Broadcast engineers often have more choices now than they realize for connecting transmitter sites, remote talent, studios in distant cities, sports venues and mobile news reporters. As engineers, it's important that we seek out every available service and option, and bring these options up as possible solutions.

Where are we with bitrates and algorithms?

Harnack: As with many questions, the answer is "that depends."

When bandwidth is available, broadcast engineers can choose a linear audio mode for perfect 24-bit digital audio at 48 kHz sampling. This will consume a little over 2 Mbps over an IP link. Excellent audio quality — "unimpeachable," to quote the late Steve Church — can be had using AAC at 320 kbps or other modern algorithms at similar or higher bitrates. When low bitrate connections are the only option, we like AAC-ELD (Enhanced Low Delay), or other similarly sophisticated codecs like HE-AAC and HE-AAC v2. Other new codecs such as Opus are showing promise as well.

It's always the case, even when using a modern codec, that a higher bitrate will deliver better audio. And linear

manufacturer provide? What upgrade paths are available should they require more channels in future? How does the codec perform over the open internet? What compromises does the unit require when using open IP? Can they get a demo unit to trial the technology?

What is your company's newest or most notable product?

Campbell: We have seen incredible interest and uptake of APT's SureStream technology in the U.S. over the past months. SureStream is a multi-award-winning IP audio technology that essentially enables broadcasters to utilize inexpensive, consumer-grade IP audio links and deliver the audio quality and reliability that you would expect from a T1 link. With no compromise to quality, SureStream can deliver savings so significant that return on investment can be as little as four months. It is currently available on the stereo Horizon NextGen, the multi-channel WorldNet Oslo and our brand-new compact, multi-channel AoIP platform the Oslo 1U. ■

carriage is better than any perceptually coded audio.

What role are HD Voice and other developments playing for broadcasters?

Harnack: HD Voice is an interesting subject for broadcast engineers. If we lived 100 percent in the world of telephony, we would think that "HD Voice" was the greatest thing since sliced bread. At the moment, "HD Voice" usually implies telephony using the G.722 codec. For telephones it's a wonderful improvement! For broadcast remotes it's certainly an improvement over G.711 (the regular telephony voice codec), but it's not nearly as good-sounding as AAC at similar bitrates.

The benefit of HD Voice becoming more widespread in telephone systems is that phone callers sound far better than ever before. And, call-ins from reporters, ball games, parades, etc. sound quite good, and far better than they would have over a regular phone connection. But please don't think of using "HD Voice" as a substitute for a full-spectrum, modern codec for long-form programming; and don't even think of using it for live music.

What we're starting to see now is a blurring of the lines between IP codecs and VoIP telephony. This is a good thing, as long as we use this enhanced capability on phone calls to bring their quality up. Let's not fall back on HD Voice for applications where a full-spectrum, stereo codec would have been the right choice.

(continued on page 22)



Kirk Harnack, CBRE
Telos Systems
Vice President,
Telos Products

How are codecs different now?

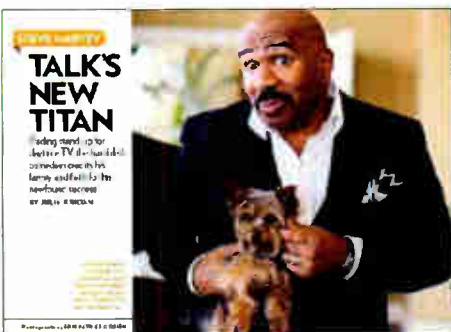
Harnack: The biggest shift is away from circuit switched connections, such as ISDN, to packet-switched connections using Internet Protocol.

This doesn't mean that IP codecs work only over the public Internet, however. Indeed, we might say that the biggest shift in codec technology is really the shift in connection choices. With ISDN and other dedicated services, there is usually just one "incumbent" telephone company from which to obtain service, plus perhaps a "competitive" carrier. With IP connection technology, there are often a half-dozen options for connectivity including low-cost RF links.

With the move to IP for data trans-

PEOPLENEWS

Steve Harvey was named "Talk's New Titan" by People magazine in a recent issue. His radio show, "The Steve Harvey Morning Show," is syndicated by **Premiere Networks** to more than 60 stations.



Cumulus Media has chosen **JT Batson** as the company's first chief revenue officer. He will oversee sales strategy and sales operations for the company's broadcast, digital, commerce, event and publishing activities, including owned-and-operated radio stations, the 4,500-station Cumulus Media Network and local commerce platform SweetJack. He previously served as chief strategy officer at advertising systems provider Mediaocean, which was the result of a merger of Donovan Data Systems and Mediabank.

Ron Paley was honored with the **WABE Ambassador of the Year Award** for contributions to the Canadian broadcast industry during the Western Association of Broadcast Engineers (WABE) convention in Calgary, Alberta. Ron and wife, Carol, operate family businesses Oakwood Broadcast and Ron Paley Broadcast and recently acquired Digital Juke Box Automation. Paley also was long associated with automation manufacturer OMT Technologies, and son Darrin has worked for Wheatstone Corp. for 11 years, after spending six years as a part of the family business.



Ron Paley and Darrin Paley

News Corp. President and Chief Operating Officer **Chase Carey** will participate in a question-and-answer session with NAB President and CEO **Gordon**

Smith during the 2013 NAB Show opening April 8 in Las Vegas. Carey has been president and chief operating officer of News Corp. since July 2009. He oversees diversified global operations, including the production and distribution of film and television programming; television, satellite and cable broadcasting; newspaper and book publishing and digital media.



Chase Carey

Harris Broadcast has hired **Jim Thomason** to be its Southeast sales manager. In announcing the hiring, Harris also said that it has redrawn sales region boundaries and **Garrett Wood** would take over the Northwest region. Thomason is no stranger



Jim Thomason

to Harris, having been employed as a district sales manager at one time. He was most recently a regional sales manager for broadcast equipment distributor SCMS. The new Harris territory map is: **Brian Szezewyk**, Northeast and eastern Canada; **Jim Thomason**, Southeast; **Mark Goins** (also manager, North American radio sales), Midwest; **Ron Lane**, Southwest and Hawaii; and **Garrett Wood**, Northwest and western Canada.



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this simple setup runs rings around any other AoIP network - at any



Meet the LX-24...Wheatstone's flagship, multi-award-winning advanced modular networkable console control surface

The design initiative behind the LX-24 was to create the world's finest control surface. The result is a console that redefines the entire genre. The LX-24 is an intelligent surface that can store and recall all your settings. Its totally modular design lets you configure it exactly as you like - you can even hot-swap modules at any time without having to reconfigure.

Assign any source of any type anywhere on your network to any fader. Each input channel can be assigned to four stereo busses, plus four pre/post-selectable aux sends, a stereo CUE bus, four mix-minuses and the panel's own bus-minus. Full Vorsis EQ and Dynamics let you sculpt and control your sound with the quality of the finest dedicated outboard

processors. The visually-stunning meter bridge features up to four sets of bright, high resolution LED meters, as well as circular LED displays for auxiliary send levels and pan control. A digital count-up/count-down timer is also included.

The LX-24 is advanced in ways that can make a HUGE difference in your capabilities. But it's also immediately familiar to anyone who has ever sat behind a board at a radio station. Use it to make your programming the best it can be. Just plug it into your WheatNet-IP Intelligent Network - with it, and the BLADES across the page, you can, dare we say it, rule the world.

THE LX-24 CONSOLE CONTROL SURFACE FEATURES

Low-profile table-top design - no cutout required

Meter bridge with up to four bright, high-res LED meter sets

Control room and headphone outputs with level control and source selection

Two independent studio outputs

Stereo cue speakers and amplifier, built-into meter bridge

Onboard VGA and USB-Mouse connectors

Event storage (snapshots) and recall

Each input channel features:

- Four stereo bus assigns
- Four pre/post-fader aux sends
- Four mix-minuses
- Bus-Minus®
- Source name display
- A/B source selector
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price. it's called The WheatNet-IP Intelligent Network, and it rules.



Our BLADES carry out your orders network-wide at Gigabit Ethernet speeds - no bottlenecks

As an integral part of the WheatNet-IP Intelligent Network, BLADES interface, move, bend, shape, route and control everything you want to do with your audio. If it's audio, a BLADE will handle it - at lightning speed.

Use them organically with our control surfaces, run them from our Glass-E software wherever you have internet access, or control them from the front panels. BLADES make your life incredibly easy and secure.

As you need more functionality, just plug in more BLADES - they come in configurations to handle whatever you need (analog, digital, a/d, mic, MAD!). Each BLADE is self-configuring and has the DNA of the entire self-healing network.

With BLADES, you can do everything from a simple (or complex, if you like) snake to STL-over-IP to full-on multi-studio/facility networking - even processing. And because of Wheatstone's partnership with the top suppliers of automation and remote gear, you'll have control over your entire system right from WheatNet-IP. Ruling the world has never been easier.

And this is ALL the extra stuff you need to wire-up the Intelligent Network:

Four CAT-6 cables and a low-cost switch that handles the gigabit speed WheatNet-IP runs at.

Let's do the math - plug in eight connectors, power up a console and three BLADES, add your audio and you are ready to rock, roll and rule the radio world. Brilliant, you ask? Nah - just really, really intelligent.



Want to know more?

WheatNet-IP outperforms the other AoIP systems exponentially and is, by far, the most reliable network you can get. Log onto wheatip.com. There is a world of *real* information there. Or, give us a call. There's nothing we like better than talking about this stuff.



