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Stupid-Proof Your Lockup
 John Bisset explains why Stymielock may be just the thing for a shared remote site.

In the Code
 Buyer's Guide looks at codecs, STLs and remote gear.

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Radio World



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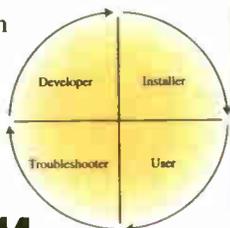
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August 1, 2002

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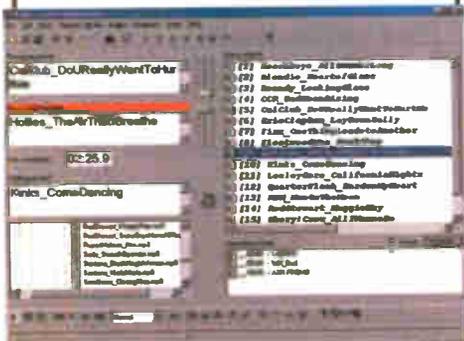
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▼ Who wins an AKG C4500 B-BC large-diaphragm condenser microphone?

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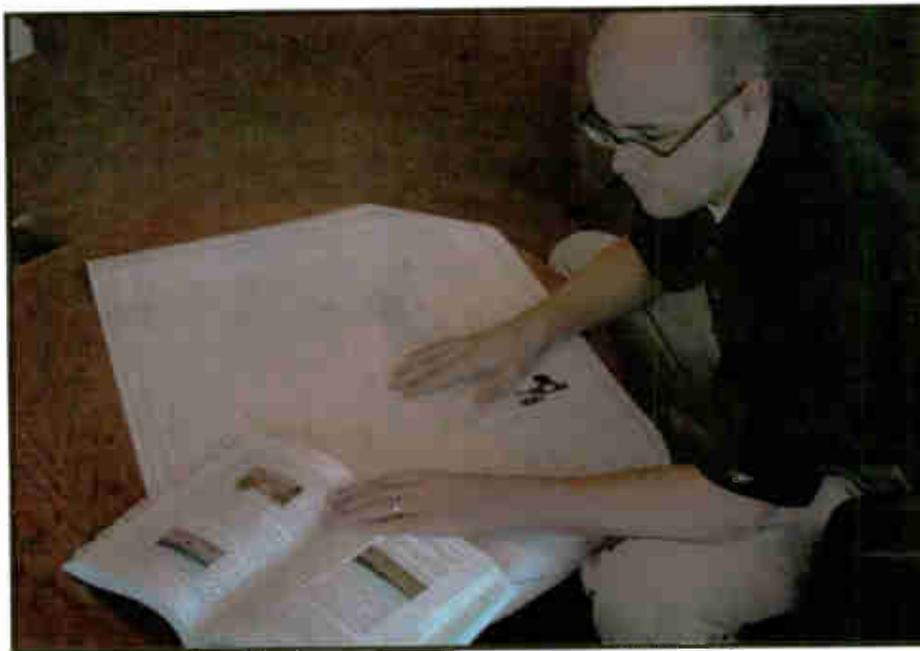
NEWS ANALYSIS

Bird Kills Scrutinized

by Randy J. Stine

WASHINGTON The U.S. Fish and Wildlife Service has accelerated efforts to address bird kills at tower sites and is poised to begin research into the phenomenon. The data could someday determine where radio stations locate their towers and how they light them. It also could necessitate modifications to existing tower sites. Broadcasters have urged Congress to fund such research, to settle the question of whether broadcast towers play a role in bird deaths.

See BIRDS, page 5 ▶



Andrew Skotland reviews one of the environmental studies prepared to evaluate the possible effects of tower construction.

NEWS MAKER

Suffa Eyes IBOC With Caution

SAN ANTONIO As Clear Channel's top capital investment man, Bill Suffa has a great deal of input as to whether the huge radio group will adopt IBOC.

From a financial viewpoint, he's not convinced.

William Suffa is the senior vice president of capital management for Clear Channel Worldwide. He's part of a select group of Clear Channel executives who play an important role in determining when and how Clear Channel stations will make the digital transition and how much money those facilities will have available to accomplish the change.

Suffa, 45, has done a little bit of everything in radio, from engineering and on-air work to sales. He's a ham operator, he flies a small plane and he once worked for the FCC as a field agent. He combined his skills in engineering and financial analysis to form a broadcast and telecommunications consultancy; he served as a vice president

See SUFFA, page 8 ▶

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NEWSWATCH

Sirius Now Nationwide

NEW YORK Sirius Satellite Radio is now available nationwide and the company has begun a national ad campaign.

Kenwood, Jensen and Clarion radios are for sale at 3,500 retail locations. Panasonic was expected to reveal product plans for Sirius soon.

Reaching 45 million NASCAR fans is the cornerstone of Sirius' marketing efforts, said Senior Vice President of Retail Distribution Stan Kozlowski.

"Rather than spend millions in general advertising, we think there is a segment



Photo by Paul Kaminski

The Sirius Satellite Radio Dodge Intrepid enters the NASCAR Winston Cup Inspection Garage at Michigan International Speedway. The car, driven by Casey Atwood, competed in the Sirius Satellite Radio 400.

of the population more predisposed to buy Sirius. NASCAR fans like entertainment and cars."

The satcaster is targeting consumers who love cars and spend more than one hour a day in their vehicles. It continues its "Rhythm of the Road Tour," bringing its demonstrations to races every week.

The company has begun a national ad campaign including TV, specialty magazines and a buy on the ABC Radio Networks. Kozlowski would not reveal specific dollar amounts.

He said the decision to move its nationwide launch forward by a month, to July 1, threw a curve at its receiver partners. But, he said, "We'll have ample product for sales," he said.

Roughly 60,000 units were for sale at mid-year, expected to increase to 300,000 by the end of the year. The initial focus is on aftermarket retail sales, with home units slated for production in 2003.

RFE/RL to End Czech Radio Funding

PRAGUE, Czech Republic It's another sign that the Cold War is long over.

Money from Radio Free Europe/Radio Liberty for the Czech-language Radio Svobodna Evropa will stop flowing this fall; and RFE/RL will dissolve its partnership with Czech Radio "by mutual

See NEWSWATCH, page 7 ▶

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NEWS ANALYSIS

Payola: Will The Buzz Burn?

Legislation Would Broaden FCC's Merger Review Role and Give It Authority to Revoke Licenses for Anticompetitive Concert Promotion Practices

by Naina N. Chernoff

WASHINGTON Will the buzz about legislation to rein in alleged radio strong-arm promotion tactics leave a taint on the industry's value with Wall Street?

It's too soon to tell about the long-term impact; but experts interviewed by Radio World believe such legislation has virtually no chance of passing in this session of Congress.

Even the sponsor, Wisconsin Democrat Sen. Russ Feingold, said the measure had no co-sponsors as of late June, but he pledged to continue pushing the proposal until it passes.

Called the Competition in Radio and Concert Industries Act, the bill calls on the FCC to revoke the license of any radio station that leverages its concert promotion businesses to discriminate against musicians, concert promoters or other radio stations. It also would update payola laws to cover independent promoters.

According to the bill, the FCC would have the authority to decide when to suspend or waive the rules.

When is it legal?

Feingold intends to modify the rules for payola, the "pay-to-play" practice in which radio stations receive compensation from independent promoters hired by recording companies to play singles on the air. The bill would prohibit radio stations or their owners from using their market power to get compensation from record companies or their representatives as well as from artists and concert promoters.

The practice is legal as long as stations reveal the identity of the sponsorship.

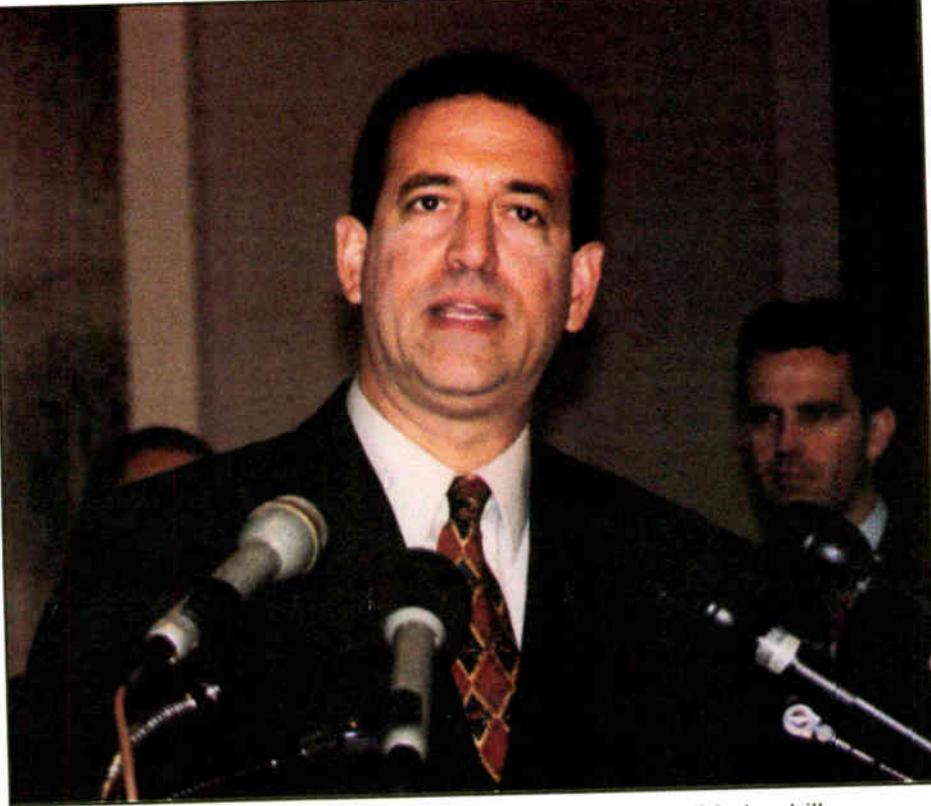
The bill, Feingold said, is a response to complaints he has received from independent radio stations and concert promoters in his state who charge that they are being pushed out of the market by large station owners such as Clear Channel Communications Inc., a company that Feingold cited as the main impetus behind the bill.

Clear Channel defended its business practices and said government intervention was not a good idea.

"We do not believe that it is in the best interest of any of our constituencies to have the government legislate private business practices to the degree that Senator Feingold proposes," said Mark Mays, president and COO of Clear Channel, in a statement.

The company, owner of approximately 1,200 U.S. radio stations, argued that other media sectors — including film, cable TV and music recording — are more concentrated than radio in terms of the share of revenue that their top companies command.

Clear Channel also said the 1996 Telecom Act brought about a badly needed drive toward modernization in the radio business, creating economies of scale and driving new technologies that



Sen. Russ Feingold unveils his anti-payola/consolidation bill.

the road map to getting there."

A group that advocates artists' rights was satisfied with the proposed legislation, stating that the general public supports congressional intervention.

The public wants more diversity in radio, said Michael Bracy, director of government relations for the Future of Music Coalition, a Washington think tank for artist rights.

Bracy pointed to a recent poll by his organization reporting that eight out of 10 people favor congressional action to protect or expand the number of independently owned local stations.

Survey says ...

According to the poll, 68 percent of the 500 people interviewed approve of congressional action to ensure that all artists have a more reasonable chance of having their songs heard if allegations that radio stations are paid to give air time preference to the music artists supported by record companies are proven to be true.

The telephone survey was sponsored by Media Access Project, a nonprofit law firm specializing in communications issues, and the Rockefeller Foundation, a philanthropic organization.

Payola is part of a larger problem of anticompetitive behavior brought about by consolidation, Bracy said. "The federal government can't rubber-stamp corporations who don't give access to artists," he said.

The perceived loss of localism is also a concern to the coalition. "We've seen that, when you expand to a point where you have to cut staff, downsize operations and automate stations, you break the traditional bond between broadcasters and the community," Bracy said.

See PAYOLA, page 7

benefit consumers.

"The fact is that listeners vote on radio stations, their formats and their play lists every day," said Mays. "The most successful radio companies are simply those that do the best job of serving listeners."

NAB opposes the bill and disputes claims that radio has become more homogenous, arguing there is more format diversity now than before 1996.

Feingold said his bill would not reinstate pre-1996 local radio ownership caps, but it would prohibit the FCC from relaxing the limits. If passed, the legislation also would direct the FCC to examine the effects of consolidation and issue an annual report on the state of the industry.

The measure also would require the FCC to ensure that Arbitron measurements are not subject to manipulation and would prohibit local marketing agreements if their use results in one of the licensees having more than 35 percent of the audience or of radio advertising revenue in the market. Under Feingold's bill, LMAs would be restricted to a one-year term.

Supporting the measure are several interest groups, including the Consumers Union, the National Association of Black-Owned Broadcasters and the American Federation of Television and Radio Artists, as well as several music industry organizations.

"(The bill) takes the necessary first step toward ensuring diversity of programming on radio stations by preventing abuse of independent promotion through unprecedented increased radio ownership consolidation," said Hilary Rosen, chairman and CEO of the Recording Industry Association of America. "This radio promotion system needs reforming and this bill provides

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Regional Events Coming Up Soon

Southern California readers, you can see the latest offerings from a number of equipment vendors this week in the Los Angeles area, learn about IBOC and get a free lunch in the bargain.

Klotz Digital America and SBE Chapter 47 are sponsoring what they call a "roadSHOWcase," a day of equipment exhibits and demos on Friday, Aug. 2, at the Holiday Inn, Media Center, Burbank. There's no charge.

A featured speaker is Ibiqity Digital Corp. Broadcast Technology Manager Jeff Detweiler. He manages the introduction and launch of technology to stations, coordinating conversion requirements. (He also attended Westfield High School in New Jersey one year ahead of me. Go, Blue Devils!)

He also is known to many readers from his days with QEI Corp., Allied Broadcast Equipment and stations in Cleveland and Princeton, N.J.

Manufacturers on hand will include 360 Systems, Studio Technology, Klotz Digital, Omnia, Moseley, ERI, Henry Engineering, Telos Systems, Orban, Wohler Technologies, Symetrix, Auralex, Radio Systems, RF Engineers, Gepco, Broadcasters General Store, Thales, Graham Patten Systems and others. Doors open at 11 a.m. with exhibits and demonstrations running

through 5 p.m.

Check it out. For info call Klotz Digital at (678) 966-9900 or send e-mail to ussales@klotzdigital.com.

On the opposite coast, organizers are hoping that radio, TV and postproduction people will come to a new regional event, BOS-CON 2002, this fall.

That event takes place Oct. 29 and 30. It is sponsored by SBE Chapter 11 — good work, you SBE chapters! — and includes an Ennes Workshop and supplier trade show at a hotel in Marlborough, Mass.

"There hasn't been an Ennes Workshop in the Boston area for 10 years," said ERI's Dan Rau, the event co-chair, "and it has been 12 years since the last major trade show, the NAB Radio Show 1990, in Boston."

He said the event specifically will include booths and information for radio as well as video professionals. I asked Rau why he and his co-chair, Viacom's Bob Hess, want to play up the radio/audio angle.

"Virtually every regional SBE trade show is dominated by 'video/TV' manufacturers and attendees," he said. "Up until about six years ago, most of the regional shows had good representation from the

radio/audio manufacturers. However that trend has changed dramatically, and now you have to search the regional shows to find the radio manufacturers.

"With the tight budgets, reduced travel allowances and smaller staffs at the typical radio station or cluster, it is very difficult for the radio GM, manager, owner or engineer to attend either the NAB or Radio shows."

Rau and Hess hope for 800 people at the trade show and 100 for the Ennes Workshop. The target for exhibitors is 125 companies.

Several meals will be provided through the generosity of manufacturers. The Ennes Workshop fee is reduced to \$25; it will start at 10:30 a.m. to allow attendees to drive in from New England and New York state in the morning and stay overnight for the exhibits the next day.

Info: (978) 425-2470 or e-mail danrau@compuserve.com.

This issue of RW already has an oversupply of hard news. We need some levity. So let's check in with Tim Schwiager, president of BSW.

In addition to radio, his passion is golf. He wrote recently to give an update on his game.

"Sadly, I have a 23 handicap still. After two years of country club membership, steady practice on the driving range, periodic lessons from several club pros, The Golf Channel, DVD copy of 'Caddyshack,' the new Tiger Woods book 'How I Play Golf' in my bathroom, subscriptions to seven golf magazines, The Swing Jacket, Classy Swing Trainer, Natural Golf and the new Nike titanium driver, sadly I must report I still get no betta. My 23 handicap is so bad, I get to park in the wheelchair/handicap parking spots at my club.