EVERY BLADE FEATURES

Two 8x2 stereo virtual Utility Mixers that can be used for a wide range of applications: for example, using Wheatstone's ACI Automation Control Interface, your automation system can control the mixer for satellite or local insertion switching

Front panel bar graph meters switchable to display source mixer level or destination output level after gain trim

Front panel routing control - any system source to any destination on that BLADE

Front panel headphone jack with source select and level control - monitor any system source

Flexible GPI logic - 12 universal logic ports, programmable as inputs or outputs, routable throughout the entire system

Built-in web server so you can configure and control locally or remotely without having to run dedicated software

SNMP messaging for alarm

Silence detection on each output that can trigger alarms or make a routing change

Silent - no fans - can safely be located in a studio with live mics



CODEC TRENDS

(continued from page 18)

The Telos VX phone system can easily accept calls from HD Voice (G.722) users. The Z/IP One IP codec can also communicate with other G.722 devices (G.711, too) and can even register with a SIP Server such that standard 10-digit dialing is available.

What is the next big challenge facing codec designers?

Harnack: The abundance of low-cost bandwidth is just so enticing to anyone trying to work with real-time audio. If ISDN at 128 kbps was reliable, we wonder, why won't 5 Mbps be that much better? Of course we know the answer to this. Most broadband connections are inconsistent. Sometimes, many times, maybe even most times, we may have high capacity and low latency. But sometimes we won't.

That inconsistency is our challenge and our opportunity. A real-time broadcast codec needs suitably low latency and a reliable connection for the duration of the broadcast. While we cannot guarantee service without interruptions, we certainly can develop algorithms that are capable of adapting to deteriorating network conditions, correct errors (lost packets) and even provide some sort of path redundancy in some cases.

Building a codec to work over an IP transport rather than a telco transport is not so difficult. With dedicated bandwidth (nailed up, QoS), IP can be just as reliable as a circuit switched connection. Once we try to get that performance over the public Internet though,

things get less predictable. This is the challenge. And this is where our most brilliant developers are dreaming and innovating every day.

What else should a codec shopper know?

Harnack: Several IP codecs designed for broadcasters are compliant with the

end network performance twice each second, plus factors packet losses and drop, as well as packet concealments, to instantly adjust buffer size and far-end send bitrate as needed.

Engineers looking at IP codecs should consider several aspects of the proposed utilization, data path(s) and the expertise level of those using the equipment. For

make sure the IP codec will reconnect automatically after power loss or network outages. Ancillary data — RS-232 serial and GPIO — might be important to you, and especially important that these functions are synced to any end-to-end delay in the audio.

What is your most notable recent product?

Harnack: The Telos Z/IP One is becoming the "Swiss army knife" of IP codecs. Engineers bring us success stories every week about using Z/IP One for difficult remotes, STL links, even letting a bedridden morning host broadcast from home. It works with our free Z/IP Server for easy NAT traversal, and offers 11 coding algorithm options, each at the designers' allowable bit rates. SIP connectivity is standard. The ACT function delivers the best remotes possible over IP, even 3G and 4G mobile links. It can connect over Wi-Fi, and to Livewire networks for easy setup. All this allows Z/IP One to work seamlessly with other Z/IP Ones; and also with other N/ACIP-compliant codecs. ■

Broadcast engineers often have more choices now than they realize for connecting transmitter sites, remote talent, studios in distant cities, sports venues and mobile news reporters.

—Kirk Harnack

N/ACIP standard. This standard assures a basic level of connection compatibility across different brands of IP codecs. However, N/ACIP compatibility does not address the clever and creative approaches that different IP codec manufacturers are taking to data error mitigation and concealment.

One approach is to simply send two streams from each encoder, increasing the chances that all packets will arrive at the decoder. Another approach, one that Telos has embraced quite successfully, is to use codecs that offer built-in error concealment, and then add resilient buffer size management and encoding bitrate management.

Telos calls this Agile Connection Technology. ACT measures the end-to-

broadcast remotes it's best to choose a product that works well through others' firewall/routers, and offers a friendly directory (buddy list) for one-button connecting. For full-time connections,

quality using a fraction of bandwidth used by linear PCM.

In what direction is codec design heading?

Parikh: Increasing processor speeds have allowed codecs to be implemented in software. The software implementation has enabled flexibility in reconfiguration of codec algorithms on the fly as well as integrating IP networking features. As codecs increasingly become IP-based, interoperable standards for real-time and Web streaming are becoming prevalent. EBU has put out a standard that is based on RTP streaming for interoperability. By adapting protocols such as Shoutcast and the ability to stream using Shoutcast as well as RTP for broadcasting, codecs are extending their real-time broadcasting reach to PCs and smartphones as well.

What's your take on Internet reliability for mission-critical transport?

Parikh: Internet comes in many flavors: from a managed IP service to unmanaged public Internet. Managed service can provide reliable/deterministic service (almost like a circuit service). With public Internet, there are no guarantees on the quality of service. A user is still leery of the Internet, but a well-designed codec in today's market will provide multiple tools in its networking features kit to combat impairments in the IP networks. These tools include, but are not limited to, interfaces for multiple

(continued on page 24)

PEOPLENEWS

John Lennon has retired from the **Voice of America** after 44 years in broadcasting. He most recently served as VOA's associate director of strategy and planning.

Dennis Sloatman has assumed the duties of market director of engineering for **Clear Channel Media and Entertainment in Los Angeles**. His qualifying experience includes time as market director of engineering for Cox Media Group in Richmond, Va., and he has also served as Cox's chief engineer for its Orlando, Fla., cluster. **Joe Gersh** has been named general sales manager for **Clear Channel Atlanta's** six station cluster, effective Jan. 14, 2013. **Clear Channel San Antonio** has named **Nic Merenda** its new vice president of sales. **Clear Channel Tampa** has also tapped **Fernando Bauermeister** for general sales manager at WFLZ, WXTB and WBTP.

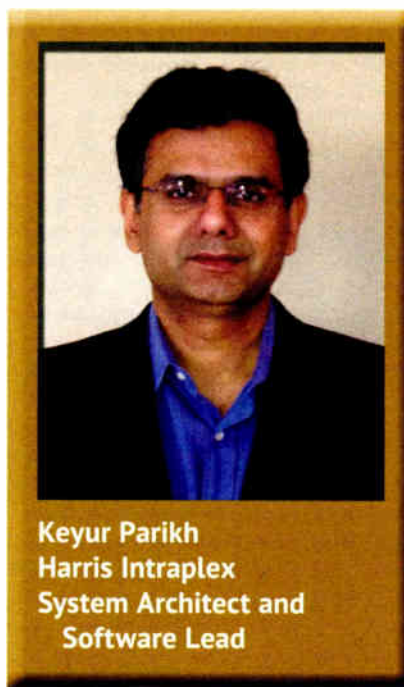
Cam Eicher will join the **Telos**

Alliance as the new director of sales for radio at the **Telos, Omnia Audio** and **Axia Audio** brands, effective Jan. 7, 2013.

Fred Godard has resigned as a director of **International Datacasting Corp.** Last month, Godard also stepped down as the company's president and CEO, positions he had held since March 2010. The Board currently consists of Chairman **Del Lippert**, **Georges Ata**, **Graham McBride** and **Peter Strom**. Lippert is also serving as interim CEO, and he previously served as a director of IDC from 2009 until July 2011.

Cox Media Group's Vice President and General Manager **Scott Smith** has also been named its new Radio Technology director.

Jim Arnold has been named the new vice president and general manager for **Journal Broadcast Group's** Tucson Operations.



Keyur Parikh
Harris Intraplex
System Architect and
Software Lead

Let's say I'm an engineer but I've been out of the market for several years. What's the most notable way that codecs are different now?

Parikh: A major difference is the transport model. Circuit-based networks with high recurring costs are now being replaced with lower-cost ubiquitous IP networks (both wired and wireless). In fact, it is not uncommon for users to have access to multiple IP paths connecting the transmit end to the receiver for resiliency. Another trend is the use of newer algorithms such as the AAC family of codecs, which can provide near-linear



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Winning stations know the secret to great-sounding call-ins: Telos phone systems. And with the new Hx6, everyone can afford smooth, dynamic phone segments — just like major markets have enjoyed for years. Six lines, two Telos hybrids — one certain way to extract excellent caller audio from any POTS or ISDN phone connection.

Even unruly cell phone audio gets smoothed out, thanks to adaptive Digital Dynamic EQ, caller audio sweetening from Omnia, and the most advanced DSP hybrids in broadcast. Not to mention beautiful VSet phones, with animated color displays that makes airing calls easier than ever. All at a price guaranteed to have everyone talking.

CODEC TRENDS

(continued from page 22)

IP paths to be used simultaneously, forward error correction and advanced features which can provide hitless protection switching. All of the above enable the user to achieve the reliability of a circuit connection with a lot less recurring cost.

What's the "state of the art" in bitrates and algorithms?

Parikh: For musical content, the AAC codecs are state of the art these days. AAC-HEv2 can achieve 90 percent of linear quality at 64 kbps. HE and HEv2 are specified in various broadcast standards such as XM Radio, Mobile Handheld, DAB+, DRM. On consumer side, Apple's iTunes also uses AAC as its default codec. AAC also has a low-delay option, however for some user scenarios, this is still not low enough and therefore users would have to consider other options such as linear or APT codec. For wideband voice, G722 is still a very good option. It is low-delay and royalty-free.

What is the next big challenge for codec designers?

Parikh: The challenge for codec designers is to create network adaptable systems. Because IP networks come in various qualities, the codec needs to be able to tailor its transmission and algorithm for each path simultaneously.

and with network layer reliability features enabled.

What question should a smart buyer of codecs be asking?

Parikh: Because the algorithms are more or less standard, the differentiation of products comes from being able to adapt

time-dispersed manner and intelligently resequence them at the receiver is key to combating packet erasure. RTP level forward error correction is another technique that is used to recover lost packets.

What is your newest or most notable codec product?