"Last week I was paired with a scratch golfer, who after 13 holes could not stand playing with me anymore. Before he stormed off the course to get really drunk, he gruffly offered me some advice. Naturally, he changed my grip. (Actually what I had wasn't a grip. The scratch

From the Editor



Paul J. McLane

golfer called it, and I quote, 'The Death Claw.')

"I now have an interlocking strong grip with a right index low forefinger allowing maximum rotation without pronating. Next, in an effort to give me added power and distance, the scratch golfer stopped my right leg collapsing while in my backswing. His teaching secret was simply to bash my kneecap with a 5 iron every time I moved my right leg.

"I am truly delighted to report that after 25 continuous bashings on my right knee, I now remain firmly planted in 'my stance.' Good thing I had a golf cart for the remainder of the holes.

"So after these two new tips, you may be asking, 'Have you improved, Tim?'

"Sadly, no. I do have these two new swing thoughts to add to my growing 'Swing Thought List.' This vital checklist in my head is now numbered at just 967 thoughts. Accordingly, it takes me approximately 23 minutes after I set up to the ball to take the club back. A typical 18-hole round now takes me eight days to complete. Just last week, I let 346 groups play through to maintain speed-of-play rules.

"Oh, by the way, remember last year, I reported my average distance of each of my clubs. I recently did add a Lob Wedge (which I call my 'DOH' wedge). My yardage, surprisingly, is the same as all my other clubs, 5 or 150 yards, depending how much over the top I swing it. Incredibly, with all the new club technology, my yardage is truly consistent regardless of club selection.

"When you get a week to spare, let's go play a round." 🏌️



Bob Sharkey, engineer for Sheridan Broadcasting Corp. in Pittsburgh, wins an AKG C4500 B-BC large-diaphragm condenser microphone in our Reader's Choice Sweepstakes. You can sign up, too, by clicking on the sweepstakes logo on our Web site at www.rwonline.com.

The C 4500 B-BC meets the demands associated with digital broadcasting. A front-address design, it is immune to electrostatic and magnetic fields and provides wide dynamic range and low self-noise. Features include a switchable 20-dB pad and low-frequency roll-off (6 dB/octave below 120 Hz). Internal shock mounting is provided.

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Birds

► Continued from page 1

New tower siting guidelines issued by the U.S. Fish and Wildlife Service have the broadcast industry worried that some groups may use the voluntary guidelines as a means to make it even more difficult to receive the necessary permits to build new tower projects.

Risk to birds

The FWS says the construction of thousands of new communication towers for broadcast and wireless technologies across the United States is putting birds, especially migrating songbirds, at a higher risk of death due to collisions with towers (RW, Oct. 13, 1999).

Avian researchers say they conservatively estimate 4 million to 5 million migrating songbirds are killed in the country each year in tower collisions, although the numbers could be as high as 40 million to 50 million. They say most fatalities occur at night during bad weather, when night-migrating songbirds are drawn instinctively to tower lights.

FWS experts say a low cloud ceiling disrupts the songbirds' ability to use the moon and stars as navigational tools. They crash into the towers, guy wires or ground and are killed.

Large bird kills at communication towers remain rare, experts say, but they do occur. For example, an estimated 10,000 Lapland Longspurs were killed in 1998 at a 420-foot television tower in Kansas during a snowstorm, according to the Fish and Wildlife Service. The largest bird kill ever recorded by the service was in 1974 at a communications tower in Eau Claire, Wis., where an estimated 30,000 birds died in a single night.

Al Manville, a bird-strike specialist in the Office of Migratory Bird Management, said the Fish and Wildlife Service is planning to conduct studies into why birds are drawn to tower lights and what can be done to prevent it.

Manville said Richland Tower is one of the companies interested in funding a multi-year study on bird behavior and tower lighting in Savannah, Ga. Another study has been proposed at a 600-foot television tower in Binghamton, N.Y.

"It all depends on the funding. It's been a slow process. We've been promised some public funding and we're hoping to have that matched by the communication tower industry," Manville said.



Al Manville

Bill Evans, an ornithologist and former Cornell researcher, will oversee the Binghamton project, Manville said.

"We have permission from the FAA to modify the lighting at that tower during bad weather ... even shutting off the lights for spans of 15 minutes. Those findings should be very beneficial."

Rate and color

Tower lighting is the major focus of avian biologists' research. Most researchers believe the issue centers on the flashing rate and lamp color of the strobes, Manville said.

"We know that birds are especially sensitive to the red spectrum and also see ultraviolet light. Our research shows white lights disrupt the migrating birds' navigation system less than steady or

flashing red lights," Manville said.

Manville said Evans will use acoustic monitoring and ornithological radar to detect the migrating birds movement around the Binghamton tower.

Paul Kerlinger, a biological consultant and member of the Communication Tower Working Group, said Richland Tower is ready to contribute financially to research efforts. The CTWG consists of several federal agencies, including the FCC and FAA, avian researchers

agencies together to tackle the problem," Kerlinger said.

"The problem is that right now there is no set criteria for how research is collected," said Anthony Flores, vice president of operations for Richland Tower. "It's such an ambiguous problem. And everyone's opinion of what a significant bird-kill number should be is different."

Flores said Richland Tower conducted its own research into avian mortality during the migration season in the spring of 2001 at three tower sites it owns near Sacramento, Calif.

"We hired biologists to search the area and they found fewer than a dozen dead birds during that time. That would seem an insignificant number to most," Flores said.

'Stranglehold'

Rebecca DeMoss, national environmental compliance director for American Tower, said avian mortality has the tower industry "in a stranglehold" with no science to support the claims of avian researchers.

"It's important that the industry helps with research to find some resolution to the problem. The federal government also needs to act," DeMoss said.

American Tower has proposed building a series of 199-foot monopole structures on federal forestland in Arizona to conduct a three-year study. DeMoss said she hopes construction will be complete in time for the spring 2003 migration.

Experts with the FWS believe the

See BIRDS, page 6 ►

Tower Siting Guidelines Hike Costs

EVERETT, Wash. At least one broadcaster says new tower siting guidelines from the U.S. Fish and Wildlife Service will affect radio and TV financially.

The voluntary guidelines, issued in response to avian mortality at communication tower sites, mean broadcasters will likely spend more time and money acquiring permits for new tower projects.

Andrew Skotdal, president of S-R Broadcasting Co., said his company has revised plans for an antenna upgrade project for KRKO(AM), Everett, Wash., out of respect for the tower siting guidelines. The broadcaster has worked for three years to secure construction permits to build an antenna farm in the Upper Snohomish River Valley just north of Seattle in anticipation of a power increase for the station.

"We went from having a series of guyed towers to self-supporting ones and reduced the height of the towers to address the issue," Skotdal said.

KRKO's original master plan proposed a total of eight antennas, all more than 400 feet tall, with a total of 196 guy wires. The revised plan calls for one tower over 400 feet tall and the other seven under 200 feet tall, all self-supported, Skotdal said.

The cost of the antenna project has more than tripled because of legal fees and the structural changes, Skotdal said.

"The guidelines are unrealistic. For example, they ask broadcasters to refrain from building towers near wetlands. Well, that's contrary to AM broadcasting methods where you need low wet ground," Skotdal said.

"Therefore you're going to have these AM antenna farms near wetlands. That's just natural with the physics of AM broadcasting and ground conductivity."

Results of a hearing process with Snohomish County officials regarding the project's approval were expected in July, Skotdal said.

— Randy J. Stine

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Birds

► Continued from page 5

tower industry is violating the Migratory Bird Treaty Act of 1918, which protects certain species, by erecting communication towers that cause migrating songbird deaths.

"Anytime you are killing protected species by some means, in this case communication towers, you're in violation of the law," Manville said.

Everyone's opinion of what a 'significant' bird-kill number should be is different.

— Anthony Flores

Manville said it's conceivable that a tower company or broadcaster could be charged someday under the Migratory Bird Treaty Act and taken to court as a result of bird strikes on towers.

"Theoretically, whether you intentionally or accidentally kill a protected bird, you are in violation of the MBTA. It would be a drastic measure. I think it is better if we work with the tower industry to find solutions on how to prevent the bird strikes in the first place," Manville said.

A broadcaster familiar with the avian mortality issue said, "Some broadcasters fear the U.S. Fish and Wildlife Service is looking for a real good test case to see if they can prosecute this."

Manville said one new development that could have "major ramifications" on the tower industry is an agreement that Denver-based Xcel Energy signed with the U.S. Department of Justice in April. Xcel Energy, an electric and gas utility with operations in 12 states, agreed to fix faulty electric transmission lines that

are likely to cause death or significant injury to birds by electrocution.

"The agreement ensures that Xcel is in compliance with the Migratory Bird Treaty Act," Manville said. "It's a cooperative solution rather than litigation that goes on forever."

Under the deal, Xcel Energy is protected from criminal prosecution by the Justice Department's Environment and Natural Resources Division while it works on its avian protection efforts, Manville said.

"It protects (Xcel) from a fate similar to that of Moon Lake Electric Association. We hope the tower industry will look favorably upon any future agreements," he said.

Moon Lake, a Utah-based power cooperative, was prosecuted in 1999. Moon Lake pleaded guilty to violating federal bird protection statutes and was heavily fined, Manville said.

Ted Hammerman, a communications

lawyer specializing in tower issues, said the enforcement division of the FWS can prosecute in cases when it believes a protected species of wildlife is being injured or killed under any circumstance.

His advice to broadcasters is to "show reasonable good faith" in helping to develop warning tactics to reduce bird strikes.

The Fish and Wildlife Service issued voluntary tower siting guidelines last year in a move aimed at reducing bird strikes. It recommended new communication towers be no more than 199 feet above ground level using monopole or lattice construction techniques that do not require guy wires. Such towers do not require lighting, unless within 3.8 miles of airports, according to the guidelines.

The guidelines ask communication companies to collocate equipment on existing towers whenever possible.

They also urge the use of white strobe lights when permitted by the FAA.

The broadcast industry is concerned conservationists will use the guidelines to make tower siting in certain parts of the country even more difficult at a time when more local jurisdictions already are denying access and barring towers completely (see sidebar).

The rapid expansion of communication towers, especially wireless cell sites, has made more communities leery, said Jim Fryer, president of Fryer's TowerSource, a publisher of tower resources guides and market analysis. TowerSource estimates there are 60,000 lighted communications tower in the United States.

Zoning impact

Fred Baumgartner is chairman of the National Antenna Consortium, a group formed to lobby for uniform zoning standards to preempt what it considers overly restrictive local jurisdictions. He said the guidelines will add to the confusion of tower construction.

"Here is yet another concern people can use when it comes to zoning and permit standards for the tower industry. Yet, there is really no way to measure the impact upon birds."

Baumgartner said the NAC will support any effort to make towers safer for wildlife, including changing the flashing rates of lighting on towers. However, he believes the issue is overstated.

"I think you have the opinion of a few bird specialists without any research that could stand up to scientific rigors," Baumgartner said.

Manville said Fish and Wildlife Service personnel met with senior legal advisors from the FCC in June to brief them on the tower siting guidelines.

"We are at least opening lines of communication, which we have lacked in the past. They seemed legitimately concerned with avian mortality and how it could impact broadcasters," Manville said.

In a letter to congressional leaders in June addressing avian mortality, NAB President Eddie Fritts wrote, "We urge you to support the U.S. Fish and Wildlife Services' efforts to secure federal funding for this scientific endeavor. ... We are optimistic that a cost-effective remedy to this problem will be found with this basic research." 🌐

NEWSWATCH

► Continued from page 2

The Broadcasting Board of Governors decided not to renew financing for RSE after Oct. 1. The president of RFE/RL called it a difficult decision.

"Radio Svobodna Evropa has been a most important component of RFE/RL since it was founded more than half a century ago," stated Thomas Dine, "but we have new priorities and new financial burdens we have to carry in our budget that did not exist before Sept. 11."

However, the U.S. decision does not mean Czech Radio Free Europe is dead. The program director of Czech Radio was quoted in a published report after the announcement as saying the name Radio Free Europe will be eliminated

but the station will continue broadcasting mostly news and be called Czech Radio 6.

Prague newspapers quoted the president of RSE as saying that she would pursue funding to keep the service going past the end of the fiscal year, according to an RFE/RL spokesman.

RSE produces about 40 hours of political and educational programs weekly for broadcast on a frequency owned by Czech Radio. RSE is a U.S.-registered private nonprofit corporation that will continue to exist even after the end of BBG/RFE-RL financing.

Radio Free Europe/Radio Liberty not-

ed that July 4 marked 52 years since Radio Free Europe transmitted its first experimental program to what was then Czechoslovakia from the West German border.

At one time, the Czechoslovak Desk was RFE/RL's largest Central European service, and it was the first RFE service to go on the air from Munich.

It's not the first such decision. Dine said RFE/RL ended broadcasting to Hungary in 1993 and to Poland in 1997.

For Powell, Twice Is a Charm

WASHINGTON On July 1, FCC Chairman Michael Powell began his sec-

ond term as a commissioner.

"We have many challenging issues ahead of us in very challenging times," he said, "and I look forward to working with my fellow FCC commissioners, Congress and the administration in the years ahead to make significant progress in serving the public in all aspects of telecommunications."

Powell was nominated as an FCC commissioner in July 1997 by President Clinton, confirmed by the Senate and sworn in that fall.

He was designated chairman of the FCC by President Bush on Jan. 22, 2001.

Bush later re-nominated Powell, and the Senate confirmed him, for a second commission term starting July 1 of this year. His new term expires in June of 2007.

Payola

► Continued from page 3

Other legislators, including Rep. Howard Berman, D-Calif., are concerned about the issue.

The California representative intends to watch the progress of Feingold's bill closely, said his spokeswoman Gene Smith. Meanwhile, Berman continues to work on his own initiatives to limit anticompetitive practices in the music industry.

In January, Berman sent letters to the FCC and the Department of Justice asking the agencies to investigate the anticompetitive practices of some radio corporations after receiving complaints from a range of people within the industry, said Smith. She did not reveal the identity of those parties because "they have some fears that they might be retaliated against" within the music industry.

Feingold wants to prohibit the FCC from relaxing ownership limits.

Berman received a noncommittal response from the FCC, Smith said, and has asked the agency for a more substantive reply.

In its reply, Smith said the Justice Department requested that Berman put agency officials in touch with the parties that made the complaints. Berman did. Now, Smith said, Berman is awaiting a definitive response from Justice.

"We are giving them time to do their job," she said. "If the Department of Justice doesn't take it seriously, Rep. Berman might consider introducing a bill of his own."

Meanwhile, Smith said, Democrat Berman is encouraging his Republican counterparts on the House Judiciary Committee and the Subcommittee on Courts, the Internet and Intellectual Property to look at the issue. But hearings are unlikely to take place anytime soon because of more pressing matters concerning the federal budget and homeland security.

"They have given (Rep. Berman) a sympathetic ear but not been willing yet to schedule hearings," she said.

Last-minute remotes?

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Suffa

► Continued from page 1

of strategic development for the former Jacor Communications and then for the radio division of Clear Channel Communications.

With approximately 1,200 stations, plus Internet, outdoor, entertainment and international divisions, Clear Channel has the most stations of any group owner in the United States and holds a stake in radio's future with its investments in companies developing both satellite and terrestrial digital radio. Suffa manages an annual capital budget in excess of \$500 million overall.

Radio World News Editor/Washington Bureau Chief Leslie Stimson spoke with Suffa about his views on digital radio and on emerging technologies that could compete with radio in the car. He also spoke about Clear Channel's use of voice tracking and the effects of consolidation on radio.

RW: Are your stations now in the process of figuring out what equipment they're going to need for in-band, on-channel digital audio broadcasting?

Suffa: The whole IBOC thing is one of economics. I don't know that they are. I know certainly, in a couple of markets, we've taken a look at it because we want to make some assessment of the cost exposure and determine whether and when it's something we want to do. But from a financial basis, it's very difficult to justify going to IBOC at this time.

RW: Are we talking about whether there's a clear path to a return on investment?

Suffa: Yes, we are. We're talking about return on investment. We're talking about a situation where there are — and Bob Struble will argue with me, Charlie Morgan will argue with me — but the fact of the matter is, there are no receivers out there. (Struble is president and CEO of Ibiquity Digital Corp.; Morgan is chairman of the National Radio Systems Committee.) ...

'Daytime-only digital AM will put AM at a severe economic disadvantage relative to both FM and other media.'

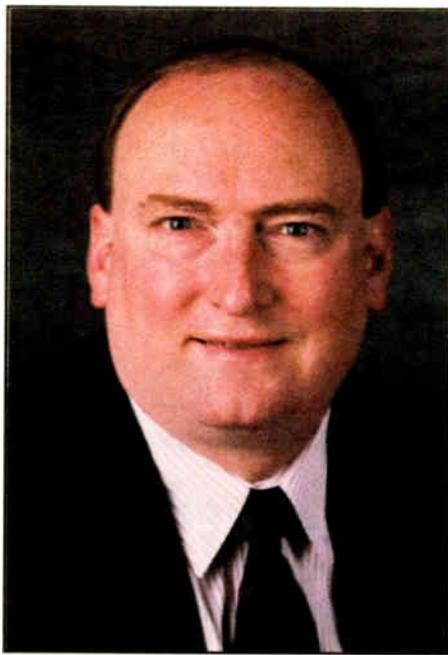
Clear Channel is very interested in return to our shareholders. And it's very, very difficult to justify purchase of this kind of equipment where we don't see the clear return.

We don't see it, particularly in the short term. You're looking at some substantial money for the equipment, for the license fees or, depending on whether the commission were to accept the argument on daytime-only AM, the possible economic dislocation of a part-time digital signal.

The flip side, of course, is sales. Is

there something we could use to add a promotional benefit to group sales at the station? Is there some sort of ancillary revenue stream that we could sell to recoup some of the costs of this?

The long-term strategic question is what happens with the likes of XM, Sirius and the potential for digital wireless broadband and telematics — even potentially the music industry getting their act together on the ability to download music into portable devices. ...



Bill Suffa

Really what we're talking about is, is there a direct return on investment from going digital? No. From where I sit, the direct return would be something like an ancillary data service, something using a data channel. The real return is one of a lost opportunity cost — in other words, a loss of what we've got now chipped away by all these other competitors. If we're the only non-digital medium, can somebody else chip away at that?

RW: What about AM IBOC? The NRSC so far approved digital for daytime only while Ibiquity plans to conduct nighttime tests for groundwave and skywave conditions. Ibiquity is proposing to the FCC that AM stations operate with IBOC during the day only at the start of the transition.

Suffa: Daytime-only digital AM will put AM at a severe economic disadvantage relative to both FM and other media.

What you need to keep in mind is that nighttime hours in many parts of the United States, during the winter, start before or during evening drive. It lasts into morning drive. Capturing those dayparts is critical to the success of AM, especially given that the main use of AM, right now, is information-based services. ...

The other risk — with great compli-

ments to the commission for bringing this rule making to a head quickly, the fact is that regulatory processes traditionally are lengthy. They're lengthy because you're establishing a standard. You want it to be a broad-based standard. You want it to endure. You don't to have to come back and do it again because people are going to start to build radios and build equipment to meet this standard. ...

As a broadcaster, (with) a company that derives still a significant portion of revenue out of the AM band, I want to see as much attention paid to making AM work and improving AM as I do to anything else.

RW: Do you think the solution for the AM technical problem might be to skip the hybrid phase and just go to the all-digital mode?

Suffa: I don't know that that's a solution, because what do you do in the transition period? That might work for a number of stations that are just not economically viable now. But if you look at a big station ... there still is a compelling revenue stream, still a very viable station.

Shutting that off and converting to digital, particularly when there are no radios out there, or where radio penetration is very low, is something I think a broadcaster and a businessman is not likely to make the decision to do.

RW: How does it sit with you that Ibiquity wants to audit stations' books twice a year to make sure they're reporting revenue from the ancillary data? Is Clear Channel going to put up with that?

Suffa: I have reservations about extraordinary amounts of audits and record keeping and all the rest of it. ... I think what (Ibiquity's) smart enough to realize is that if the fees are too high or the burden is too high, then the broadcasters will just say, "Pft! ... We're not going to do it."

At the moment, we do record keeping for public reporting purposes. We do record keeping for management purposes. ... I would be surprised if Ibiquity goes out and tries to audit every station twice a year.

RW: So perhaps that language (in the agreements) is boilerplate, but doesn't necessarily mean they would do it...

Suffa: It's pretty common in certain business contracts to have a means of doing an audit. ... I haven't seen final language out of Ibiquity yet. Depending on what that is, if it's benign, if it's appropriate from a business sense, I think we'll be OK with it. If it's overbearing and burdensome, it's something we're not going to be OK with, and either we address it through negotiation, or, in the absolute worst case, we just don't do any data at all.

RW: Is Clear Channel still in talks with Ibiquity about its license fees?

Suffa: I don't think the fee issues have been settled. Most of that's taking place within our radio group as opposed to at my level.

RW: Do you think Ibiquity will budge on waiving or delaying the licensing fees for stations that transition early?

Suffa: I don't think that's been resolved yet. We're still early in the game. There's still really not equipment out there.

Broad Experience

Bill Suffa is senior vice president of capital management for Clear Channel Worldwide. He manages the capital spending and management of the physical assets for Clear Channel's subsidiaries, including its radio, television, outdoor, international and entertainment divisions.

Prior to joining Clear Channel's corporate office, Suffa served as vice president of strategic development for Jacor Communications and Clear Channel's radio division.

Suffa was a founding principal in the broadcast and telecommunications consulting firm of Suffa & Cavell and its predecessor firm. He has worked as an FCC field agent in New York, on the air and in sales for various small-market stations. He began his radio career at the Virginia Tech student station, WUVT(FM), Blacksburg, Va.

He holds an undergraduate degree in electrical engineering from Virginia Tech and a Masters of Business Administration from George Washington University.

We're talking to Ibiquity. The other broadcasters are talking to Ibiquity. Ibiquity's talking to people.

Frankly, anytime you put out a new product or a new form of revenue stream, it will take a bit of time to get the fees right. When you're doing it by contract, as opposed to market force, it's a little different. If you go out and put a new product on the market and nobody buys it because it's priced too high, then you can lower the price quickly.

When you do something by contract, then it takes longer. ...

Ultimately it will take some time to get the fees right with respect to the value it brings to the media, to us, the broadcaster, vs. the expectations of Ibiquity. I think it's going to take some time to get that right.

RW: You mean in the equipment investment you need to do...

Suffa: The whole thing. The licensing fees are not a capital item. They are, in fact, an operating cost.

Our stations in the markets are sensitive to operating costs. The economic reality of Clear Channel is that our managers are measured on their operating performance, effectively their operating profit. That measurement means that they can improve the profit really one of two ways: one is to improve revenues, and two is to reduce operating expenses.

RW: As in voice tracking.

Suffa: I'm happy to go there because there's a lot of misunderstanding out there about it.

RW: It's a way for your stations to reduce their operating costs quickly?

Suffa: Voice tracking is a much about quality as it is about cost savings.

I've heard a lot of squawking by old radio people and by others who just don't understand it about voice

See SUFFA, page 10 ►

CLEARLY NOT FOR EVERYONE

Your Grandmother is certainly a very nice lady, but a Porsche is probably not her ride.

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Suffa

► Continued from page 8

tracking. But those same people are ignoring the fact that 20-something years ago there was automation. ...

RW: But what about the charges that people lose their jobs because of the practice?

Suffa: Voice tracking, it's not a panacea. The method we use, which is a networked method, it helps us to reduce the risk of bad programming.

In some sense, it helps us to reduce the safety risks. If you've got a station where the studio's in a bad neighborhood, we can effectively run that programming remotely and you don't have to have a female worried about walking to her car across the parking lot at night when she leaves the station. She can lay down those voice tracks while it's still light and leave the station.

It improves our ability to be responsive in a national emergency. On Sept. 11 and the days afterwards, it offered us a fabulous opportunity to share our best programming of our best stations, to distribute the programming, and to really be responsive to the public.

RW: So, even though some jobs are lost —

Suffa: There may be some jobs lost. There may be some jobs added somewhere else. It may be that we lose some jobs on the air talent side, but we add some sales jobs. ... The fact is it keeps it clean, a clear, consistent air product.

If you go to a Chili's or McDonald's, a Safeway, you know, generally, what you can expect. You can expect clean aisles, a staff that's responsive, you can expect a core product base with different modifications to the product depending on what market you're in. ... Voice tracking really is no different. It's about getting

a higher-quality product, a consistent product, market to market, and I think, largely, that helps us to accomplish it. It makes radio a much more credible media.

RW: What does your job entail?

Suffa: The title is senior vice president of capital management. What that means is I get to manage the world-wide capital investment budget for

What we want to do is to make investments that give us good return, but we also want to do it while mitigating risk. I think the Internet boom certainly showed how risky certain kinds of investments might be.

RW: Clear Channel has invested in both satellite radio and IBOC development. Is that hedging your bets, or just being careful?

'From a financial basis, it's very difficult to justify going to IBOC at this time.'

Clear Channel in all our divisions. By capital investment I mean capital assets.

Anytime you spend capital of any kind, it's making an investment for the future. If you buy an asset, if you buy a transmitter or a truck, or whatever that's a capital asset, you expect it to provide some return to your bottom line in some fashion. ...

I keep abreast of (technologies) to help improve efficiencies for Clear Channel. Part of the job is to try to mitigate risk, while we encourage our units to make investments that will yield excellent rates of return.

You can get that yield either through the investment directly, which would be doing something like building a new amphitheatre for our entertainment group or winning a contract to put advertising structures in a supermarket chain ... or through a strategic investment that helps us to protect and improve our existing properties. Digital radio falls into that category.

Suffa: It's some mitigation of risk. We don't want to take all the risk, so we often get into businesses where we have partnerships or we make strategic investments with our money in things that will yield us good rates of return.

We've got an investment in Hispanic Broadcasting. We have a position in XM Satellite Radio. We've got a position in the IBOC group. Some of our international groups are partnerships, where, for one reason or another, we can't own a radio station outright in a country, or where it makes more sense.

If you're going into a riskier country typically you want somebody in the country, preferably somebody who's taking an active role in management to have an interest too, so that they're on the hook for it.

RW: Will satellite radio succeed?

Suffa: It's a marketplace issue, a marketing issue. Is there enough different, compelling content? Will people pay for subscriptions to both?

My guess is probably not. But we're still early in the curve. ... We'd like to see our investment pay off. I think in the long run, it will.

RW: How are equipment purchases handled by Clear Channel?

Suffa: We establish a capital budget at the corporate level. We establish it for each division. ... Some is for maintenance and replacement purposes. Some of it is for the major projects, the consolidation projects ... the big projects like relocating a facility. Some is for what we call new revenue generating. ...

I give each of the groups numbers and work with them on meeting those numbers. The specifics of the purchases, for the radio group, it's handled by Steve Davis out in Tulsa. ... What typically happens is he makes requests; he goes out to the field. They request items that come up to him, and depending on a number of factors, they get approved or disapproved. Part of it is to fit in the budget. Part of it is whether the station really needs it or not.

RW: When your stations make the transition to IBOC, how will those equipment purchases be handled?

Suffa: Some of that's going to come down on Steve Davis. There are some good technical reasons to buy common pieces of equipment. However, having said that ... that will be something that's decided in the radio group.

From the corporate level, I'm not going to tell them they have to buy one or the other. I'm going to make the deal available.

It's no different than we do with other deals. We make the deal available to them and tell the markets, 'If you can find a better deal, and it meets your needs, and you meet the other criteria that's laid out, then you have some latitude in making a decision.'

RW: What technological trends do you foresee for radio in the next few years?

Suffa: We'll see a move towards digital. I think you'll continue to see the studios become more digital. There's very little analog in the studios, although (analog) consoles are still there for cost factors as much as anything else in the use of older equipment. I think you'll continue to see more digital automation.

A better product allows you to be much more creative.

You'll see integration of the traffic and billing system to allow better network selling for national placement. You'll see more use of it for cross-platform sales.

Today, look at the situation a national advertiser is in. He might get 50 invoices he places on 50 stations, or 60 stations might get 40 or 50 invoices out of it. He doesn't have a good way of getting proof of performance on that.

I think you'll see us working more towards resolving those kinds of issues because they're a way of getting more revenue without altering the air product.

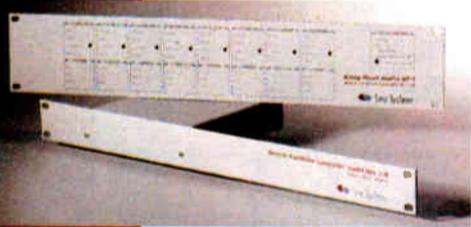
Streaming is up in the air; and wireless broadband ties into streaming because the models they've been looking at are ones that are effectively streaming audio across a broadband connection. A lot of that will be driven by the CARP fight, the economics of it. It's cost-intensive at the server end. In terms of fixed placement to the desktop, broadband is becoming more the way of life, but that's not a mobile environment. ...

It doesn't get into a lot of workplaces because a lot of companies are saying, "Hey, wait a minute, that's eating up a lot of bandwidth we're paying for." We need to keep an eye on wireless broadband. But there are a whole host of economic issues, including the cost model for transmission. ... If they charge per byte for delivery costs, the wireless broadband model, then it may be difficult to get a high-quality audio product. ...

Record companies — if they can get their act together on downloading music, and at the same time not make the copy protection so stringent that the listener has no flexibility, there is a possibility that MP3 and other players could have an impact. But, again, that gets back to, it's not local and it's nowhere near live. It doesn't even approach voice tracking. ...

The listener wants some information, whether it be weather, traffic or sports and news. That's awfully hard to deliver over an MP3 kind of product. ●

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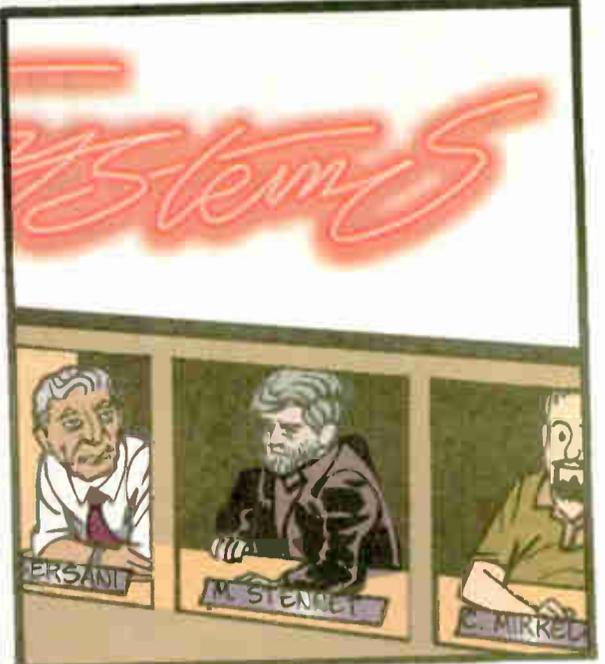
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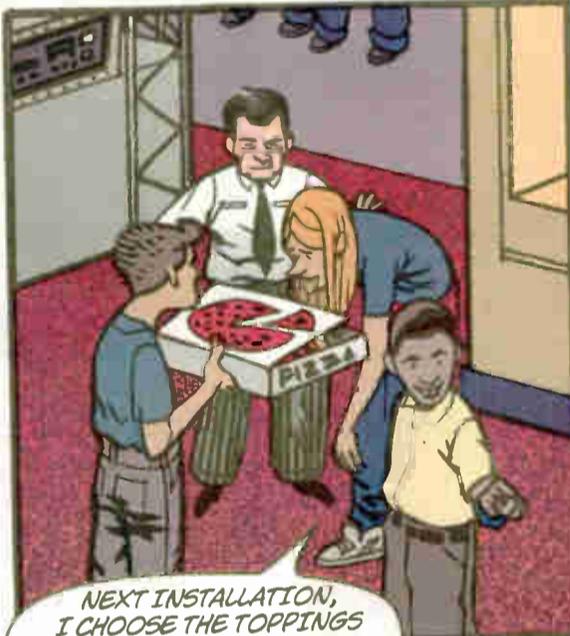
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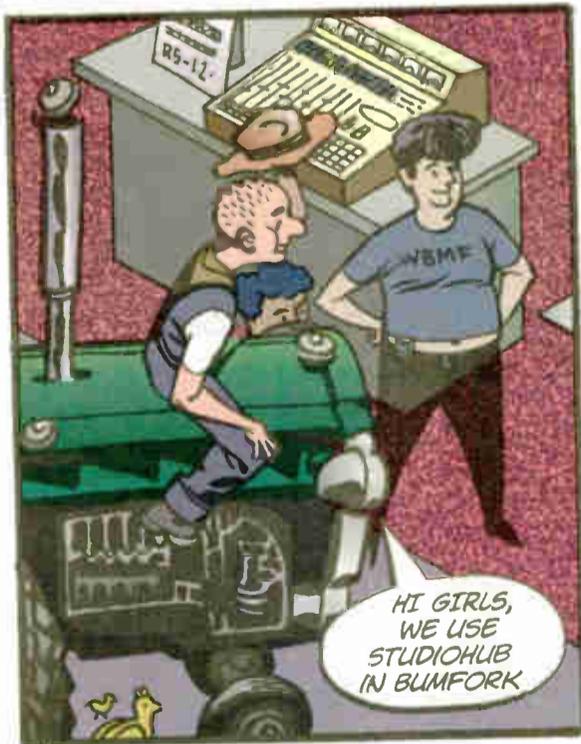
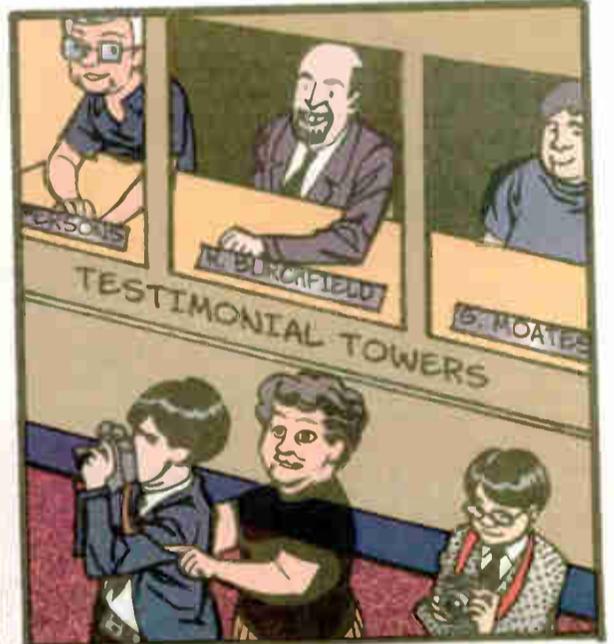
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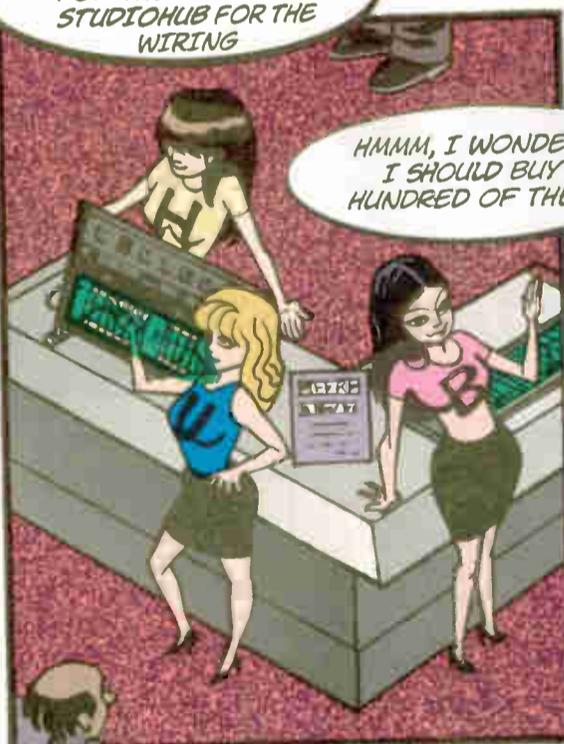
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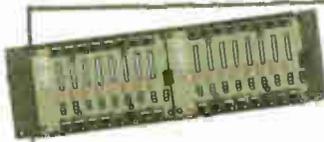
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SPECIAL REPORT