Parikh: The new Harris IP Link 100 and IP Link 200 Audio Codecs carry on the Intraplex tradition of robust "Always On Audio" for STL and high-reliability audio networking applications. The IP Link platform provides user-configurable encoding options along with advanced capabilities for operation on managed or unmanaged IP networks. Key features include dual WAN interfaces for streaming over diverse networks; simultaneous multi-coding of a single audio source onto multiple streams with different algorithms and/or bitrates; and Dynamic Stream Splicing for protection against packet loss and "hitless" recovery of the audio stream. ■

Because the algorithms are more or less standard, the differentiation of products comes from being able to adapt to IP networks.

— Keyur Parikh

For example, when content is to be sent to multiple receivers over different IP networks simultaneously, the codec needs to use the optimal algorithm for each receiver. Receivers with high-speed connections may be sent uncompressed content, while ones with lower bandwidth and reliability should be sent content with appropriate compression

to IP networks. Specifically, the ability to simultaneously encode the same content with different algorithms and bitrates with different network layer reliability handling is a key. Having multiple interfaces and providing "hitless" operation using them is important. Providing advanced features which can send multiple copies of the same packets in a

Comment on this or any story. Email radioworld@nbmedia.com with "Letter to the Editor" in the subject field.

MARKET PLACE

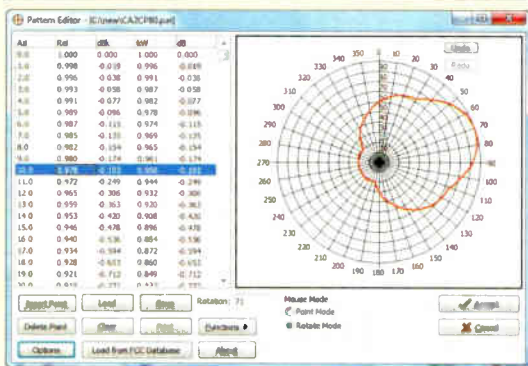
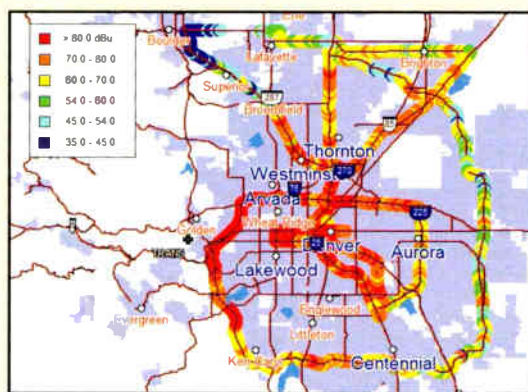
THE POWER OF V:

Mapping and analysis software supplier V-Soft Communications introduced Plus Pack bundles for its Probe 4 and FM Commander programs.

The Probe 4 RF propagation and interference analysis program Plus Pack includes tools and database modules previously available only as options. They are Synchronous Booster, Measured Signal Option (depicted top), Pattern Workshop Editor (bottom), ZIP Code Module, Airport Module, ITU-R P.1546-1 Propagation Model, 1:250,000 (200 m) LULC Data, Canadian FM and TV Station Databases, 2010 Tiger Geographic Data and several database updates. The FMCommander contour mapping program Plus Pack adds the Internet Mapping Capabilities module, 2010 Tiger Geographic Data, Airport Overlay Files and the Population Scatter Gram Overlay.

V-Soft is also soliciting interest for training sessions to coincide with the NAB Show in Las Vegas. This is a tradition with V-Soft and the amount of interest dictates some of V-Soft's preparations and ultimate cost of the sessions. Email info@v-soft.com to express an interest or ask a question.

Info: www.v-soft.com



FM+BLUETOOTH: As Geneva Labs sees it, world receivers of the past could receive "all available radio stations of their time, using broadcasting technologies such as FM, longwave and shortwave." But today, it says, popular local stations "are mainly broadcast over FM and digital radio, while international and special interest stations are broadcast over the Internet."

Hence its new WorldRadio model is aimed at FM and Internet listeners (as well as those in Europe listening to digital radio).

The \$299.95 receiver features a digital color display with touch controls, digital FM tuner, Bluetooth receiver, alarm clock and tuning controls, with a body in a choice of silver, red or black metallic finishes. Its amplifier and full-range loud-speaker play mid- and high- frequencies and quality bass. Lithium polymer battery provides six hours of playback.

WorldRadio can receive FM (as well as digital DAB+ in Europe), or wirelessly stream Internet radio stations from a Bluetooth-enabled smartphone, tablet or laptop. Other audio sources connect via the 3.5 mm line input.

U.S. retailers include outlets like Crate and Barrel and Design Within Reach.

Info: www.genevalab.com





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Dan Jackson, engineer for 92.9 FM in Perth, Australia was faced with a unique challenge. Breakfast hosts Paul Hogan and Lisa Fernandez would be cycling for hours in strong winds and pouring rain as part of the 92.9 Kids Appeal for Telethon.

The unique solution was to equip Dan's bike as a mobile production facility. The talent wore wireless mics AND in-the-ear monitors which communicated with receivers and transmitters in a rack bag on Dan's bike.



on-air feed as the trio traversed the winding roads of Perth. How did it all work out? Absolutely flawlessly – the show went on without as much as a speed bump!

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How About a Little Bathroom Humor?

A reflection on the special role that the 'john' plays in the life of a station

RADIOHUMOR

BY JOE E. LASMANE

Warning: If you're just about to sit down to your morning breakfast burrito/bagel sandwich or maybe that noon-time Whopper/Big Mac, you might want to go to another page and save this for later reading.

Years ago I attended a concert featuring a well-known female vocalist. Early in the performance, she attempted to get the crowd to warm up to her by confiding that as a little girl, she'd firmly believed that the queen didn't have to pee. Now that she was all grown up, she admitted it was likely that even royalty had to relieve themselves from time to time.

Then she told us that before each live performance, she herself developed a nervous stomach and regurgitated her food — way too much information, even in this enlightened age.

The bottom line was that, no matter what her fans might think, both she and the royal family were only human. "The queen really pees, and I throw up."

Well, broadcast people — boss jocks, engineers, you name 'em — are human, too. No matter what people listening to their radios might think, we have to make a trip to the "john" every once in a while too.

OROVE MY CHEVY TO THE LEVEE ...

If you worked in the radio business before everything was canned or satellite-delivered from some remote studio located God-knows-where, you may remember the term "bathroom record."

No, this was not some kind of recognition for the person who stayed on the throne the longest. Bathroom records were the lengthy recordings you cued up when you felt the need to head for the sandbox and didn't want to risk hearing the hall monitor going "whsk, whsk, whsk" before you finished your business. (If this did happen, the beehive light over the phone usually was flashing when you got back to the control

room, with the PD or manager on the other end.)

One of my favorite bathroom songs was Richard Harris' "MacArthur Park." It ran for a full 7 minutes 21 seconds, more than twice the length of the average record, giving you plenty of time to do what you had to do. (The song was so long that some stations created an edited version to fit their formats.)

Another great one was Don McLean's "American Pie" at 8:36. The Beatles had several hits that played well for their friends in need: "Yellow Submarine" at 6:38, "Hey Jude" at 7:11 and "Revolution," which clocked in at 8:22, a great bathroom record.

"Nights in White Satin" by the Moody Blues was a good one to track if you had to leave the control room. As I recall, the album version ran well over 7 minutes.

Others from that general period — though not quite so long — were Bobbie Gentry's "Ode to Billie Joe" (4:15), Procol Harum's "A Whiter Shade of Pale" (4:05) and Frank Sinatra's "It Was a Very Good Year" (4:25). We could drop in "oldies," but the PD dared anyone to track an album — ever!

I mentioned to a younger buddy that I was trying to put together a list of bathroom records and he offered up "November Rain" by Guns 'N Roses, at 8:57, but that was in the '90s and I was long out of jocking by then.

I suppose that the all-time best bathroom song back in the swinging '60s was Iron Butterfly's "In-A-Gadda-Da-Vida," which ran well over 17 minutes. Of course, if I had put that on the turntable, I'd have been fired.

I'm sure we all have our own stories about trips to the john in various broad-

cast facilities. Now that I'm approaching the autumn of a rather mediocre career, at least a couple stand out among my memories.

NO AFTER-HOURS TOURS, PLEASE!

I was doing a gig at a top-40 station in a building that had been built back in the "golden days" of radio. It had big studios where actors and sound effects people could play to "the theatre of the mind" or where a 40-piece orchestra could spread out and play live music. Everything in the building was connected by a very long "L"-shaped hallway that wrapped around the studios, which were by that time mostly unused.

The lobby was at the top of the "L" and the elevated control room, designed to overlook the studios, was at the other end of the "L." You can guess where the bathrooms were: yep, in the lobby area, about as far away from the CR as you could get. Even with a brisk walk it took over a minute to get from board to potty.

I worked a long evening shift (5 p.m. until signoff, which could be at 1:30



Perhaps this small-market station's mixing of news and personal habits wasn't the best idea.



a.m. or later) and even though I didn't want to be that far from the turntables, I usually needed to take at least one walk per shift.

My solitary bathroom break usually came a couple of hours into my shift. Because I was the only one there, I'd leave the john door open to hasten my return to the CR. This also made it easier to hear the lobby speaker in case a record got stuck.

"MacArthur Park" was riding high in the charts and had become my bathroom song of choice. One evening about 9 p.m., I had done my business and was getting ready to pull up trou and head back to the control room. Richard Harris was crooning about the cake left out in the rain and the sweet green icing flowing down and I thought all was well.