What Does the Future Hold?

Radio, Although a Venerable Medium, Will Still Be Around and Innovating, Our Experts Say

by Craig Johnston

What does the future hold for our medium?

Radio will still be around, at least in the opinion of several industry professionals contacted by Radio World and asked for their musings on the subject.

Although some see the medium becoming vastly different in decades to come, radio's unique qualities will make it a survivor, most say.

"Radio will survive," said John Garziglia, telecommunications attorney and member of Womble Carlyle Sandridge & Rice.

He says radio has gone through a major change about every 10 years, from live orchestras to recorded music, from AM dominance to FM, to the present consolidation and move to hard drives and computers to deliver the music.

But Garziglia says radio's ability to sell local spots and serve the local community will continue to be unmatched by competitors present and future.

"If you pick 10 years, I would guess it would be about the same," said John

Dille, president of group owner Federated Media in Elkhart, Ind., and former chair of the NAB Radio Board. "But after that, I do not know."

Dille, who also teaches a university class, studies his students' habits with radio to try to divine the future.

"They don't listen to the radio the same way," he said. "They have more alternatives ... the bonding is diffused. But until those people enter the ranks of consumers, and data can be collected, there is no way of knowing."

Personalization

Bert Goldman, executive vice-president of group owner First Broadcasting Company LP, sees radio becoming more customized to the listener, and especially the listener's location.

"One idea would be to link it up with your GPS," said Goldman. "McDonalds would have an ad for their latest McBurger, and then there would be a digital command sent on over to the radio station that would link up to your Telematics-equipped radio. It would put a tag line on the commercial: 'And the

nearest McDonalds is two blocks on your right.'"

That kind of thing might not be too far off, says Michael Wellings, director of engineering at KEXP(FM) in Seattle.

"You will have a digital radio in your car, and a display associated with it," he said. The graphic screen will be a touch-screen on which the listener can reach over and touch a "buy now" button to make a purchase.



Bert Goldman is executive vice president of First Broadcasting Co.

"The buy information can be transmitted back to the station in a number of ways," Wellings said. The driver's cell phone is one solution. "Or they could just cue up in the radio, and then you pull into a convenience store to get gas, and there's a local Bluetooth or some connection that senses and downloads whatever you have decided to purchase in the last 100 miles you have been driving."

With new technology there are other services and other activities in which radio people can get involved, other ... activities using the other portions of the spectrum ... and all of that is pretty exciting.

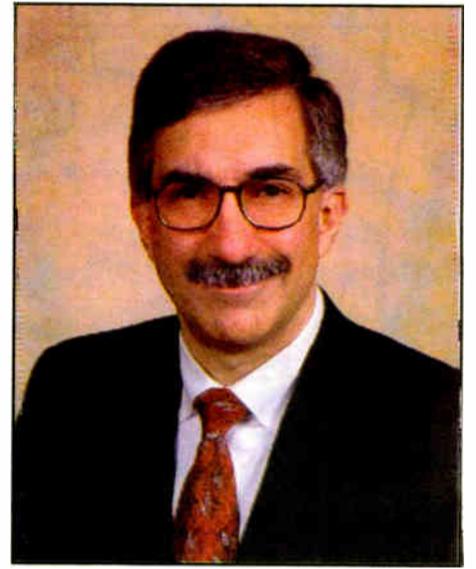
— John Dille

Goldman says the GPS/radio combination can bring even more.

"If your radio was in a particular part of town, then you would get a button where you would get traffic information linked to approximately where you are in town." Localized news and weather are other possible applications.

"I guess the digital broadcast capabilities are going to help radio to be even more targeted than it currently is," said Goldman. "To my experience, the more targeted you get, the more personal the media becomes, and that is an advantage for people."

Of course, futurists have long touted the possible benefits of value-added data services in radio. These discussions take on new interest, though, with the possibility of IBOC, a digital technology that could open the path to greater use of data.



John Garziglia is a telecommunications attorney at Womble Carlyle Sandridge & Rice, PLLC.

Regardless, Garziglia cautions that getting either the listener or others to pay for extra services can be a hurdle.

"Any time you are talking about a cost per listener, it raises the questions, 'Are people going to pay for this? Is it going to be worth it? Is it going to work as a business model?'"

He sees this as the challenge now faced by satellite broadcasters with their listener subscription fees. He does see satellite garnering enough subscribers to take its place along with broadcast radio.

"It has a greater number of channels than are available now in the AM and FM bands, and it is going to offer programming that some people want."

Dille doesn't see satellite broadcasting replacing the AM and FM bands.

"Digital FM, IBOC, I think the signal is technically superior (to satellite radio) because the satellite signal is split so many ways, different channels or whatever it is."

Dille, who spoke in support of IBOC

at a press conference at this spring's NAB convention, also sees IBOC leveling the audio-quality playing field between AM and FM.

On the Net

Wellings sees a major change in home radio listening.

"I think that way out, 10, 15 years, looking out that far, that radio delivery and audio delivery over the network is going to overtake broadcast radio.

"The stuff about digital rights management will be figured out. More and more people are being hooked up to the network. The network's getting faster and faster."

Wellings sees the resulting worldwide reach of individual radio stations as a sea change for the way they do business.

"Instead of competing in the local

See FUTURE, page 22 ▶

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GUEST COMMENTARY

Information Assurance and You

A Computer Security Expert Looks at Broadcast Architecture and the Consequences of Convergence

by Paul Flint

Broadcasters have converged on a new digital ecology.

One issue at the leading edge of network convergence is information assurance, or IA, the new term for information security. As a troubleshooter in this area, with an eye for the present vulnerabilities of mission-critical systems, let me start by describing how your trust in your own systems has been breached.

Foundations

For the broadcaster, the digital ecosystem is the result of a convergence between computer systems, networks and broadcast technologies. Broadcast facilities have evolved from stand-alone physical analog, to networked-analog, to integrated digital, to networked digital, and now to inter-network digital workplaces.

Modern facilities must maintain symbiotic connections for the World Wide Web, access to electronic mail and Internet broadcast streaming.

The table in Fig. 1 shows these foundation phases along with the typical security architecture used. Of the five

technical phases shown, traditional "hardware" engineers control only the first four. In the fifth, trust and security exist only through software.

Once your system attaches to the non-physical environment of the Internet, there is no longer any way to assure who has access to and control of your broadcast equipment. Even at the fourth level, it becomes impractical to monitor who is doing what.

Up until now, the best method to solve

| TECHNICAL PHASE | PROTECTION |
|---------------------------|---------------------------|
| 1. Stand-Alone Analog | Physical Access |
| 2. Networked Analog | Protected Distribution |
| 3. Stand-Alone Digital | Physical Access |
| 4. Networked Digital | Protected Distribution |
| 5. Internetworked Digital | Operating System Security |

Fig. 1

this identification and authentication problem has been to "share a secret" between some part of the equipment and those authorized to use it. This software part has come to be known as the "Trusted Computing Base," or TCB. The TCB is supported by, and

often supplied by, the operating system software.

"Hardware" engineers largely are helpless in the face of software attacks against the operating system TCB or the sub-components that trust it. The Internet's arrival has resulted in an environment for your broadcast facilities and the information you purvey that suddenly is very insecure.

The digital ecosystem

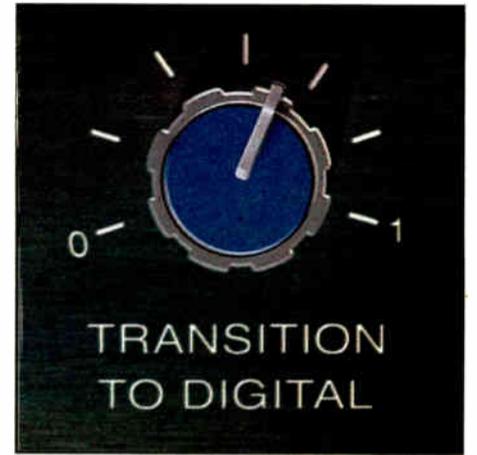
In an alternate view, the broadcast digital ecology starts physically connected in the first four layers of the seven-layer International Standards

Organization/ Open Systems Interconnect (ISO/OSI) model illustrated in Fig. 2.

Information warfare begins at the log-in prompt, represented here at the end of the transport layer and the beginning of the presentation layer. This, coincidentally, is the point where you change from hardware engineering to software engineering.

It is at this point in security architecture that the struggle for security commences. Imagine a castle wall topped with a magic parapet. Friends or foes need only the spell to breach the parapet and enter the castle.

Although this is your castle, you cannot see the parapet nor the struggle



taking place on your behalf between abstract forces of good and bad.

Allow me to interrupt this fantasy, my dear broadcaster, to mention that once the bad prevails, your production facility is as out of your control as if it had been hit by lightning. This is the essence of information warfare and is the "downside" of what you gained when you converged your system with the Internet.

Current digital technology has made

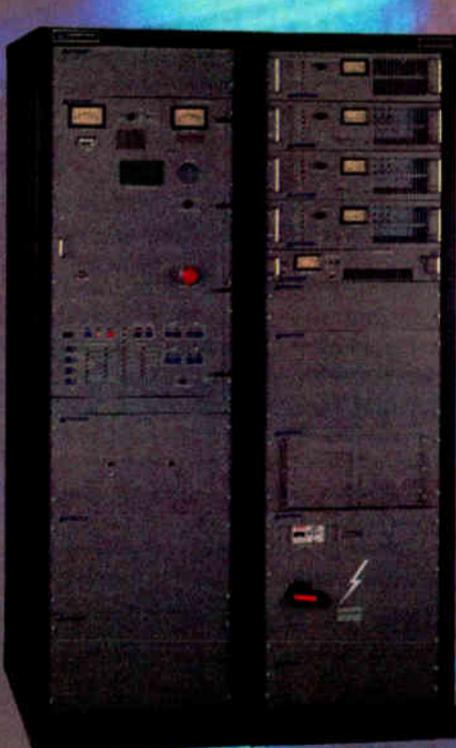
| ISO/OSI MODEL | |
|-----------------|-------------------|
| LAYER | REALM |
| 7. Session | Software Engineer |
| 6. Application | |
| 5. Presentation | |
| 4. Transport | Hardware Engineer |
| 3. Network | |
| 2. Protocol | |
| 1. Physical | |

Fig. 2

possible signals of awesome quality, with easily manipulated sound and video streams, coupled with magnificent distribution capabilities. Audience acceptance of this evolution has been complete and irrevocable. With this technology came an accessory digital ecology and astronomical risks.

See SECURITY, page 17 ▶

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Security

► Continued from page 14

To converged broadcasters, digital audience growth is the important drawing card. To support these expanding audiences are the "roadies" that make the digital show go; the notional diagram in Fig. 3 illustrates specific roles necessary in the life cycle of software projects, such as operating systems.

Developers can be individuals or corporate entities. These are the most powerful system players. They control the source code, and through this control pretty much everything else.

Installers apply the code to meet digital and real-world needs and requirements. They often initially control security objects, but rarely become involved in source code.

Users interact with the software of the digital ecology for entertainment or gain. They generally are not permitted access to either the source code or system security beyond their own identity.

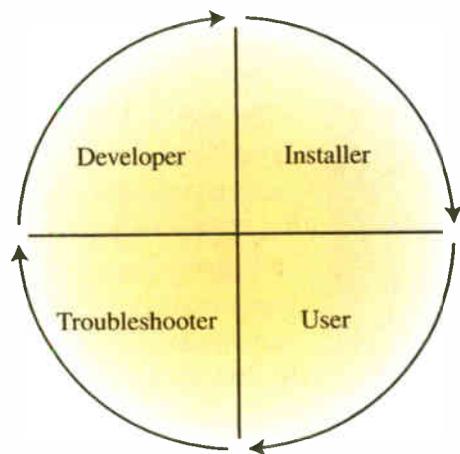


Fig. 3

Troubleshooters get the user out of trouble. They diagnose, secure, perform break-fix tasks and often encounter mis-coding (bugs) of either innocent or malicious nature that need to be fed back to the developer to allow the system to evolve. Typically, troubleshooters have supervisory access to the security features of the system. Currently, troubleshooters seldom have access to the source code.

Digital ecology

Broadcast information operating systems cyclically rely on these roles. Movement between roles is possible in some systems and constrained in others. Beyond the needs of digital broadcast media, other members of the digital ecology fall into the categories in this cycle.

All roles simultaneously constitute parts of the audience — the body of the digital ecosystem. As with most human endeavors, this new converged broadcast digital ecology has plenty of conflict built in.

This new form of conflict in information technology exists at the security architecture level of operating systems.

For openers, accept that the operating system you are using has design or management goals "engineered in," as would any technical system. These goals immediately include:

- consumption of resources (your budget);
- reproduction and growth (resources and platforms); and
- elimination of competing systems ("compatibility").

Whether these goals are part of the actual operating system code or the corporate/organizational goals of the

functions.

In most cases, this domination is symbiotic; the operating system

successful are predated and subsumed.

Note well that all operating systems are predatory; they require resources.

Trust

Can operating systems ever be trusted?

Along with the rest of our information society, we find the operating system is well-entrenched in broadcast technology. The operating system has become the principal component that assigns roles and receives human trust.

Originally, operating systems were referred to as Disk Operating Systems. Original developers had many names for the Disk Operating System — CPM, CTOS, UNIX, VMS, PC-MOS — but the one with which we all grew familiar was named DOS.

See SECURITY, page 24 ►

Digital broadcast facilities are under continuous attack from e-mail viruses, port scans, worm attacks, denial-of-service attacks and disgruntled employees.

product developer is a moot point. To function properly, operating systems must have dominance in your business

enhances and generates value, at least for a time. Operating systems can evolve from symbiotic to parasitic. The unsus-

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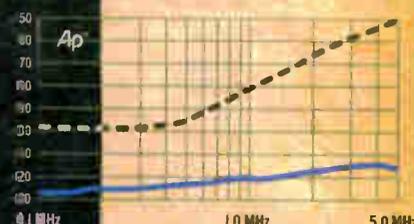
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Workbench

Radio World, August 1, 2002 Past columns are archived at www.rwonline.com/reference-room

Stupid-Proof Your Lockup

by John Bisset

You may remember last year's photo of all the gate locks, looped through each other, to give everyone with a key their own point of entry. Yes, it works; but when some yahoo locks someone out by inadvertently forgetting to loop his lock through the right hasp, it's time for the bolt cutters! (You do carry a pair in your trunk, right?)

Well, a Charlotte, N.C., company has come up with a better way.

Fig. 1 shows the unique "Stymielock" (Patent 5868015). Now we all slap our foreheads wishing we'd thought of this.

It's a neat contraption. Each lock has its own hasp, so it's intuitive where your lock goes when you leave the site. Fig. 2 shows how the access bar slides out once a lock is removed.

The system provides a logical and simple method of giving everyone access using their own lock.

Individual locks aren't a bad idea. This approach helps solve the problems of trying to keep keys straight among multiple users or of codes being lost or forgotten.

Reach Stymielock toll-free at (888) 278-9643 or visit www.stymielock.com. Tell them you saw their product in *Workbench!*

Thanks to Ben Brinitzer, Clear Channel regional engineer, for sharing this great idea.

★★★

This is the time of year when storms will test your emergency systems. Here's an add-on that could save your generator.

adjusted to the same height as the level of oil in the crankcase. Supply tanks are available in 5-, 15-, even 55-gallon sizes.

To round out your generator monitoring system, the Model L150 Switchage Instrument, by Murphy, is a combination liquid level gauge and low limit switch.

The assembly includes a pivotal float connected to an indicating pointer and switching contact that closes when the level falls to the low-limit set point. The primary use of this gauge is for engine cooling systems; but it can also be used to monitor lube oil, hydraulic or diesel fuel reservoirs.



Fig. 1: Meet Stymielock.



Fig. 2 shows how the access bar slides out once a lock is removed.

You're probably heard of failures that occur when generators run out of fluids. The Model RAB Ren Oil Level Regulator maintains a constant oil level in the crankcase of your generator engine.

The device typically is mounted using two of the engine oil pan bolts, and is

The switching contact can be used to activate an alarm or shut the system down at a pre-determined minimum level.

Mark Manuelian of Boston's WBZ(AM) shared this information, which he received from engineer Warren

See WORKBENCH, page 20 ▶

Digitally Different

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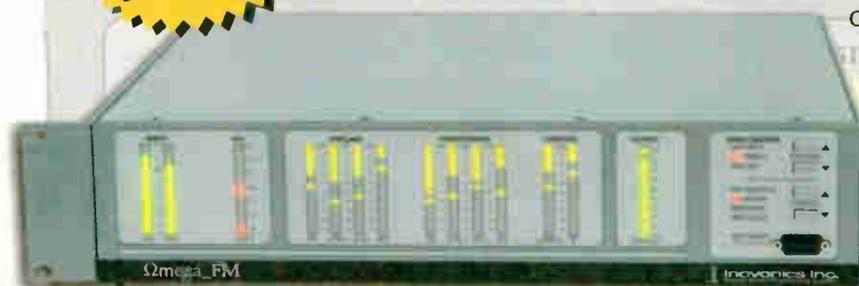
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Workbench

► Continued from page 19
Shulz at WLS(AM) in Chicago.

Warren is one of the station representatives for the Primary Entry Point Advisory Committee. Mark writes that when it comes to well-maintained emergency equipment, Warren is the expert.

Contact your local generator service company for more information.

★ ★ ★

Looking to harden your transmitter site? Mike McCarthy of McCarthy Radio Engineering, also in Chicago, has some tips.

Make sure the site has an agricultural/industrial first-aid kit.

A fire extinguisher is just as important. Use the type directed by your local fire code.

Check your supply of spare light bulbs — not only for the overhead fixtures and trouble lights, but also for transmitter pushbuttons and fault lighting.

Each site should have a basic tool kit of screwdrivers, nutdrivers, hex wrenches, a DVM, soldering iron/solder/sucker, as well as device-specific tools. A device-specific tool might be a right-angled Phillips for removing bolts in a transmitter, or the gas wrench used to remove a regulator from a tank of nitrogen.

A set of basic tools at each site will reduce your fix-it time, should you show up in a vehicle without your tools.

Mike also includes a set of safety glasses.

As a safety measure, he has installed

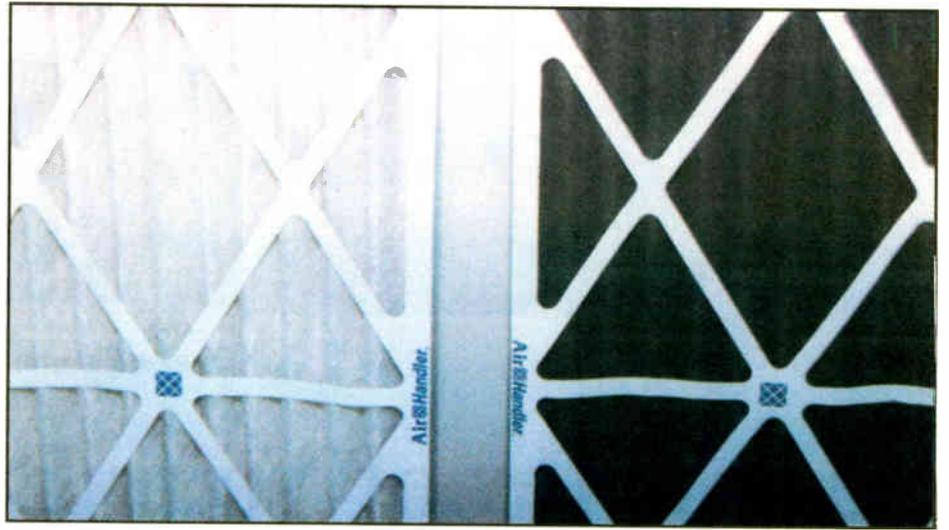
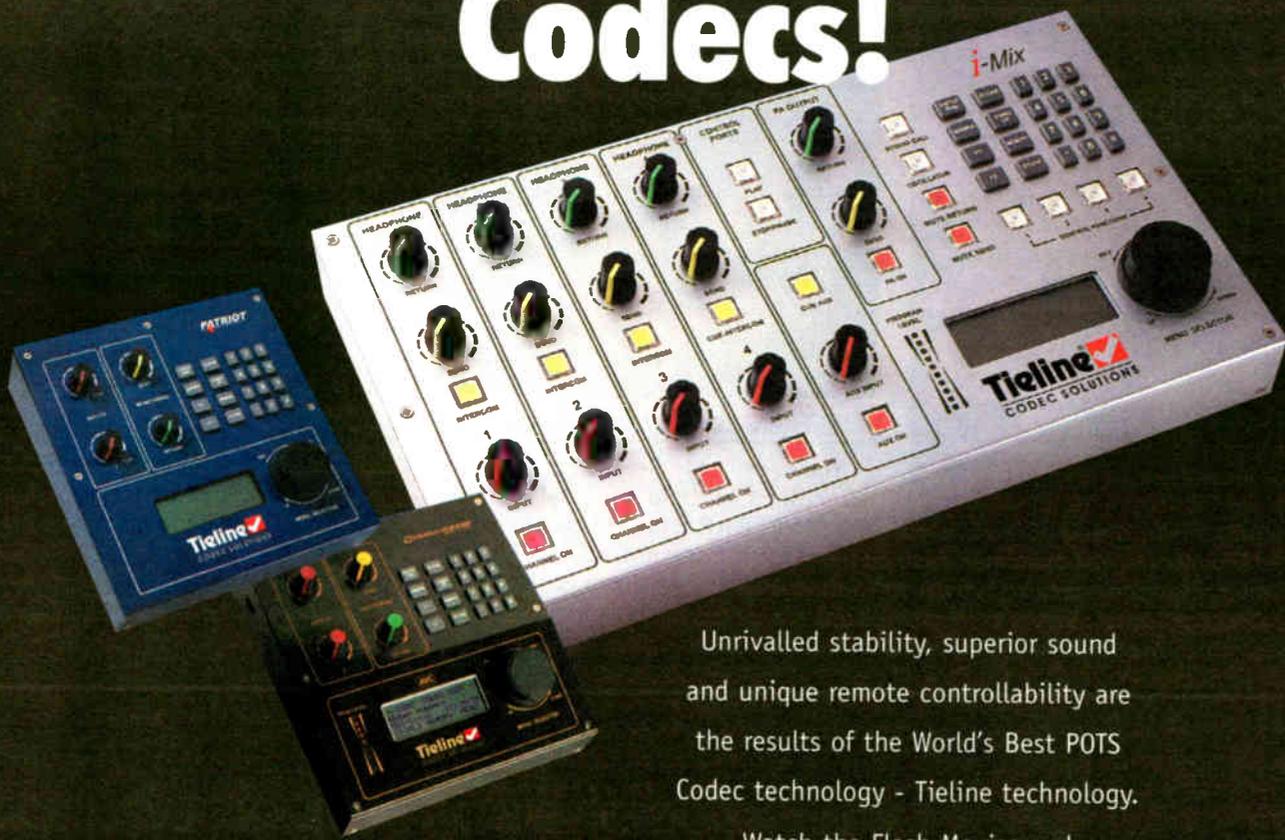


Fig. 3: Which is the clean air filter? It's obvious — unless you forget to check them regularly.

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bulletproof light fixtures over the door and around the building. If the general manager doesn't like it, Mike makes his point by saying that he needs to see where he is going and see who is coming up to him. For less than \$200 a fixture, you can feel safe as you enter and leave the building.

Mike will walk away from a client who won't allow for basic personal security — a point all of us need to remember. No station is worth giving your life for.

Toilet paper, paper towels and moist wipes, all in resealing plastic bags, will get plenty of use. The re-sealable bags will keep dry what's supposed to stay dry, and keep the moist wipes wet.

★ ★ ★

Have you looked at your transmitter and air conditioner filters lately? Systems mounted on the roof, or in ceilings, can be easily forgotten.

Fig. 3 shows there's no "gray" area; the filter is either black or white. Write the date you installed the filter on the cardboard frame. This helps you budget the number of filters used, as well as determine when the filters need to be changed.

★ ★ ★

The earlier mention of toilet paper for your transmitter supply kit reminds me of a story that you could only find in radio.

We were called in to do contract work for an owner who, unbeknownst to us, had quite a reputation for not always paying his engineers.

The transmitter was down, and the problem appeared to be the tube. The owner flashed a quick smile and said, "I've got plenty of tubes."

He opened a closet door and we could see at least four tube boxes, two of which looked pretty new. However, as he opened each box, we discovered that it was empty — except for a raw, nose-wrinkling smell that soon filled the transmitter room as the last box was opened.

Seems one of the previous engineers who hadn't been paid had taken the spare tubes — and also had realized that the reinforced box with the rounded foam insert made an ideal portable toilet.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.

Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com.

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World Radio History

Future

► Continued from page 12

market, they are competing in a global market, because the audio or whatever services they are offering are now available to people in other markets. The trick is to figure out how to market to those other people."

So what will it be like to work in radio in the future?

"Probably more work," said Goldman, laughing. But he said text-to-speech technology will allow stations to take the great bulk of localized traffic, news and weather information and deliver it to the listener without having someone sit in front of a microphone, reading it all.

"The engineer will have to be someone who fully understands the audio portion or the video portion of whatever it is encoder, a server. It means that, in terms of engineering, you need a broader knowledge base to deal with everything."

The stuff about digital rights management will be figured out. ... The network's getting faster and faster.

— Michael Wellings

they're dealing with," said Wellings. "The transport mechanism, which may or may not be a transmitter, might also be an

Dille said that, when he entered the radio business, there were 7,000 radio operations, "scattered all around, but we

all programmed basically the same way, different formats. But it was pretty similar deep down. We copied each other.

"With new technology there are other services and other activities in which radio people can get involved, other disciplines, different qualities and activities using the other portions of the spectrum ... and all of that is pretty exciting.

"The emergence of technology brings on a new cycle of, or counterbalancing, the cycle of consolidation we're now seeing," said Dille. "It may create a field fertile enough for the introduction of entrepreneurial activity."

What do you think the future holds for radio? Write to radioworld@imaspub.com or use the address on page 61.

MARKET PLACE

Progressive Concepts Adds 300-Watt FM Unit

Progressive Concepts is expanding its line of FM broadcast transmitters.

The TX300 is aimed at the LPFM market and those users who want an exciter or backup transmitter.

RF output power is variable from 35 to 300 watts. The LCD display indicates frequency, forward/reverse power, PA temperature and voltage, PLL board voltages and modulation levels, as well as the amount of gain reduction of the limiter module.

The rear has two XLR balanced audio inputs with level controls, BNC socket for multiplex output from the stereo generator, BNC for audio loop-through or external processing and a D-connector for remote control and monitoring.

Pins are available for fault monitoring, RF muting and transmitter parameter monitoring via RS232; a Windows program is available.

The audio limiter and digital stereo encoder each can be switched in and out of circuit; the transmitter can be used with external processing or stereo generator.

Versions in 3, 20, 50 and 150 watts also are available.

For information contact the company in Illinois at (630) 736-9822 or visit www.progressive-concepts.com.

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"Cable Radio Proves a Serious Player"
by Charles Taylor
July 14, 1993

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Security

► Continued from page 17

DOS was the logical glue that uncomplicated the connection of stored information to the user's processor. While some operating systems were concerned with security from their beginnings, in later network evolutions operating systems were compelled to emphasize security and constrain the information available to particular operating system roles. Many operating systems initially were, and some remain, quite fragile and easily breached, particularly in the area of physical or network compromise.

The present security controversy

among operating systems involves the original human readable format of the source instructions that are processed into machine-readable format for use by computing systems. Like the floor plan of the castle, this "source code" element must be analyzed and reviewed to find security weaknesses.

With this criterion in mind, it is possible to divide operating systems into two broad categories, open-source and closed-source.

The developer keeps the source instructions of closed-source systems, and various barriers exist to your knowing the details of how these operate. These systems are "intellectually cheap" to install and easy to use; but they are costly to enhance (unless you are the developer) and to troubleshoot.

The information necessary to operate closed systems is strictly compartmentalized by role. The delineation of roles within closed-source systems makes it difficult to change roles and get from one compartment to another when circumstances require it.

Disclosure

Open-source systems are defined by full disclosure. Users of all types are encouraged to discover how the system operates, including the security mechanisms. It has been suggested that the open-source approach began with developer frustration with the exclusionary tendencies of closed-source.

Open-source operating systems are "intellectually expensive" to install and often are tricky to use; but they are

easy to troubleshoot, enhance and maintain. The information necessary to operate these systems need not be role-based. Roles within open-source systems are elastic but can be clearly defined as part of the installation.

Systems designed as closed often become open (disclosed) due to circumstances such as standards formulation, orphaned system disclosure, covert action and reverse engineering. Systems can change from closed to open but rarely go the other way. The vast majority of broadcast systems reflect the overall state of technical development, and are based upon one particular closed system architecture.

Either open or closed, trust in these operating systems is the risk your facilities take.

If you fear that your facility is or will be off the air because the production network has crashed due to a raging virus, vicious employee or vandalizing script kiddies, you need to protect, detect and react to secure your operating systems immediately. If you are lucky (or smart) enough to still be on the air, you need to do a risk analysis of your information system.

The new dismal science

Risk analysis reveals acceptable risk. Risk is the opposite of assurance; it is nothing new. Information risk, the opposite of information assurance, is a new branch of an old tree.

To assess risk, we first must define it. Engineers revel in simple algebraic ways to relate fundamental matters. This equation attempts to do the same, if only by identifying the variables involved:

$$\text{Risk} = \text{function of (Threats, Vulnerabilities)}$$

Threats are forces committed to disruption of your service; vulnerabilities are the opportunities available to disrupt it.

The product that a broadcast facility delivers is information. Yours is the business of assuring your audiences and clients of good information.

Threats and vulnerabilities are the result of system design and implementation choices. Without information assurance, good information for your audience, your reason to exist as a broadcaster falters. Assessing and minimizing digital environmental risk is a new task in an old chore.

Unlike other members of the digital ecology, U.S. broadcasters have serious social and legal responsibilities for the information they maintain and purvey. U.S. law protects a broadcaster's sources and methods.