Then I heard the front door open, and before I could rearrange my clothes, the formerly dark lobby was ablaze in light and several people of both sexes were entering. There was the sales manager, his wife and two other couples — probably big advertisers. The sales manager was slurring his words but saying something about going to the control room and meeting the "boss jock."

By then all eyes were riveted on me. There I was, in a most awkward position, with a hand full of TP. All I could

do was kick the door closed and hope they'd be elsewhere when I had to dash back down the hall before the record ended.

Thankfully, I heard the manager say something about how maybe this tour hadn't been such a good idea and how he'd have to speak to the janitorial service about their indiscreet cleaning crew.

TOILET PAPER/TELETYPE PAPER

The physical location of another john sticks in my mind. The little AM station I worked for was in an old house out near the edge of town. It was a shoestring operation, with physical space at a premium. This little house had not been designed to accommodate a transmitter, studio, control room and various offices.

To keep the noise from the AP Teletype from reaching the control room, the station had faced a choice between putting the banging, clanging machine outside the manager's office or in the solitary one-holer bathroom. Despite protests from several of us who had to rip and read the news, the john location won out.

Now this really wouldn't have all that bad except for one overweight salesman named "Fred" who, several times a day, delighted in heading to the john with a pack of Camels and the funnies, or

maybe the latest copy of Broadcasting.

Of course, when it came time to pull the latest set of headlines or five-minute summary off the Teletype, you can guess where Fred was.

You basically had two choices: Knock on the bathroom door and ask Fred to rip off the last 10 feet of fanfold and shove it under door (he was not known for washing his hands), or just go back to the CR and read the last news summary that happened to be there.

Unbeknownst to everyone, Fred at one point removed the bell from the machine because the noise bothered him. It was only after we missed the news about the JFK assassination by nearly two hours that the manager relented and put the AP machine out in plain view in the hallway. He eventually got used to the noise.

A MOST UNUSUAL MEN'S ROOM

I'll leave you with just one more radio station bathroom story, one that didn't happen to me but to a chief engineer buddy.

Seems that the day after the station's Christmas party, a lot of staff called in sick. You guessed it; stomach virus — probably from something the trade-out restaurant had served the night before.

Over the next couple days, even those who'd missed the party were laid low.

Of course the "show had to go on," and it's always the engineer who has to hang in there and keep it running. (Management told us it's 'cause we made the really big bucks.)

Anyway, as sick as Charlie was, he dragged himself in and segged spots, jingles and records. (The big boss told him not to try and talk. Ratings were bad enough as it was.)

This was one long-running bug, no pun intended; but Charlie stayed on the job. I think they promised him a trip to Mexico for his dedication. By the time things finally returned to normal, Charlie had done some engineering work that set that station apart from everyone else in the market or, for that matter, any other radio station in the country. Or maybe I'm wrong. Does anyone know of any other station equipped with turntables and cart machines that could be remote started from the men's room toilet stall?

Hello, Guinness World Records people!

Joe E. Lasmane is a retired broadcast engineer and one-time "boss jock" who spent the better part of his career during broadcasting's "Golden Age" (no computers, microprocessors or digital audio). In a previous story he examined the lighter side of hazmat.



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Key Elements to a Marketing Plan

Ring in the New Year with a strategy suited for 2013

I was asked recently to evaluate a so-called “marketing opportunity” for a client. It concerned a proposal from a company that sells billboard signage. The client wanted to know if the price structure was within the range of what I’ve seen for similar outdoor units. They also wanted my opinion on the effectiveness of rotational electronic outdoor signage.

One of the billboards they were considering carried full-motion graphics but was extremely expensive at 100 percent rotation, so the signage company recommended it be shared with other advertisers.

So ... what did I think?

My answer was a litany of questions designed to put my client’s rush to buy on hold (temporarily).

I began by asking whether this was a cold call from the marketing company. Yes, it was. I asked if the station had been looking to buy outdoor advertising. They hadn’t. I asked if they had a budget and an annual marketing plan. They didn’t. I asked if I could come in for a visit to discuss strategy. Sure!

I was glad they called. Not just because I needed another client, though that’s always nice, but because they had realized that it’s always better to be proactive rather than reactive. When stations spend time reacting to incoming marketing pitches instead of determining what they need to do to accomplish real goals first (i.e., setting a marketing plan), they are less likely to succeed.

TACTICS

Since we’ve got a bright new year ahead of us, let’s look at the key elements to starting your marketing plan for 2013.

The marketing plan starts with a budget. Even if your company is unwilling to allocate any marketing funds, at least you’re admitting you’ve got zero dollars to work with. And you still want a plan. It will be a different plan, to be sure, but even a station without a marketing budget must put one in place.

Next you need a marketing goal. Perhaps you’d like to raise your target demo ratings by 20 percent, or maybe grow unique visitors to your website by 40 percent or boost your Twitter followers by 80 percent.

Timeframe is important and goals become more realistic when calculated by quarter rather than by year. It’s fine to have both; but if you wait until the end of the year to measure against your

goal, you have no way of adjusting your tactics.

The tactical discussion is the most complicated and time-consuming part of the annual marketing process. The budget often determines what media you’ll utilize.

Whether these are billboard ads, TV spots, Web banners, direct mail pieces, facebook ads, SMS text messages — you name it, they need to be tested. Don’t spend \$100,000 on media placement, \$20,000 on creative and nothing on testing!

PROMO POWER



Mark Lapidus

lot of money with your station. While I have had great success in hiring a suggested favorite, that move does come with a certain degree of politics and compromise.

So what about the “no-budget” plan?



Don't spend \$100,000 on media placement, \$20,000 on creative and nothing on testing!

For example, if you’d like to do television advertising but can’t afford the frequency needed to reach the majority of your target audience effectively, you will waste what little funds you do have without even driving a result. It may be much more cost-effective to be on every outdoor billboard and bus in town to reach the largest possible target.

Next, repeat after me: Creative needs to be tested.

If you’re operating on the cheap, at least have a panel of outsiders view the creative and ask them simply to tell you what it means. It’s astounding, for example, just how many poorly designed bus ads there are on the streets. Unfortunately, decision-makers typically view these on a computer screen, so every little detail is easy to read.

Take that same creative, blow it up on the side of a bus and very often you’ll find the ad can’t be seen from further away than five feet. And then there’s so much text that when the bus blows by a viewer at 20 mph, the message is too complex to process. If possible, allow your test panel to visualize the ad the way it will manifest in real life.

Without an in-house expert, large stations often need a media agency to help with placement and rate negotiation. Your sales manager likely will advocate using an agency that spends a

This requires the most effort and creativity, and relies on strong, close relationships. Whether TV stations, outdoor companies or websites, there are outlets in every market that will work with you. With today’s smaller staffs, the challenge is finding the right person at your station or cluster who can drive this effort. It may be a sales person who is paid a commission on trades.

Once in place, a “no-budget” plan still requires great care in terms of developing goals, timeframe and testing. Next time you find yourself excited by an unsolicited marketing proposal, consider: While your heart is in the right place, you must now commit to developing and sticking to an annual marketing plan.

The author is president of Lapidus Media and a longtime contributor to Radio World. Email marklapidus@verizon.net.



MEET AXIA'S NEW, SMALLER IP CONSOLES. THEY'RE BIG WHERE IT COUNTS.

Plastic labels? Not on these consoles. High-res OLED displays on each channel tell talent exactly what source is assigned.

Just a push on the Options knob lets board ops assign new sources, adjust gain trim, source EQ and more.

Razor-sharp OLED Program meter with over-load warning, VU or PPM ballistics? The choice is yours.

Inside this 2RU chassis beats the heart of a giant, with power to run two RAQ or DESQ consoles. Or maybe one of each? It's okay, we don't judge.

QOR.16 console engine doesn't just look cool - it stays cool thanks to beefy heat-sinks and fanless design.

Built-in Ethernet switch lets you easily network devices and studios. Plenty of professional, balanced analog, AES and Livewire I/O, too.

Can a super-duty, high-performance rotary gain control still be called a "pot" - that's old tech.

Avionics-grade switches with LED lighting

Machined-aluminum work surfaces are made tough, to stand up to what jacks dish out.

Smooth 100mm, premium faders are side-loading to foil dirt and debris.

OLED channel displays have an audio confidence meter, too.

Four-position monitor selector lets you switch between Program or External monitor feeds on the fly.

Onboard headphone control with Preview option. Cheesy outboard amps need not apply.

Four Show Profiles for instant recall of console configurations. Try that on a PA mixer.

Event timer has manual and auto-reset options.

Time-of-day clock can slave to your NTP server.

Rugged, built-in, auto-ranging power supply. No line lumps or wall-warts on Axia gear.

The more you saw, the more convinced you were that IP consoles made sense for your station. Problem was, you had small spaces to work in. Some behemoth board that looks like a '78 Oldsmobile just wouldn't fit. But there was no way you'd settle for some cheap plastic PA mixer that looked like a refugee from the church basement. "Wouldn't it be great," you thought, "if someone made an IP console that didn't take up a whole room?"

Then you saw the new RAQ and DESQ consoles from Axia, and your problems were solved. With the power and features of a big console, but minus the ginormous space requirements. RAQ will drop right into those turrets in your news station's bullpen -

the reporters can send their finished stories right to the studio. And DESQ is perfect for the auxiliary production rooms.

But what sealed the deal was finding out you could run two RAQ or DESQ consoles with just one Axia QOR.16 mixing engine — you know, the one with all of the audio I/O, the power supply and the Ethernet switch built in. That brought the cost down so low that when you told your GM the price, he actually didn't swear at you (for once). Make another decision like this, and you might just be changing the sign on your door from "Chief Engineer" to "Genius."

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Dont U Make These Mistake's

Pro communicators have no excuse for sloppy spelling and bad grammar

SALES

BY ROD SCHWARTZ

Working in radio, a non-visual medium, does not give us license to trash the written English language.