This information protection requirement also is in effect in other countries and can place a broadcaster in an adversarial relationship with institutions that maintain excellent information warfare and intelligence capabilities.

Digital broadcast facilities operating in this converged digital ecology now are under continuous attack.

These attacks can be passive, such as the transmission of an e-mail virus, benign port scans or server-to-server worm attacks. They can be active, such as targeted attacks, denial-of-service attacks or a disgruntled employee modifying or destroying information.

These acts, malicious or not, can destroy your operation and may already

See SECURITY, page 25 ►



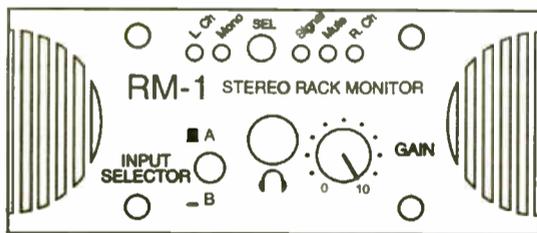
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Security

► Continued from page 24

have destroyed the trust your facility enjoyed in the past.

Because operating systems security is still evolving, simple breaches that allow humans to gain access to information beyond their assigned roles often are overlooked. These breaches, called exploits, come in thousands of flavors with hundreds of thousands of variations.

Note that only small subsets of these exploits are designed to extract value or any benefit a human might enjoy. Most security exploits appear to be related to the predatory nature of operating systems.

One wonders how the digital ecology can so completely mimic the natural ecology in that it seems to spontaneously generate agents designed to "thin the herd" and create an environment where those with the strongest survival traits succeed.

Social ostracism or legislation to criminalize this activity is, in my opinion, similar to attempting to pass laws outlawing the common cold. Is the development of exploits the application of a Darwinian methodology? Do the exploits actually represent the change agents of the digital ecology? Is the struggle for information security our exposure to the process of security architecture evolution?

Closed vs. open systems

In my view, open vs. closed source security architecture becomes the biggest evolutionary element in the digital ecology. Proper risk, assurance and security analysis begs answers to the following tactical, strategic, offensive and defensive questions:

- Would open-source be a good choice as a defensive system?
- When facing an adversary who uses open-source software, does this adversary hold any advantage?
- Can opponents using open-source-based tools and techniques dominate closed-source opponents in information warfare?
- Is open-source strategically or tactically superior to closed-source systems?
- Will closed-source systems always predate open-source systems?
- For gaining control or dominance over information, is open-source particularly suited as an offensive weapon?
- Can sources and methods be made anonymous?
- Is open-source code harder to trace?
- Is a closed system more secure than an open one?
- Does the compartmentalization that closed-source code instills help security?
- Is empirical comparative evidence or casework available?
- Is abstract or mathematically rigorous

comparative proof of superiority possible?

- Would open-source systems and closed-source systems in threat environments

and placed broadcasting in the position where broadcasters must converge or fade into obsolescence. Simultaneously we enter a digital environment as broad-

You are studying this periodical to involve yourself in this industry. This discussion of the consequence of convergence poses many more questions (17, in fact) than normally would be polite.

The proper closed-source approach would be to ignore these questions. The open-source way shares the answers to these questions as well as those that would follow.

The one thing that we can count on is that if we don't find the answers to these questions, someone else will.

Paul Flint is an independent technical consultant, security analyst, author and inventor with professional experience in broadcast management, appraisal, engineering, systems network design and security architecture.

RW welcomes other points of view. 

The Internet's arrival has resulted in an environment for your facilities and your information that suddenly is very insecure.

perform in similar or different ways?

Convergence has taken audience, personnel, resources, technology and innovation from traditional broadcast outlets

casters, and this digital evolution morphs us into something new.

Will this digital domain allow us to the trust we need to be effective media?

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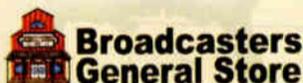
Throughout 2002, *Radio World* will conduct 26 random drawings. Prizes and winners will be announced in every issue of *Radio World*. **That's 26 chances to win!**

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Bluegrass Finds a Life Online

by Ken R.

Have you ever heard of the Soggy Bottom Boys featuring Dan Tyminski? How about Ralph Stanley?

Bluegrass music. While no longer an "underground" format thanks to a strong Internet presence and a fanatic fan base, its success on radio remains spotty.

Item: At the 44th Annual Grammy Awards, an album that received virtually no airplay copped Best Male Country Vocal Performance and Best Country Collaboration with Vocals honors.

focused the spotlight on a style of music that has been with us since the Civil War, but which enjoys only occasional periods of mass acceptance.

One public radio station known for promulgating this genre of folk music for decades is WAMU(FM), owned by American University in Washington (<http://wamu.org>).

Pickin' and grinnin'

The station made headlines not long ago when it cut back its on-air bluegrass in favor of more public radio talk

24/7 Internet stream of bluegrass music, www.bluegrasscountry.org. According to research company MeasureCast, BluegrassCountry.Org rated 19th in a recent weekly ranking of its top streamers, with a total TSL of 57,949 and a cume of 20,956.

TTSL is the number of hour streamed. Cume persons is an estimate of the number of unique listeners who had one or more listening sessions of at least five minutes that week.

Gary Henderson, senior producer for BluegrassCountry.Org, said that in 1967,

Dick Spottswood, an ethnomusicologist and library major; Charles Freeland, owner of Rebel Records; Pete Kuykendall, a broadcaster, musician and studio owner; and radio listener Dianne Sims joined him in starting a small newsletter called Bluegrass Unlimited.

Its purpose was to let people in the Washington area know where and when the best groups were performing. After popular recording artists The Stanley Brothers came to town and few people heard about it, they determined the newsletter would be useful.

"The newsletter grew into a full-blown journal, and before we knew it we were

See BLUEGRASS, page 34 ►



Ray Davis

Last year one of the biggest hits at the box office was "O, Brother, Where Art Thou?" a very loose and strange retelling of Homer's "The Odyssey." The film used a lot of authentic bluegrass music written in the 1920s.

The award-winning soundtrack

and news programming. The station's bluegrass now is limited to 13 hours on Sunday mornings. It airs "Bluegrass Overnight," "Stained Glass Bluegrass" (a gospel show) and "The Ray Davis Show."

But last year, the station also began a

FCC Promises New EEO Rules on the Way

by Barry D. Umansky

EEO rules were on the table June 24. The FCC held a special *en banc* meeting to discuss the commission's regulatory and policy options for adopting a recast set of equal employment opportunity rules. Requested by FCC Commissioner Michael Copps, this was the first FCC *en banc* meeting on EEO since the early 1970s.

All four FCC commissioners (yes, the FCC still was "down" one commissioner from its normal five-member level) took part in a unique session wherein 16 participants — including individual broadcasters as well as representatives of minority and women's organizations, unions and broadcast and cable TV groups — stated their personal and organizational views on the need for, and the recommended form of, any new FCC EEO regulations.

Broad outreach

The special meeting was held in light of the commission's rulemaking proceeding, initiated last fall, proposing new EEO rules focusing on broad outreach.

This EEO proceeding follows two straight court rejections of previous EEO regulatory incarnations. The FCC's most recent EEO regulations — the ones that gave

See EEO, page 34 ►

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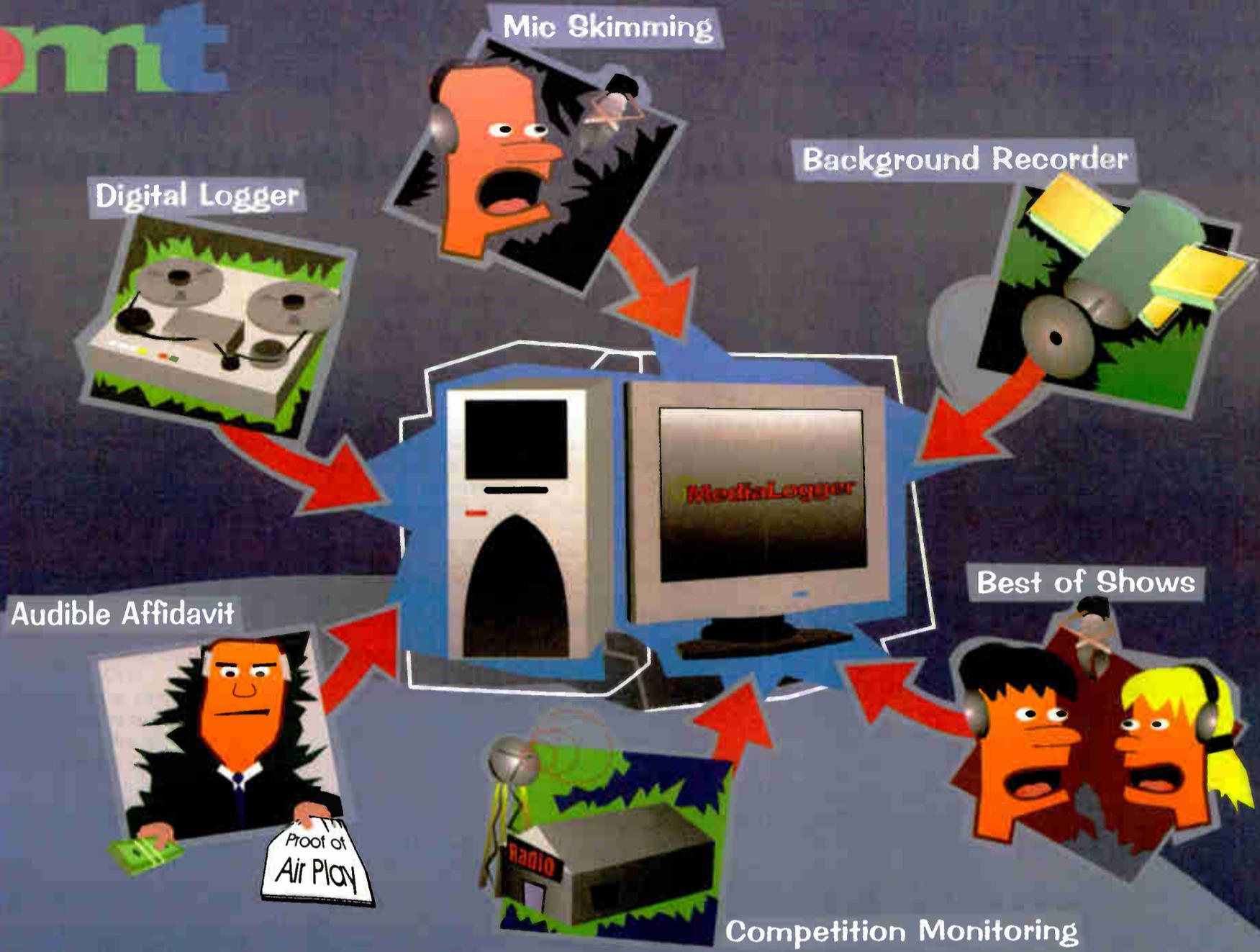
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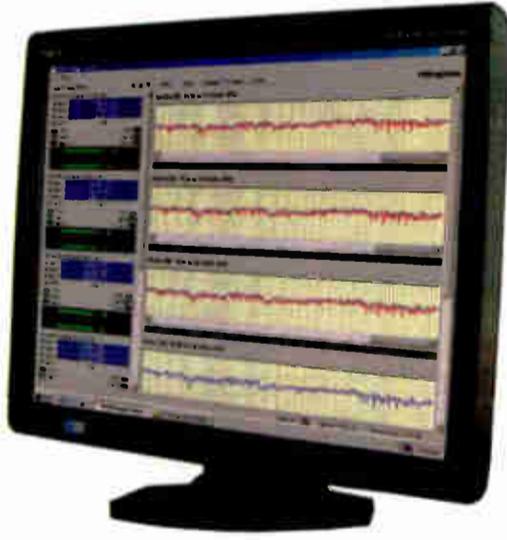
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BROADCAST LAW REVIEW

FCC Summer School: Station Improvement

by Barry D. Umansky

With the FCC now immersed in a variety of non-broadcast issues, and with the recent announcement that the commission is deferring any radio ownership rule changes (and likely the long-awaited new FM station auction) until 2003, now's the time for radio broadcasters to do their homework and see how they can improve their facilities' competitiveness in other ways.

There are plenty of changes and improvements you can take — some you should consider right now and others you might want to ponder for next year — to become a more significant player in your market. Radio broadcasters in all sizes of markets may find that there are lawful and effective steps available to provide some useful gains

Reading list

Here's a summer reading list of options to operate more efficiently, provide a better and perhaps "multi-channel" product for your advertisers and audience and grow your broadcast operation.

Some are simple; but others are more complicated and tricky and should be pursued only with the guidance of your communications counsel.

Getting Together for Fun and Profits — Maybe it's time to begin a dialogue with one or two of your radio competitors in town. While entering into a combination rate and/or joint sales arrangement (JSA) can on rare occasion be suspect under state or federal antitrust laws, there usually is no problem if these agreements act to enhance rather than stifle competition in a market.

Obviously, the smaller the number of stations in your market, the more questionable these agreements can be in an antitrust review. Don't enter into these kinds of arrangements with the goal of targeting for injury a particular other station or two.

A radio broadcaster considering a joint sales plan should seek the advice of counsel to avoid setting up — and implementing — a joint sales system that could be

challenged legally by a local competitor.

A few years ago the FCC decided that it would make no change in its policy of not counting JSAs under its "ownership attribution" rules. So at least for the time being, you shouldn't have to worry about FCC as you review your joint sales deal or combo rate.

However, the FCC does require stations entering JSAs to place copies of such agreements in the stations' public inspection files (you can cross out all confidential or propriety information) for review by the public and competitors, among others.

Keep your eyes open for new and novel partners. Don't just limit your joint sales/combo rate universe to other radio stations.

And keep your eyes open for new and novel partners. Don't just limit your joint sales/combo rate universe to other radio stations.

Consider working a deal with a TV or LPTV station, or perhaps with a local cable operation. Each can be an effective and lawful partner in giving your advertisers a multi-channel product derived from a more-efficient operation.

Time Brokerage-Type LMAs — To the extent the agreement with another radio station in your market area involves programming, instead of just sales/rate issues, you will have to meet the FCC's attribution rules (and public file rules) for time-brokerage type Local Marketing Agreements.

In order to do such a deal and comply with the FCC's rules, you would have to be eligible to be an owner of the station. That is, the commission would "attribute" an LMA deal with another local station as if you had purchased the station. It doesn't matter whether you are the program-

mer or the station to be programmed (the Gobbler or the Gobblee, to use precise legal parlance...)

So work with your communications lawyer in an analysis of the FCC's radio ownership rules to make sure you're qualified to do an LMA deal.

And no matter what kind of cooperative deal you enter, make absolutely sure that the relationship does not amount to an unlawful transfer of control of the station. Each station only has one licensee; and that licensee is the one entrusted to make licensee decisions. That licensee ultimately must be the decision-maker —

whether you can move to a higher-class channel. In most cases you can employ the FCC's "one-step" upgrade process, which saves lots of time and money over the previous system.

Sometimes your upgrade may entail a modification of one or more FM allotments in your vicinity in order to make your desired FM allotment fit. It can be a complicated process, so consult with your communications lawyer and engineer early and often.

Time to Buy? — Now also might be the time to consider purchasing an existing radio station in your market or somewhere nearby.

Obviously there are economies of scale and profit potential to help justify the purchase price and the expense of going about the process. And now there are many stations on or potentially on the market.

When it comes to purchasing stations, don't just focus on radio. You might consider picking up a low-power television station, particularly one that has so-called "Class A" status.

That status means that the low-power facility no longer is a "secondary" service that could be removed from the air if a full-power station were to begin broadcasting on the same or an adjacent channel in the vicinity. An LPTV can be a great vehicle for adding a video element to your broadcast operation.

New Stations on the Horizon? — Well, it depends how far you can see around that horizon.

The long-awaited FM auction is still being awaited. Due to a court decision that threw a monkey wrench into the way the FCC would conduct auctions for commercial stations if noncommercial applicants also would apply, the FCC has held in abeyance an auction of what now will be more than 500 allotments for new FM stations.

Once the FCC figures out how to deal with this largely procedural problem, and/or if Congress amends the statute to remove the difficulty, the commission likely will be holding an omnibus FM auction.

The auction process would begin with a "window period" for submitting the FCC Form 175 (which indicates that you want to participate in the auction and specifies the allotments for which you will be submitting bids), meeting the FCC deadline for submitting "upfront payments," participating in a "mock auction" (so that applicants can test the software and other aspects of the auction system), and participating in the

See IMPROVEMENT, page 31 ▶

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World Radio History

Marconi Award Finalists Announced

The Marconi Radio Awards competition heats up as NAB announced the finalists for the 2002 competition. Approximately 100 radio stations and on-air personalities have been selected.

The Marconi Awards — established in 1989 and named after inventor and Nobel Prize winner Guglielmo Marconi — are handed out to radio stations and outstanding air personalities to recognize excellence in radio.

An independent task force selected finalists in 20 categories. Ballots were to be sent to members of the NAB Marconi Radio Awards Selection Academy in mid-July. The winners in each category will be announced during the NAB Radio Show on Sept. 14 at the NAB Marconi Radio Awards Dinner & Show at the Washington State Convention and Trade Center in Seattle.

The nominees are:

Legendary Station of the Year

KSL, Salt Lake City
KSTP(AM), Minneapolis
WABC, New York
WBEB, Philadelphia
WSB(AM), Atlanta

Network Syndicated Personality of the Year

Bob & Sheri, Jefferson-Pilot

Radio Network

Neal Boortz, Cox Radio Syndication
Dick Clark, United Stations
Paul Harvey, ABC Radio Networks
Tom Joyner, ABC Radio Networks

Major-Market Station of the Year

KDFC, San Francisco
KOST, Los Angeles
KPLX, Dallas
WGN, Chicago
WUSL, Philadelphia

Large-Market Station of the Year

KIRO, Seattle
KPRS, Kansas City, Mo.
WBAB, Nassau/Suffolk, N.Y.
WEBN, Cincinnati
WGAR, Cleveland

Medium-Market Station of the Year

KIOA, Des Moines, Iowa
KOMA, Oklahoma City
WDEL, Wilmington, Del.
WFMS, Indianapolis
WTCB, Columbia, S.C.

Small-Market Station of the Year

KSHA, Redding, Calif.
KTLO, Mountain Home, Ark.
KWCL, Oak Grove, La.
WKDZ, Cadiz, Ky.
WVAQ, Morgantown, W.Va.

Major-Market Personality of the Year

Big Boy, KPWR, Los Angeles
Larry Elder, KABC, Los Angeles
Jim Ladd, KLOS, Los Angeles
Dennis Owens, WGMS, Washington
Pierre Robert, WMMR, Philadelphia

Large-Market Personality of the Year

Roger Hedgecock, KOGO(AM), San Diego
John Lanigan & Jimmy Malone, WMJI, Cleveland
Dave Ross, KIRO, Seattle
Jim Scott, WLW, Cincinnati
Van & Cheryl, KSTP(FM), Minneapolis

WBLI, Nassau/Suffolk, N.Y.
WIAL, Eau Claire, Wis.
WSTW, Wilmington, Del.

Country Station of the Year

WAXX, Eau Claire, Wis.
WFMS, Indianapolis
WIVK, Knoxville, Tenn.
WKCQ, Saginaw, Mich.
WMZQ, Washington

News/Talk/Sports Station of the Year

KGO, San Francisco
KSL, Salt Lake City
WEOL, Elyria, Ohio
WGY, Albany, N.Y.
WIBC, Indianapolis



Medium-Market Personality of the Year

Cathy Blythe, KFOR, Lincoln, Neb.
Van Harden & Bonnie Lucas, WHO, Des Moines, Iowa
Scott Innes, WYNK(FM), Baton Rouge, La.
Kevin Miller, WERC, Birmingham, Ala.
T. J. Trout, KZRR, Albuquerque, N.M.

Small-Market Personality of the Year

Terry Bell, KKAJ, Ardmore, Okla.
Al Caldwell, KLVI, Beaumont, Texas
Allan James & Amber Stearns, WZWZ, Kokomo, Ind.
Will Payne & Barry Diamond, KITX, Hugo, Okla.
Danny Preston, KMBQ, Wasilla, Ark.

AC Station of the Year

KSTP(FM), Minneapolis
KUDL, Kansas City, Mo.
WBEB, Philadelphia
WLTW, New York
WSNY, Columbus, Ohio

Adult Standards Station of the Year

KABL, San Francisco
KMRY, Cedar Rapids, Iowa
WAMB, Nashville, Tenn.
WOSN, Vero Beach, Fla.
WROD, Daytona Beach, Fla.

CHR Station of the Year

KDON, Monterey/Salinas, Calif.
KPWR, Los Angeles

Oldies Station of the Year

KIOA, Des Moines, Iowa
KQOL, Las Vegas
WBIG(FM), Washington
WGLD, Indianapolis
WMJI, Cleveland

Religious Station of the Year

KFSH(FM), Los Angeles
KGBI, Omaha, Neb.
KTSY, Caldwell, Idaho
WRCM, Charlotte, N.C.
WVEL, Pekin, Ill.

Rock Station of the Year

KLAQ, El Paso, Texas
KOZT, Fort Bragg, Calif.
KQRC, Kansas City, Mo.
KQRS, Minneapolis
WFBQ, Indianapolis

Spanish Station of the Year

KGBT(FM), McAllen, Texas
KLNZ, Phoenix
KLTN, Houston
KSOL, San Francisco
KXXS, Austin, Texas

Urban Station of the Year

KVEE, Lake Charles, La.
WAMO, Pittsburgh
WJLB, Detroit
WMCS, Milwaukee
WUSL, Philadelphia

Daily News

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Don't Delay, Call Today!

Improvement

▶ Continued from page 28
 auction itself.

With any luck, the FCC may announce an FM auction by the top of next year.

Although the auction isn't exactly around the corner, now is the time to begin discussions with your communications lawyer about the application/auction process and the strategy you will employ when the auction begins. We know where the FM stations will be located geographically, so you truly can begin to check out things now.

Once the auction starts, it proceeds at a brisk pace, with the interval between rounds becoming shorter and shorter as the auction progresses. Broadcasters, their attorneys and their lenders should meet soon to ensure that there are no surprises once the auction is underway.

National Sales Help Pull May Numbers Up

It appears radio revenue continues to rebound moderately. According to the RAB, May numbers revealed a 1-percent gain in local dollars, while national ad sales soared with an 11 percent gain. Combined total revenue was up 3 percent over last year's May numbers. Year-to-date revenue is up 1 percent.

The RAB also recently released a sales index to monitor radio industry growth. Monthly totals are based on the RAB Radio Revenue Index of more than 100 markets. The index equates base year 1998 to 100. The May 2002 local sales index was 133.1. National was 133.8. Combined total sales index for the month was 133.3.

"Radio's sustained increase since March of this year is indicative of the medium's resiliency and its unique ability to address advertisers' needs at a moment's notice," stated Gary Fries, president and CEO, RAB. "All indicators point to continued sales gains for radio as the year progresses."

CNN Max Tops The RADAR

CNN Max tops the RADAR numbers for the past year.

The Westwood One network was ranked tops in audience and AQH. Premiere Morning Drive AM Network, Premiere Focus Network, Premiere Diamond Network and Premiere Morning Drive FM Network rounded out the top five.

The RADAR 73 report reveals 76 percent of U.S. consumers age 12-plus and 75 percent age 18-plus heard one or more network radio commercials in the course of a week. Statistics show network radio reached adults with household incomes of \$75,000 or more.

Radio's All Dimension Audience Research is an Arbitron service that measures national radio audiences and the audience size of network radio spots and spots within programs aired on 31 radio networks operated by ABC Radio Networks, American Urban Radio Network, Premiere Radio Networks and Westwood One Radio Networks.

It may be a while before the FCC opens a window for the filing of new and "major change" AM applications.

any time.

Bottom Line on Improving the Bottom Line — Broadcasters may employ FCC

the range of options open for radio broadcasters is greater than ever.

Here I've given you only general information on how to take some of these steps. But when it comes to your actual efforts in filing applications and otherwise dealing with the FCC on such matters, it's essential that you be guided by your own communications counsel who may establish a lawyer/client relationship with you on these sometimes complicated and difficult issues.

Barry D. Umansky, the former deputy general counsel of the National Association of Broadcasters, is with the communications practice group at the law firm of Thompson Hine LLP in Washington. Reach him at (202) 263-4128 or via e-mail to barry.umansky@thompsonhine.com. ●

If you haven't recently checked out the possibility of a station upgrade, put that on your list of things to do.

However, and as I mentioned above, most upgrades of AM stations are "minor changes," which may be accomplished at

processes in several ways to improve competitiveness and become more-significant players in their markets. Indeed,

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COMPACT www.bswusa.com

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BLUEBOX www.bswusa.com Call for Price

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Rely on Telos Zephyr to Transmit the Highest Quality Audio

If you can connect to ISDN from your remote facility, this is the best way to send audio back to the station. Zephyr Xstream MPX (model #9502) is Telos' new ISDN transceiver with the utility of a digital four-channel stereo mixer, all in a rugged, portable chassis. Transmit and receive 20 kHz stereo audio to and from a single location over a single ISDN line (or two mono channels to and from separate locations). The full-featured stereo mixer offers 4 mic/line switchable inputs (main mixer stage feeds codec directly), selectable AGC/limiter processing presets, and built-in 48-volt phantom power for two mic inputs. Other features include: G.722, G.711 and MPEG Layer-3 and Layer-2 coding for compatibility; MPEG4 AAC coding for CD-quality audio; MPEG 4 AAC-LD coding for high audio quality with low delay; 10Base-T Ethernet port al-

lows remote control and streaming of MP3-coded audio over a LAN, WAN or the Internet.

Zephyr Xstream MX (model #9602) is a full-featured rack mount codec with mixing capabilities similar to the Xstream MPX.

Zephyr Xstream (model #9402) is the studio rack mount codec without the mixing capabilities. It offers analog and AES EBU I/O with independent sample rate converters; 10Base-T Ethernet port; and headphone jack.

9502 portable ISDN codec with mixer www.bswusa.com Call for Price
9602 rack-mount ISDN codec with mixer www.bswusa.com Call for Price
9402 rack-mount ISDN codec without mixer www.bswusa.com Call for Price

Lowest Priced 15 kHz POTS Codec

This brand new Tieline Patriot POTS codec features high stability precision modem technology and rugged construction. Its claim to fame is 15 kHz bi-directional audio at bit rates as low as 24 kbps, low 100 ms delay, and intelligent gain control (average volume peak control plus compressor/limiter automatically keeps audio levels under control). Other features include: cellphone mini jack; mic/line switchable XLR input; stereo RCA input summed to mono; balanced XLR output; headphone jack; audio level indicator; remote controllable from the studio; and much more.

TLF100 www.bswusa.com Call for Price



MARTI



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The popular Marti CX-500 provides all the functions you need for great-sounding remotes through a dial-up phone line (or optionally through a model specific cellular phone interface). Its robust mixer section features 4 XLR microphone inputs and 2 auxiliary inputs, and 4 headphone jacks. Other features include: rechargeable batteries, second phone line capability; auxiliary output (line or mic level). Optional micro-cellular interfaces available for most cellular telephones.

GX500 www.bswusa.com Call for Price



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Easier Remotes with this Rugged Mixer/Hybrid

JK Audio's rugged RemoteMixSport is a combination audio mixer, headphone amplifier, telephone hybrid and PBX interface all in one. The mixer features 3 XLR microphone inputs (one switchable to line level), 3 headphone jacks, 1/4" headphone cue input, XLR or phone mix output, built-in monitor speaker, talkback microphone, and VU meter. RemoteMixSport operates 36 hours on two 9-volt batteries or use the included AC adapter.



REMOTEMIXSPORT **\$449⁰⁰** **\$879⁰⁰**

JK Audio



Gentner

Telephone Mini-Mixer

This portable telephone interface is perfect for recording or sending audio via the telephone. The Gentner Microtel functions as a "mini mixer" with a variety of inputs and outputs for mic, headphones, recorder and other audio equipment. The battery-operated interface replaces the handset of the telephone to permit high-quality audio feeds while simultaneously monitoring the return audio.

MICROTEL1 **\$259⁰⁰**

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Best Value Broadcast Headset Under \$200⁰⁰

The HMD 280 is perfect for broadcasting in high-noise environments. The headphone pads are tightly sealed around the ear and the noise-compensating microphone rejects external noise. Features: easily replaceable, single-sided coiled cable; hard-wired XLR and 1/4" connectors. Headphone frequency response 8 Hz to 25 kHz; impedance 300 ohms. Microphone frequency response 50 Hz to 13.5 kHz; impedance 200 ohms.

HMD280 **\$189⁰⁰**

Super Comfortable Beyer DT290

The low-profile lightweight design makes the DT290 perfect for long hours of use. More importantly, the high-quality dynamic microphone offers excellent isolation from ambient noise. The cable terminates in a 1/4" connector for the headphones and XLR connector for mic. Headphone frequency response 10 Hz to 30 kHz; impedance 80 ohms. Microphone frequency response 40 Hz to 12 kHz; impedance 200 ohms. We've special ordered the DT290 with factory hard-wired connectors!

DT290 **\$229⁰⁰**



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For mono operations or for non-composite stereo applications, choose the Marti STL10 transmitter and RC10 receiver.

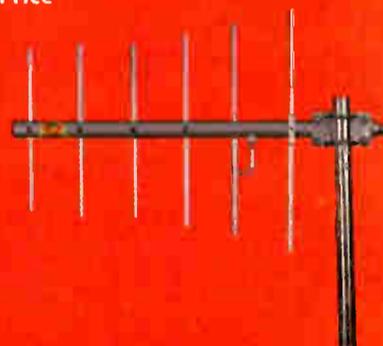
- STL20 **Call for Price**
- R15C **Call for Price**
- STL10 **Call for Price**
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Marti's YC-series antennas offer five or six elements depending on the frequency selected and offer a gain of 10 dB. Please specify frequency when ordering (from 132.08 to 455.99 MHz to cover any RPL application).

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The Kathrein-Scala CA7-460 seven-element yagi is designed for the very highest reliability even under severe environmental conditions. Its broadband design makes it particularly suitable for systems requiring frequency agility within a specified band. This model covers the 450-470 MHz bands. The impedance is 50 ohms, gain is 10 dB over dipole, and input power rating is 250 watts.

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Bluegrass

► Continued from page 26

getting mail from Japan, Germany and all over wanting copies," said Henderson. "The magazine spawned the radio show."

While there may not be enough of a local audience to please the consultants for WAMU to maintain 15 hours of bluegrass music in drive time as it did for 23 years, there is enough of an audience worldwide for the Internet station to become successful.

"Outside consultants were coming in and telling NPR affiliates to air the satellite news channel so they would have a larger and more affluent audience for fund raising," he said. "I'm sorry to say that the public broadcasting community, both radio and TV, are largely just going for the numbers right now."

Where bluegrass came from

"This music really didn't have a name until the early 1950s when, we believe, a DJ named Don Owens at WARL(AM), Arlington, Va., came up with it," Henderson said.



Dick Spottswood

"He was killed in a car accident in 1963, but he was my mentor. He played Bill Monroe, Jimmy Martin, Flatt & Scruggs, the Bailes Brothers and a lot of other great artists who weren't exposed much on the air."

As Eddie Stubbs, an announcer at WSM(AM) in Nashville in the 1950s, put it, "these artists were singin' hungry."

Henderson said the musicians were barely making a living and they had to be on their toes for the recording sessions.

"In the early days, there were usually just two microphones; one for the vocals and one for the instruments including banjo, guitar and Dobro," he said. "The band had to learn to balance their own sound so there was some real cohesion there."

"The record companies would usually only allow one or two takes of each song in the studio. When you're hungry, you give it an extra effort 'cause it's gotta be right."

Henderson described most recordings made lately as "too pristine, too formula-driven. There's no rough edges to give it some soul."

Like jazz, this improvisational music is pure Americana. An offshoot of traditional "hillbilly," or country and western, as it was known, bluegrass has changed little over the years.



Hank Williams Sr. and Ray Davis, Circa 1951

"It will have peaks and valleys and I know this hit movie 'O, Brother' gave it a little kick, but I don't know if bluegrass will ever be as popular as country," Henderson said.

"But maybe that's a good thing. If it gets too 'commercial,' it will take away from the integrity."

Henderson said that when listeners surf the Internet and find Bluegrass Country.Org, they find more than just

music.

"We are not just a jukebox; we're a service with personality," he said. "Our broadcasters know the best tracks to program, offer a little background on the artists and I think people like to hear an anecdote or some history."

Henderson believes that, for a long time, people were afraid to admit they listened to this type of music.

"You had a lot of closet fans," he said.

EEO

► Continued from page 26

broadcasters a choice between "Option A" (requiring basic and supplemental outreach) and "Option B" (mandating collection of detailed race and gender-based data concerning job applicants) — were rejected by the court on the grounds that Option B was an unlawful "race-based" classification scheme not tailored narrowly enough to support a compelling and well-defined government interest.