After all, we're supposed to be professional communicators, right? We radio folks may find it easier to hide our misspellings, grammatical and punctuation errors behind a microphone; but sooner or later they're bound to be a source of embarrassment.

I was an English major in college, aspiring to be a teacher. I ended up in advertising — go figure.

Mind you, I'm not complaining. Advertising and marketing involve a great deal of reading and writing, consulting and coaching. So it's not all that far removed from teaching. I just work in a different kind of classroom.

Reason I mention the English major thing is because I'm going to climb up on my soapbox and rant a bit.

About grammar.

And spelling.

And punctuation.

'THEIR YOU GO AGAIN'

Whether you're creating sales presentation materials, corresponding with advertising prospects or clients, writing a newsletter or blog, etc., you're investing time and effort to build your credibility and career. Sloppiness in this area can have unintended consequences, leaving your reader with a poor impression of you.

I happen to live in a college town, where one might reasonably expect to find a higher level of education among

its citizens, or at least a proclivity for maintaining high standards in communication in our mother tongue.

One had better be prepared for disappointment.

hand-written?

Absolutely.

Should a blog post be checked for spelling, grammar and punctuation before sending it into the ether?

Spelling and grammar matter. Our work in advertising and marketing involves a great deal of reading and writing, consulting and coaching.

With astonishing frequency I see newspaper headlines, articles and advertisements (created by the newspaper's own employees), reader board signs on businesses, posters on bulletin boards, business cards, brochures, newsletters and professional correspondence — you name it — rife with errors in spelling, punctuation, grammar and syntax.

The widespread use of texting and email has fostered a tendency toward sloppiness, the former through its use of abominable abbreviations ("Hpe UR w/me on ths, K?") and the latter by its disdain for proper punctuation, e.g., the lack of capital letters at the beginning of sentences and of periods when bringing that sentence to a full stop.

Instead, we like just run our thoughts together kind of like this and *i hope you're following what i'm sayin OK because i havent got a lot of time to be treating this like a letter i mean after all its just email right? hey see you later 'K? bye*

Ugh.

Should an email, particularly a business email, be accorded the same treatment as a conventional letter, typed or

Of course.

Should your tweets and Facebook posts convey the same conscientiousness as your other communications?

Yes, if your personal brand is that of a professional communicator.

'PEOPLE JUDGE YOU BY THE WORDS YOU USE'

Do you recall hearing the radio spot for a learning product called Verbal Advantage? It began: "People do judge you by the words you use." Why? Because it's true. They do.

The famous direct response copywriter Maxwell Sackheim made a fortune selling the mail-order Sherwin Cody English Course through clever newspaper and magazine ads that grabbed readers with the headline: "Do You Make These Mistakes in English?"

Considered one of the top advertising campaigns of all time, the Sherwin Cody ad ran (largely unchanged) for more than 40 years, because it pulled

in business. And why? *Because most people make mistakes in English!*

That doesn't mean you and I have to do so. But we can't fix something if we don't recognize it as broken. So let's look at some of the most common errors, with a view toward eliminating them in our advertising and correspondence.

ITS vs. IT'S

It's is a contraction of "it is," whereas *its* is the possessive form of the neuter pronoun. If in doubt, remember that there should be consistency with its masculine and feminine counterparts. Think: "his, hers, its," or "he's, she's, it's." See how nicely they fit?



CONFUSING POSSESSIVES WITH PLURALS

Don't abuse the apostrophe.

This is a close relative of the previous problem. I alluded to it in the title of this article, writing "Mistake's" instead of "Mistakes." This problem is so pervasive there are websites (e.g., www.apostropheabuse.com) dedicated to exposing it. This more than any other error in punctuation makes the offender look like ... well, a hick. There, I said it. I'm sorry. But it's true.

Honestly, if this needs further explanation, a class in remedial English may

WHO'S BUYING WHAT

Elenos recently sold four Indium transmitters to stations in Michigan, Texas and Virginia. WGRQ(FM) in Fredericksburg, Va., has installed a new Elenos ETG 5000, Indium series 5 kW transmitter to use as its main transmitter. WBMI(FM) in West Branch, Mich., just purchased a 1 kW Elenos Indium ETG 1000 Elenos transmitter, also to be used as its main transmitter. Tejas Broadcasting in Amarillo, Texas, has purchased a new Elenos 2 kW ETG 2000, Indium series. The company's Corpus Christi, Texas, location also chose the same model.

Barix AG is helping Allen Temple Baptist Church in Oakland, Calif. stream its Sunday services to radio station 1640 KDIA(AM) using audio over IP.

Participants in India's digital radio project call it the world's largest digital radio deployment, and now Nautel said it has won an order for six 300 kW medium-wave transmitters from public broadcaster Prasar Bharati, part of the organization's upgrade of its All India Radio facilities to DRM30 digital broadcasting.

Also from Nautel, WAYZ(FM) (Hagerstown, Md.) purchased an M-1 digital mic processor through dealer SCMS. KFMK(FM) (Austin, Texas) purchased an M-1 digital voice processor. Casa Media Partners (California) ordered a Vorsis AirAura digital spectral processor. Beasley Broadcast (Fayetteville, N.C.) purchased two M-2 voice processors. And WHIZ(FM/TV) (Zanesville, Ohio) purchased two M-2 voice processors through dealer BSW.

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be worth considering.

THERE, THEIR, THEY'RE

One's a place, one's a possessive, one's a contraction. No reason to confuse or misuse them.

ACCEPT vs. EXCEPT

The former means to take; the latter means to leave out. Accept no exceptions.

AFFECT vs. EFFECT

When used as verbs, the former means to influence, the latter to bring about a result. Both also can be nouns with distinct meanings of which you should be aware.

My words may affect your next blog post but their effect remains to be seen.

PRINCIPAL vs. PRINCIPLE

Principal means main or first in importance; principal is also the title given to heads of schools or business partnerships; it can also have a financial meaning. Principle is a rule, proposition or governing belief.

OF vs. HAVE

I would have preferred not to bring this up, but whenever I see something like "I would of come to your party if

I'd known about it," I want to throttle the person who wrote it, bless her heart. Need I say more?

DIFFERENT THAN vs. DIFFERENT FROM

This will be a bone of contention in some quarters but I side with the purists. Technically, one thing differs FROM another. It does not differ THAN another. Therefore, my opinion will be different from the opinions of others who don't see the problem.

PHRASEOLOGY 101

Beware mangled and misconstrued expressions:

It's "one and the same" rather than "one in the same."

Say "by and large" not "by in large" (although if you're giving somebody shopping instructions, as for clothing, "buy in large" might fly).

"For all intents and purposes" is correct; notice the symmetry between intent and purpose. There's no such thing as an intensive purpose. So please don't say "for all intensive purposes," okay?

"Unique" means "one of a kind." Literally (another much misconstrued word). Unique is not a comparative. It is not a superlative. It is an absolute.

Therefore, it is incorrect to say that something is "more unique" or "one of the most unique ..."

JUST IN CASE, NO MIXED CASES

When used as the subjects of a sentence, personal pronouns are "he," "she," "I," "we" and "they."

When used as objects, direct or indirect, they are "him," "her," "me," "us" and "them."

Be careful, if combining pronouns in a sentence, to keep the cases consistent. For example, you might be inclined to say, "They're going to meet Sheila and I after work." But it should be "Sheila and me." Nor should we say "Me and Sheila are going there after work."

An easy technique to avoid these mistakes: Leave Sheila out of it.

You wouldn't say, "They're going to meet I after work" or "Me am going there after work." It sounds stupid. Adding "Sheila and" to the sentence won't make it any less so.

We say "They're going to meet me after work" or "I am going there after work." You can insert "Sheila and," and these will still be right.

FOR FURTHER REFERENCE

I keep quite a few resources on hand

when I sit down to write. Some, like my 30-year-old "Songwriter's Rhyming Dictionary" (which, after the 1987 fire that gutted the radio station, I had rebound) might not be useful to you unless you are writing poetry or a radio commercial.

But I can recommend without hesitation two excellent and accessible volumes:

"Eats Shoots & Leaves" by Lynne Truss is an engaging read and a valuable guide to proper punctuation.

"Common Errors in English Usage" by Paul Brians, a former Pullman resident and Professor of English at Washington State University, is a gem. It will enable you to avoid the most common pitfalls in spelling, grammar, pronunciation and usage.

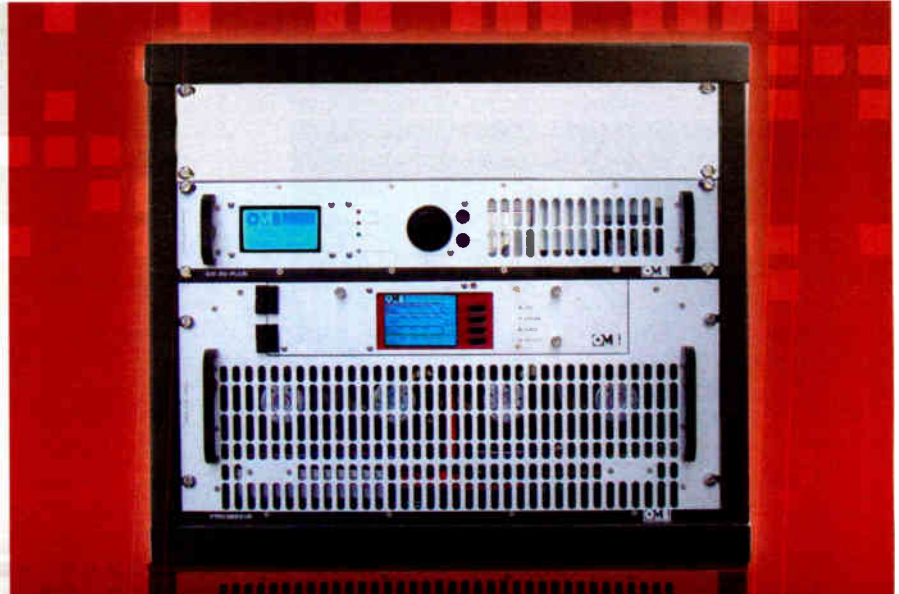
Words, whether spoken or written, are the currency of communication. Invest them wisely; spend them well.

Rod Schwartz, a 40-year radio advertising sales veteran, is owner and creative director of Grace Broadcast Sales, a firm providing short-form syndicated radio features, and an administrator at RadioSalesCafe.com, a specialized networking site for radio advertising sales professionals. Reach out to Rod: rod@gracebroadcast.com.

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Small Mixers Do Pack a Punch

Wherein the Warrior cogitates on the role of small mixers in the arsenal of news tools

RADIO ROAD WARRIOR

Columns are archived at radioworld.com

BY PAUL KAMINSKI

In the past few years, I've seen fewer and fewer (if any) mixers in the field in most ad hoc news situations. The prevalence of laptop/netbook/smartphone audio editing programs and increased availability of mobile broadband and other Internet portals makes the mechanics of editing, producing and transmitting a ready-for-air news report as simple as a click of the keys.

However, when those reports turn into live originations, as they sometimes

do, you need more audio inputs than the single jack on the laptop and smartphone, and you need the ability to mix those multiple inputs in real time. That's why a small mixer should be in the inventory of every news department or radio engineer's emergency kit.

For this column I'm defining a small mixer as a device that will mix at least two-to-12 microphone and line level audio sources. It can be powered by line or battery power. When I came into the business back in the late '60s, the utilitarian Shure



N.Y. State Senator Thomas Libous (left) and N.Y. State Assemblyman Gary Finch inside WEBO's temporary studio in the aftermath of Tropical Storm Lee. The small Alesis MultiMix 8 USB at the bottom of the picture was the go-to mixer for this broadcast.

See my review of the RemoteMix One in the Nov. 7, 2012 issue of Radio World.

All of those will help your news people and broadcasters in the field produce reports and programming with audio quality that complements the production values of those reports.

But when water is running over the door sills to your newsroom/studio, and your station needs to get back on the air to provide information that can save lives, you need options — and fast. That's how a small mixer — an Alesis MultiMix 8 USB in this instance — helped the listeners of WEBO(AM/FM) in Owego, N.Y., hear that information, during the aftermath of Tropical Storm Lee last year.

WEBO's President and General Manager Dave



The WEBO on-air and engineering teams work from the station's emergency remote on-air studio (a borrowed RV) during the aftermath of flooding from Lee in September 2011.

M67 mixer was the standard, and it is still being used today.

INTERFACE

I have a low serial number JK Audio RemoteMix Sport which I'll take with me if I need to mix two mics and audio. It can feed a dial-up phone line (RJ-11), a handset interface and, with the right connecting cords, a cellphone, codec or broadcast loop. The unit has a built-in phone line limiter and runs on both AC line and 9 volt battery power. My older unit uses a Daptor Three to interface with Bluetooth applications. The newest version RemoteMix 3.5 has built-in interfaces for a cellphone (wired), and for connection via phone-grade Bluetooth, as well as the legacy RJ-11, handset and codec connection capability.

Codecs from manufacturers such as Comrex, Tieline, AEQ and others have built-in mixing capability to keep the loads light but versatile. So, too, are the two-input (mic and line) dedicated cellphone interfaces like the Conex Flip Jack and the JK Audio RemoteMix One.

Radigan had to evacuate the main studio location and equipment, and at the same time re-establish operations from the station's transmitter site in a recreational vehicle. "Our survival instincts kicked in. We were smart to grab whatever equipment we could when we evacuated," he says of the event.

The MultiMix 8 USB, with three handheld microphones, was hardwired into the AM audio processor, and its audio traveled on a twisted copper pair to a junction box on a telephone pole at the transmitter site. An unused underground wire pair carried the audio into the transmitter building, and was hardwired into the transmitter's audio input. Radigan said, "No audio connectors were used; none were available, other than the XLR coming out of the processor. From there, it was copper pair wire, twisted together enough times to keep them (the pairs) from coming apart, and in some cases, covered with electrical tape."

This primitive setup would allow WEBO to broadcast information released by public safety officials, and reports

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with information from amateur radio operators who themselves set up temporary operations at the high ground of the transmitter site.

Village, town, county and state elected officials used WEBO to reach out to people in the area. After the flood, when the local weekly and daily newspapers couldn't publish, or gather news because of the flooding, businesses relied on WEBO commercials to let the people in Owego know which stores were open and where to get supplies.

The constant in this business is that nothing is constant, and your normal everyday operations can be disrupted in seconds. Backup plans are best formulated before they need to be executed; operators and (where still active) news departments do need backup equipment like those small mixers available.

Equipment in a backup kit does not have to be new stock. Reconditioned items can work well, once tested for operational reliability, and keep the project under a budget. Once a backup kit is assembled, managers, engineers and news people must resist the temptation to cannibalize the kit for other uses.

While we don't need the capability to mix a live band on a news job, the small mixer — whether built-in or standalone — can help us tell our stories a bit more easily. Spending less time on the mechanics of the production and transmission means we can spend more time on producing the compelling content our listeners and advertisers appreciate and expect — whether that content is produced under "routine" or emergency situations.

Do you have a topic or question you'd like to see mentioned in a future Radio Road Warrior Column? Our editors always welcome suggestions (radioworld@nbmedia.com) as do I at motorsportsradio@msrpk.com. You can even tweet them to me ([Twitter.com/MSRnet](https://twitter.com/MSRnet)).

Paul Kaminski is the news director for the Motor Sports Radio Network, a contributor and free-lance reporter for CBS News, Radio and since 1997, a contributor and columnist for Radio World. Follow him on Twitter at [Twitter.com/MSRnet](https://twitter.com/MSRnet).

FREE SOFTWARE

From the Bowels of SSL ...

U.K.-based Solid State Logic has a well-deserved reputation for building large-format recording consoles, both analog and digital. Over the last decade they've jumped into the digital end of the pool with a series of interfaces and other outboard devices for broadcast and music production. Naturally, they've expanded into offering digital software emulations of some of their famous hardware designs, such as their legendary stereo buss compressor, as well as channel strips and reverbs.

Somewhat hidden in the bowels of their website are a couple free VST plug-ins that offer a taste of SSL technology, but without the SSL price tag.

First up is the LMC-1. This very simple mono compressor plug-in is modeled after an obscure feature of their famous SL4000E console. In addition to having compressors and gates on each input channel, the console also had a dedicated "Listen Mic Compressor" on a talkback return for musicians in the studio to talk to the engineer in the control room via a dedicated mic. The heavy compression allowed musicians far from the mic to still be heard. The compressor had fixed attack and release settings and a simple "less/more" compression control.

This feature found a new use when engineer/producer Hugh Padgham was working on Phil Collins' hit single "In the Air Tonight." Phil happened to play a drum fill that was picked up by the "listen mic"

and as the signal through made its way through the compressor, pop music history was made.

The LMC-1 plug-in retains the simple operation of the original, offering just three controls. There's input and output trim, and a big "Less/More" knob.

It doesn't get much simpler. And, yes, it will squash the daylights out of anything you run through it. On a complete mix, it sounds very much like overdone airchain processing; but it's good for helping a vocal track or snare drum cut through a mix.

Next up is the X-ISM. At first blush, this is a glorified level meter, but it goes a bit further in dissecting your digital audio. Its first job is to catch intersample peaks in digital audio that can sometimes be missed by traditional peak meters. Intersample peaks occur when the analog signal experiences a peak that fits neatly between digital samples. These can cause clipping without registering on the meters. Not only does it include the traditional peak meter, it also offers separate digital and analog peak indicators on each channel. Going further, the X-ISM includes a peak bit meter, showing all available bits up to 24

and indicating how many are actually being used at a given moment.

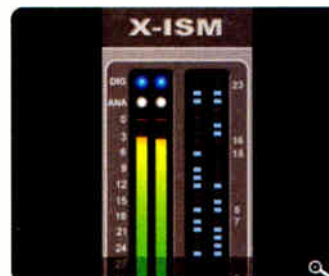
Both plug-ins are, as mentioned, absolutely free. Registration at the SSL website is required to access them, but that's free as well. There are Windows and Mac versions, and they work with just about any DAW that uses VST, AU or RTAS plug-ins.

Info: www.solidstatellogic.com/music/section_free_plug-ins.asp

— Curt Yengst



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READER'S FORUM


istockphoto/Ray Roper

The Radio World mailbox was overflowing with responses to Burt Fisher's letter in the Nov. 21 issue. This letter criticized aspects of the amateur radio scene. Here is some of that feedback.

ONE OF THE BEST THINGS IN MY LIFE

I am responding to a letter posted by Burt Fisher, chief engineer of WCCT(FM), Sandwich, Mass., in which he misses an important aspect of amateur radio, which is the development of many key RF communication technologies by radio amateurs.

A significant number of technical innovations in the RF and digital communications realm were developed by amateur radio operators, either as part of their ham radio hobby activities or as part of their daytime jobs as technologists for universities and corporations.

For example, many of the innovations in vacuum technology over the past 80 years came from the technologists at CPI/Varian/Eimac and RCA, most of whom were amateur radio operators. Much of this technology was initially tested in amateur radio equipment.

As vacuum technology has transitioned to solid-state devices, you will also find that a high percentage of the technologists working on solid-state RF amplifiers are active in ham radio and, once again, much of the practical, early, field testing and perfecting of these

devices was carried out with amateur radio equipment.

If you don't believe me, please check the links posted at radioworld.com/links.

The people who rise to the top of the RF design and manufacturing profession have a passion for "all things RF" and many of them have found a practical, living, laboratory for developing their skills and ideas in the amateur radio operating environment.

Many of my colleagues in broadcast station operations, as well as the broadcast equipment business, are licensed amateur radio operators whose interest in broadcasting can be traced back to amateur radio.

I cannot think of a better "hands on" learning laboratory for young people to learn electronic theory, soldering and equipment construction techniques than building amateur radio equipment.

With the melding of computer and RF technology in modern amateur radio activities and the elimination of the Morse code requirement, more young people are getting involved in amateur radio and the number of licensed amateur radio operators has increased in recent years.

It is still possible to build your own amateur radio equipment, particularly RF power amplifiers, antenna impedance matching networks and antennas.

Modern computer tools like NEC method of moments software make it possible for anyone with basic electronic skills to design and innovate, home-made antennas that can be built from simple wires and other low cost materials.

We now live in the age of computer software, and many amateur radio operators are developing new software-defined modulation waveforms and other applications that can and are being used outside of amateur radio for the benefit of society.

FlexRadio and Elecraft are examples of companies owned by and catering to amateur radio operators that are on the cutting edge of software-defined radio technology (SDR), which is now finding its way in government and consumer communications equipment.

If it had not been for my early involvement in ama-

teur radio, I probably would not have pursued an education in electrical engineering; nor would I have chosen a career track in the broadcast equipment design and manufacturing business.

I spend my workday engaged in the development of state-of-the-art digital RF broadcast equipment.

You would think that is enough RF for one day, but I can't get enough RF. When I get home from work, I fire up my homebrew linear amplifier, built more than 50 years ago when I was a teenager, with two beautiful 4-400As glowing orange, and work DX stations all over the world with my home-made, computer-designed, wire antennas.

You'll never convince me that amateur radio is no longer relevant or that it isn't one of the best things in my life.

*Geoffrey N. Mendenhall, W8GNM
Vice President*

*Transmission Research and Technology
Harris Broadcast Communications
Mason, Ohio*

COMMENTARY WAS HAM-HANDED

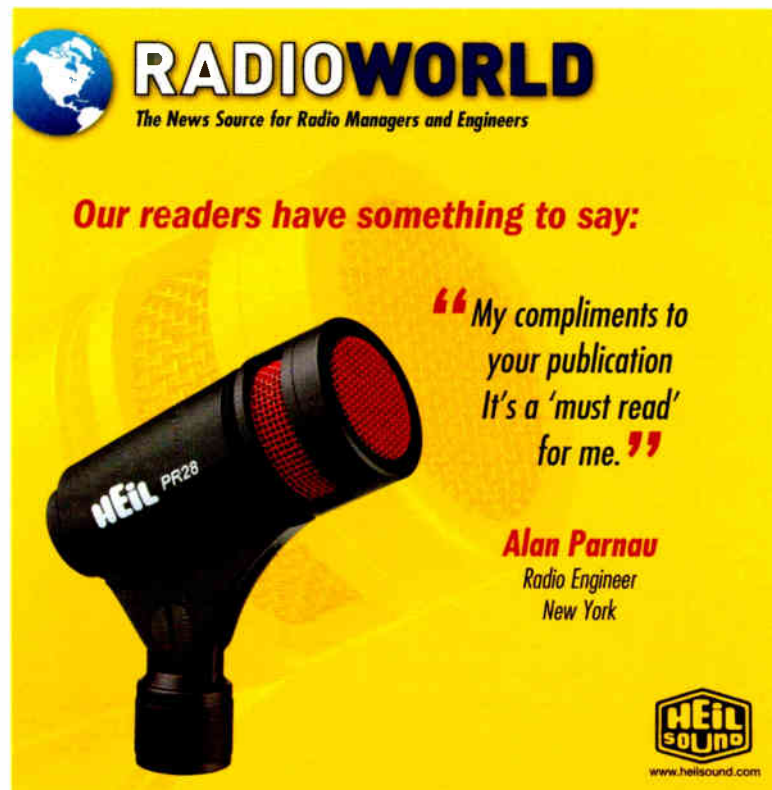
I would like to reply to Burt Fisher and his rant:

Your comments were rude and certainly misinformed. Consider the number of hams who responded and are still responding to Hurricane Sandy-ravaged communities; or the untold numbers who worked communications during wildfires in Colorado, California and many other states.

Many more volunteer their time and equipment to the American Red Cross, the Salvation Army and countless community emergency operation centers and community events.

What a slap in the face to these public-minded, selfless people.

I belong to three small ham clubs in Northern Connecticut. At a recent meeting of the Bloomfield



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Alan Parnau
Radio Engineer
New York

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2, 20-21, 40	Wheatstone Corporation	www.wheatstone.com

club, we had in attendance three people who volunteer at a science center, two others are active members of the Civil Air Patrol and three who head up emergency operation centers.

Our president is an EMT who works emergency communications. Most of us are SkyWarn-trained by the National Weather Service, and many worked during Sandy giving valuable information and storm tracking. We also recruit new members and encourage young people to become involved in science and math (and, yes, ham radio). Our ranks are growing.

What a slap in the face to these public-minded, selfless people.

— G. Daniel Thomas

Another club is part of the Vintage Radio and Communications Museum of Connecticut, which is made up entirely of volunteers who work to preserve our history and offer training and support. We have a huge display of vintage ham and commercial broadcast equipment and a fully functional ham shack open to any licensed ham.

The third group of volunteers work events and handle communications at an emergency operations center in East Granby, Conn.

Some of my ham friends have a fantastic knowledge of radio and electronics, some are superior operators, some are learning, but all are involved in helping the communities in which they live.

So far, Burt, you are the only curmudgeon I have run into.

Maybe you should listen when a major weather event or other disaster strikes; you may change your mind.

I'll paraphrase these lines from the old Bob Dylan song "The Times They Are A-Changin'": "If you can't lend a hand, then get out of the way."

G. Daniel Thomas, KB1WFF
Retired Broadcast Engineer
Weatogue, Conn.

HAMS HELP WHEN IT COUNTS

Burt Fisher is correct. Most hams cackle endlessly about minutia. After all, it is a recreational hobby.

However, some of them talk from their cars or trucks, which are available to communicate in emergencies when all normal means of communications are down (electricity is off, cell phones are dead, infrastructure is under water).

Also, there is the small percentage of hams who deliberately prepare for disasters, assist authorities and send word to relatives out of the affected area.

WRITE TO RW

SEND A LETTER TO THE EDITOR:

Email radioworld@nbmedia.com with "Letter to the Editor" in the subject field. Please include issue date.

Among the 600,000 appliance operators, with the antennas that blight their neighborhoods, there will be some who hear the call for help and can pass the word on to the agencies that can send that needed help.

This is a resource that has shown itself to be valuable in emergencies. If there were no amateur radio, such a resource would not exist.

Jack Althouse, K6NY
Chief Engineer
Palomar Engineers
Escondido, Calif.

APPALLING, MR. FISHER

Burt Fisher claims to be a ham of 52 years but writes about hams that "the vast majority do nothing for public service or little to advance the state of the art. The day of hams being an asset has long disappeared except for some rare instances."

I, and all of the hams I have talked to, take exception to this "do nothing" label. Ham radio is just a hobby, one that offers a multitude of ways for ordinary people to experience operating their own radio stations.

Whether it be contacting stations across the world and sharing experiences, signal strengths, power and antenna data or operating the new and challenging PSK or digital D-Star modes, there is something for everyone in this hobby.

As such, not every ham need be involved in "public service." However, a good percentage of hams are ready to help with communications when needed.

When cell towers and land lines failed during Sandy, hams were there to pass along lifesaving messages. Every Sunday night I check in to our local Black Hawk County Amateur Radio Emergency Service net. In emergencies, this group of amateurs provides lifesaving communications.

Mr. Fisher is wrong when he says, "Hams are appliance operators who sit in their shacks and cackle endlessly about minutia."

This branding of the whole ham radio community is appalling. Yes, there are hams who like to talk to other hams, but there are other hams experimenting with ways to better their antennas and the quality of their transmissions. Most of the hams who prefer to just "rag chew" are retirees for which ham radio is a terrific outlet.

Fisher goes on to say that hams "blight the neighborhood" with their antennas and the FCC's PRB-1 decision protects them. Let's clarify that.

First of all, amateur radio antennas that do not "blight the neighborhood" can be installed discreetly. Secondly, PRB-1 only comes into play for state and local government regulations, but not for HOA, POA and other covenants signed between house owners and their neighborhood associations.

I cannot figure how a wire antenna such as a dipole or inverted V can "blight" a neighborhood when it cannot even be seen from the street. If one steps back from the antenna, it disappears.

Again, Fisher tarnishes all hams with a wave of his hand. He says the ham test must be easy because his eight-year-old daughter passed it. Perhaps he should recognize that his daughter is pretty smart and should be encouraged, not told that she passed because the test was "easy."

I don't mean to speak for all hams. There are many of us in broadcast radio — as evidenced by the always-packed Amateur Radio Operators get-together at the

NAB. But I think I speak for the majority of hams when I say that amateur radio is a great hobby with something for everyone.

Many radio engineers have come into the business with experience as a ham operator, and we broadcasters need engineers, so we need to encourage ham radio, not denigrate it.

Doug Vernier, K0DV
President
V-Soft Communications
Cedar Falls, Iowa

HAM MADE ME WHO I AM

I, too, became a ham just before my 13th birthday. Studying for my license so that I could talk to others over these radios got me interested in radio theory, and even after I got my license, I wanted to learn a little more and more.

About 10 years later, I wound up with a master's degree in electrical engineering, and am now on the sunset side of a career that has spanned more than 45 years, depending on how you count it.

I'm the interloper in the group; I'm not a broadcast engineer, but I have spent my life developing products for mostly the cable TV industry — more recently fiber optics.

Some products I have worked on have gone on to become reference standards in the industry, so hopefully the industry is a little better because I was here.

And it is directly because of ham radio that I became an engineer.

James O. Farmer, K4BSE
Chief Network Architect
Aurora Networks
Alpharetta, Ga.

TRANSLATING MAGIC OF RADIO TO YOUNGER GENERATIONS

I received my novice license at the age of 10 and, as with many others, it was the launching pad for a life-long learning experience and a great career.

After getting an EE degree and working for several years doing complex communications system design for Motorola, I ended up on the operations side of the cable industry and then in sales and marketing — and eventually became president of a satellite communications equipment manufacturing company serving the cable and broadcast markets.

I can honestly say that many of my multimillion-dollar deals were a direct result of amateur radio being a common bond between my customers and me.

Those bonds remain today and I suspect they will continue as many of us head into retirement.

The challenge for all of us is to translate the magic we experienced in our youth to the techno/sociological world of today's youth. Amateur radio is such a diverse hobby that I am confident that the younger folks are capable of even more technical contributions once they are exposed to all facets of our hobby.

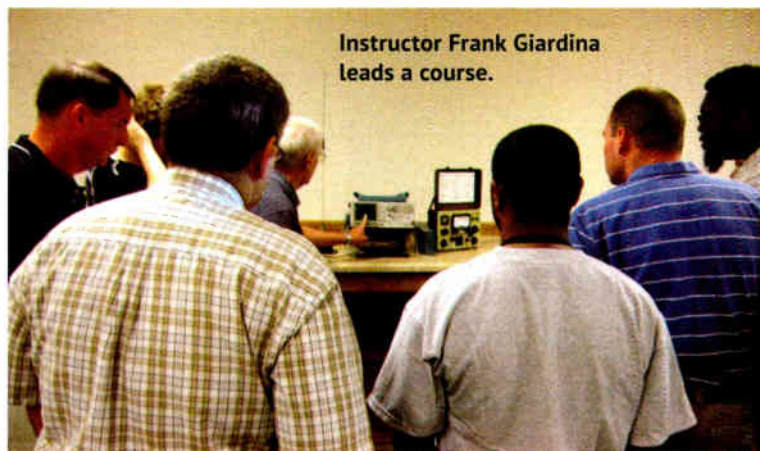
Ned Mountain, WC4X
Vice President of Business Development,
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READER'S FORUM**GREETINGS FROM THE BAM**

Here is an update on the Alabama Broadcasters Association "Engineering Academy" that Paul McLane described in an earlier issue of Radio World.

During the first year of the ABA Engineering Academy, we conducted two rounds of both radio and television broadcast engineering classes, once during July and then again in October. Both the radio and television programs were five days in length.

We've had a total of 38 students from five states



Instructor Frank Giardina leads a course.



To date, 38 students from five states have gone through the ABA classes.

LOCAL BUSINESS HAS COMPETITIVE DISADVANTAGE WITHOUT TAX

Thank you for your excellent article on the Main Street Fairness Bill, in which you correctly noted the impact that collection of sales tax could have on broadcast equipment sellers ("Retail Sales Tax Loophole May Close," Sept. 25).

Your readers should also consider that local retailers who advertise heavily on radio are at a competitive disadvantage to nationwide Internet retailers that do not collect sales tax.

Advertising-supported local broadcasting requires that local entities are healthy enough to have the revenue to afford advertising.

*Gary Shapiro
President and CEO
Consumer Electronics Association
Arlington, Va.*

A WORD ABOUT RON

With all the attention in Radio World to the challenges in AM radio, I'd like just to put in a word for one man who probably doesn't get enough appreciation.

A few years ago, the company I worked for purchased an AM station that was, shall I say, not taken care of.

It needed one of the three towers replaced; the transmitter was on its last leg; the antenna pattern and the whole sample loop system were in disrepair.

We chipped away, one by one, replacing the tower and transmitter. Then we came to the point where the system needed a partial proof done and the pattern fixed. One thing

go through the schools. Jokingly, we told them we tried to cover everything from the atom to the antenna. We have had interest in the classes from as far away as Alaska and Puerto Rico.

Our plans are to repeat these classes twice during 2013, and we are adding classes for television master control operators and IT for broadcasters.

The Alabama Broadcasters Association, which administers the Engineering Academy, is excited over the success of our first year.

We continue to tweak and expand the courses to make them more beneficial in creating additional qualified engineers for the industry. Those interested in attending the classes or needing general information about the courses may contact me at Lwilkins@al-ba.com or (334) 303-2525.

*Larry Wilkins, CPBE
ABA Engineering Academy Director
Alabama Broadcasters Association
Hoover, Ala.*

led to another, and I was referred to Ron Rackley.

I had heard great things about Ron but our paths had not crossed before. Ron came in and looked over the station. He told me he thought he could fix the DA and do the partial in about five to seven days. We hired Ron and, in fact, he did fix the pattern and do the partial proof in just four days.

When it comes to directional AMs and compliance, he really gets the job done. I just wanted to share a word of appreciation for this veteran of 40+ years in our industry.

*Bruce Roberts
Director of Engineering
Apex Broadcasting
Charleston, S.C.*

TAKE ME OUT TO THE BALL GAME

Nicely done article by Doug McLeod ("Play-by-Play Could Use a Pep Talk," Oct. 18). The only thing I can add is a recommendation to use a crowd microphone at games where there is little crowd noise.

A good example is baseball. Hearing the crack of a bat and the crowd cheering will triple the excitement and enjoyment of a game on radio. Remember, the audience can't see the game. If the play-by-play announcer is in a closed booth with little or no sound getting in, the listener can easily feel left out of the fun.

*Mark Persons
M. W. Persons and Associates Inc.
Brainerd, Minn.*

The author is a contributor to Radio World.

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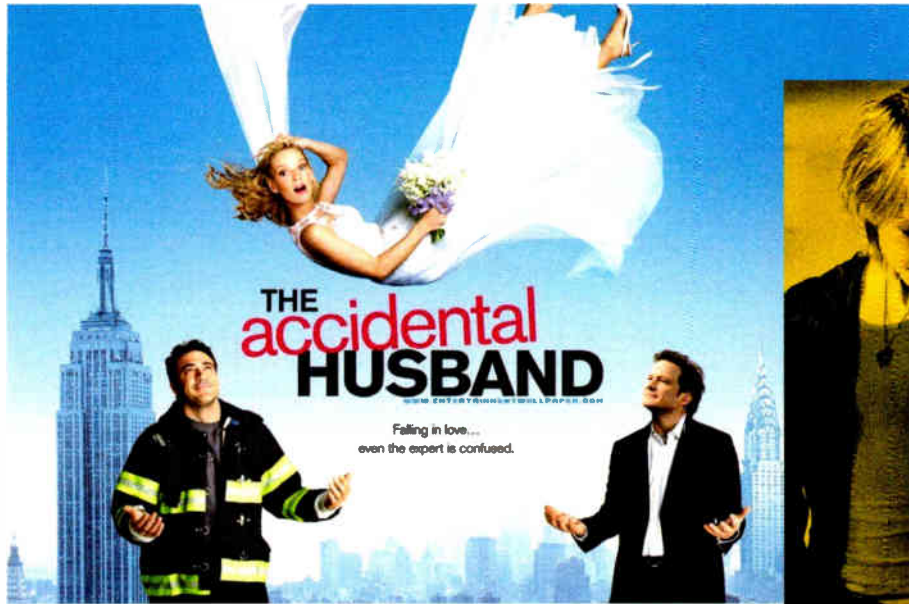
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*Lydia now does interior design as well as set decoration. We have yet to get her to specify StudioHub+ for any of the beautiful Manhattan apartments she decorates, but you can see her new work at www.marksandfrantz.com



**Rena continues her career in set decoration with her most recent credit on the film "The Help." Contact her at renadeangelo@gmail.com

RADIO SYSTEMS GOES TO THE MOVIES



Millenium Broadcast Consoles read beautifully on film, so they will also look great set in your broadcast studio. Install them with StudioHub+ and have time left over to go to the movies!

Shown above on the set of "The Brave One."

Jodi Foster and Uma Thurman probably didn't even know that they've used StudioHub+. But their set decorators do.

Set design is a big and important part of making a successful movie. So when Lydia Marks* with credits on her resume like "Sex and the City" and "The Devil Wears Prada" gave us a call to help her outfit the multiple broadcast studios for the Warner Brothers' film "The Brave One" starring Jodie Foster - we knew we had one cool gig.

Of course, the studios had to look realistic and work perfectly. But mainly, integration of the studios had to fit a grueling production timetable. That's where StudioHub+ came in. The plug-and-play efficiency of StudioHub+ allowed set crews to quickly construct, break and reconstruct scenes on a schedule that would make even a broadcast on-air deadline seem tame.

Broadcast engineers talk to each other and so do set designers. That's why when Rena DeAngelo** asked her friend and associate Lydia who she might tap to build another radio studio, we were off to the movies again; this time for "The Accidental Husband," a production starring Uma Thurman.

Since then, we've also helped re-create the radio studios of the TV show Frasier for a Dr. Pepper commercial shoot and outfit "Atlas Satellite Radio" for the NBC pilot "Next Caller."

StudioHub+ hasn't made us all famous yet. But we have been proud to crew for these prestigious designers and production companies with the "wiring solution of the stars."

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 *Wheatstone*

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