Overall system

Although that court decision didn't reject Option A, it found that this option was an integral part of the overall regulatory system and could not be separated from the unlawful Option B. Several years ago, the FCC EEO rules then in existence, adopted in 1991, also were rejected on constitutional grounds.

At the *en banc* meeting, minority and women's groups' representatives voiced their unanimous view that the commission should serve as a driving force in guaranteeing equal employment in the broadcast industry.

Pointing to statistics showing a small reduction in minority and female hiring at stations, they uniformly said that, because of the under-representation of women and minorities in station employment, particularly in managerial levels, there is a need for continued FCC regulation.

They did differ, however, on the level of paperwork and the degree of regulatory intensity that should be characteristic of revised EEO rules.

Similarly, a representative of the American Federation of Radio and Television Artists argued that "marketplace" forces are insufficient to ensure a diversity of voices over the airwaves and equal employment opportunity at stations. He concluded that FCC regulations are required to achieve those goals.

One witness, a female station general manager, complained about paperwork and other burdens imposed by the former FCC EEO roles. She also said job-specific recruitment always was fruitless but that general outreach efforts such as job fairs did provide a major source of job applicants.

On-air announcements, she observed, also help attract qualified job applicants. She said she never witnessed or experienced discrimination against anyone, saying that discrimination was not characteristic of the broadcast industry.

Representatives of minority and women's groups voiced their unanimous view that the FCC should serve as a driving force in guaranteeing equal employment in the broadcast industry.

A state broadcaster association representative emphasized how much state associations were involved in the employment recruitment area, complained of the "unwarranted burdens" of the former "bureaucratic" EEO rules and described how former EEO rules opened stations to unfair attacks, particularly at license renewal time.

She noted the previous "misuse" of the former FCC EEO rules, where stations had been threatened and blackmailed and often forced to accept and pay for certain organizations' "boilerplate employment plans" in exchange for their dropping threats to file complaints or petitions against the stations.

Now, she said, some stations are concerned about repercussions were they to complain about the FCC's proposed, revised EEO regulations.

Non-discrimination in employment is the law of the land and it always will be.

The Drake Bluegrass Memo

According to Gary Henderson, in the 1960s, Bill Drake, a leading radio consultant, advised country radio program directors to implement the following ideas:

- Fire your "cornball" announcers.
- Hire a strong news anchor.
- Hire ex-rock jocks who can just read liners.
- Buy a good jingle package.
- Hire the best production guy you can afford and most importantly:
- NEVER PLAY BLUEGRASS MUSIC!

"Now you see people at bluegrass festivals from all walks of life, college students and senior citizens. It's not quite so embarrassing anymore to associate yourself with bluegrass music, in fact it's become hip to have a CD of 'O, Brother' on your coffee table."

Ken R. is a former broadcaster who played a whole lot of Dolly Parton and Johnny Cash records before country was cool. Tell us your radio bluegrass memories at radioworld@imaspub.com.

Indeed, although the paperwork and outreach aspects of the last set of EEO rules were suspended, the basic anti-discrimination requirement in the FCC's EEO rule has remained.

New regs

From the tone and content of the *en banc* meeting, it is clear that the FCC will be going beyond the current anti-discrimination stance and attempt to adopt "meaningful and lawful" new EEO regulations — likely by the end of the year.

The new regulatory scheme likely will

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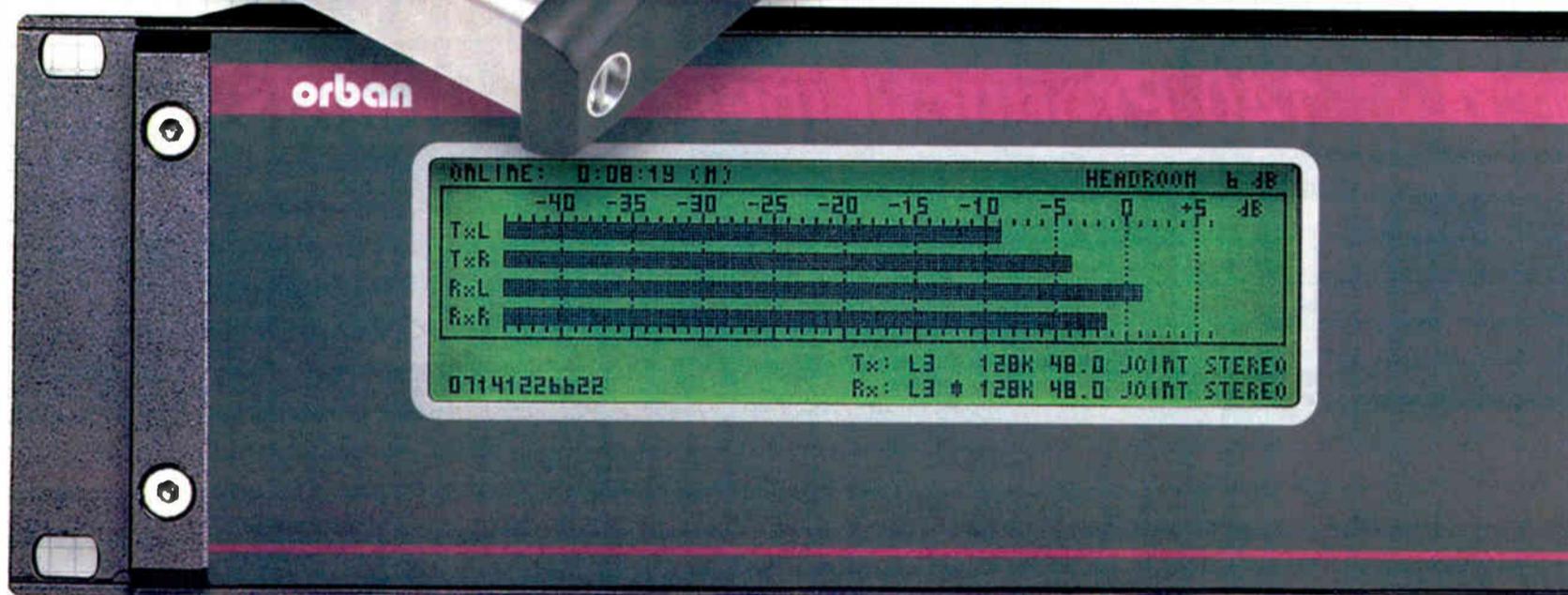
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The Orban logo, consisting of the word 'orban' in a bold, lowercase, sans-serif font. The letters are a vibrant red color with a slight 3D effect.

TIPS AND TRICKS

How to Place Monitor Speakers

by Bruce Bartlett

Using speakers with a flat response does not guarantee accurate sound. Proper placement is necessary for best results; speaker placement has a major effect on the sound you hear.

Placing speakers in the corners of a room, for example, makes them bassy. What happens when you monitor through them? Chances are you will compensate by turning down the lows in the announcer's microphone. This will cause the announcer's voice to sound thin on most other speakers.

Suppose you mount the monitors on a wall. Wall reflections will put peaks and dips in their response and you will hear tonal colorations. If you dial in some EQ to compensate, your tape will sound funny on a flatter system. So it is vital to place monitors correctly.

Here are suggestions for proper speaker placement.

Large monitors

You may want to use large monitors in the walls or a few feet from them. With this arrangement, everyone in the control room can hear the speakers loudly and clearly, and you will get deep bass.

The closer a loudspeaker is to the walls, ceiling or floor, the more bass it produces. If a speaker is placed in the middle of a room, it radiates low frequencies in all directions (into full space). But if the speaker is placed against a wall, the low-frequency energy is concentrated into half space, which boosts the lows by 3 dB.

Putting a speaker in a corner gives the most bass because it concentrates the lows into one-quarter the space. The highs are not much affected by speaker placement near a surface because high frequencies radiate mainly out front. Check the speaker instructions for recommended placement relative to the room surfaces.

There are several ways to install large monitor speakers, each with pros and cons.

An easy way is to put them on shelves or platforms against a wall. Unfortunately, this can degrade the frequency response. Low-frequency sounds radiating around the speaker reflect off the rear wall, are delayed and combine with the direct sound in front of the speaker. This results in phase cancellations or a comb-filter effect.

One way to prevent rear-wall reflections is flush-mounting the monitors in the wall. They should be mechanically isolated

See SPEAKERS, page 40 ▶

PRODUCT EVALUATION

Raduga: Automation for \$649

by Alan R. Peterson

Circa 1997, there were two simple and inexpensive Windows-based radio automation programs that were available to the average Joe: Raduga and Radio Wolf.

Both were readily obtainable right off the Internet, and anyone with a decent music collection on his or her hard drive could be playing sequenced audio in no time.

Unlike pricier programs of the day, both were in a range where almost anyone could buy one just for giggles.

Small niche

Of these two, Radio Wolf has all but vanished, leaving Raduga left to mature, develop new features and slug it out with the upstart programs found on the Web today.

For \$649, Raduga can handle simple music automation tasks for a broadcast or Webcast station, including overnight or weekend music management and time context-sensitive events such as IDs, quarter-hour sweepers and simple promo rotation.

Raduga does not stop at WAV and MP3 file playback. The program also can take on WMA and WMV Windows Media files, MPEG and AVI video files, MIDI music files and a live mic or line input to the soundcard.

Developer William Spry and the Spry

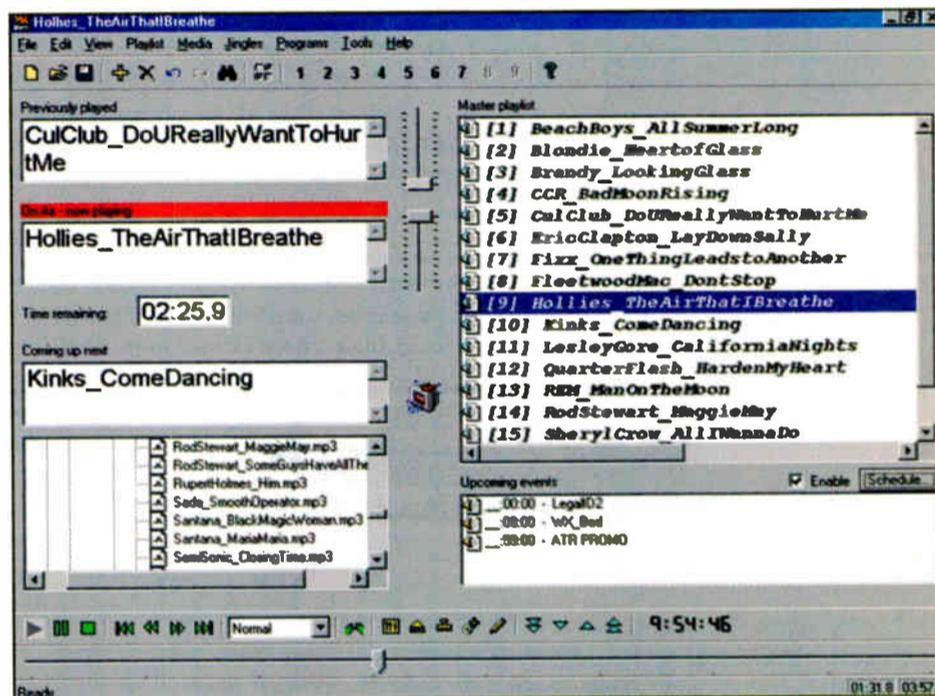
Group have done some work on this baby since it was first put on the Net to see who would nibble.

Don't expect a dedicated voicetracking module or music scheduling plug-in included in Raduga. Heck, except for its ability to merge with Natural Log, don't even expect an easy way to create a commercial log with the program.

Raduga is just what it looks like — an easy audio playback program with a straightforward interface that can be loaded and driven by staffers who don't have a lot of computer smarts.

In spite of what it has going for it, Raduga risks being outclassed by similar programs offered for less cash and with

See RADUGA, page 42 ▶



The user interface of Raduga has playlist on the right, play slots on the left, toolbar at the bottom and the nine jingle keys along the top.

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PRODUCT EVALUATION

New Eventide Delay Takes Affordable Route

by W.C. Alexander

Eventide, inventor of the digital broadcast obscenity delay, has introduced a low-cost broadcast delay that will give stations that cannot afford a more costly delay system a means of protecting themselves during live-caller programs.

The BD960 retails for \$1,995 and replaces the earlier BD941/942 units. There are a number of major improvements — most notably an AutoFill function that replaces deleted material with prerecorded material, such as a jingle. Audio quality has been significantly improved, with 24-bit 48 kHz sampling.

infamous List of Seven may not be absolutely prohibited in this day and age, the problem still exists. Today, however, the bigger problem may be that of slanderous statements made by callers that can get a station licensee sued.

Over the years, broadcasters have taken differing approaches to dealing with the issue, all of which have, in one form or another, involved delaying the audio in a program in which live calls are aired.

The endless-loop tape cartridge was for years a practical and dependable means of analog delay. When the digital age arrived, it became possible to sample, store and buffer program audio in a digi-

The BD960 omits certain features, but brings the cost of delay insurance down.

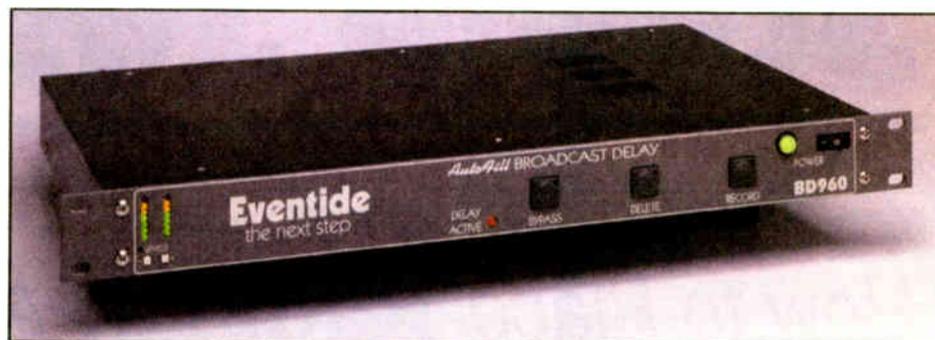
The BD960 delay occupies one rack unit. It is programmable and controllable from the front panel.

From the first time a radio station aired a live telephone call, the problem of preventing obscenities and other objectionable caller material from reaching the air has been a challenge.

While all the words on George Carlin's

tal delay, providing four or more seconds of time for a host or producer to react and "dump" the delay, thus preventing the objectionable caller material from airing.

Cost has been the big factor with digital delays from their introduction. Small-market and some medium-market stations quite often were left with no choice but to take their chances and hope that their



The Eventide BD960 Broadcast Delay

hosts and producers were enough on the ball to shut down a caller before things got out of hand.

The cost of the BD960 is kept reasonable by the absence of advanced features, such as delay rebuilding following the dumping of objectionable material.

In addition to the front-panel controls, the delay unit can be controlled remotely via rear-panel RS-232 and TRS connectors. Connecting to remote dump buttons on the on-air or host consoles should be a snap. In addition, software updates can be loaded via the rear-panel RS-232 jack.

Balanced audio connections are made via rear-panel XLR-type connectors. The inputs are high-impedance bridging types, while the outputs are low-impedance (less than 50 ohms).

The published specifications report a

dynamic range of greater than 100 dB, crosstalk of better than -95 dB and total harmonic distortion of less than 0.008 percent.

Input gain is set via front-panel controls. The unit is put into the "command mode" using a combination of front-panel switches. Input levels are then set with front-panel + and - buttons.

The user has two choices for audio to replace deleted material: silence or prerecorded material.

To replace deleted material with a jingle or other recorded material, the unit is first placed into the Command mode. The Record button is pressed and held while replacement audio is fed to the unit.

Once the recording is complete, the Record button is released. The length of

See EVENTIDE, page 43 ▶

PRODUCT GUIDE

Tascam Pocketstudio 5 Uses Compact Flash Cards

The Pocketstudio 5 from Tascam is a low-cost, portable multitrack digital recorder that uses Compact Flash card for media.

With an internal MIDI Synthesizer module, the Pocketstudio 5 can create final stereo mixes in MP3 format.



The unit provides four elements for songwriting and recording: a four-track digital recorder, a MIDI synth module for playback of standard MIDI file sequences, MP3 mixdown capability and a USB port to send completed songs to computers for e-mail and Web site posting.

Applications include broadcast production, professional project studios and commercial recording facilities. It earned a "Cool Stuff" Award from Radio World at this spring's NAB convention.

Price: \$599.

For more information from Tascam, contact the company in California at (323) 726-0303 or visit www.tascam.com.

Radio World

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— ABC Radio Networks, New York, NY

"The most important magazine on radio."

John Stortz, Chief Engineer
— WKES/WKZM Moody Broadcasting, St. Petersburg, Fla.

Our readers have something to say

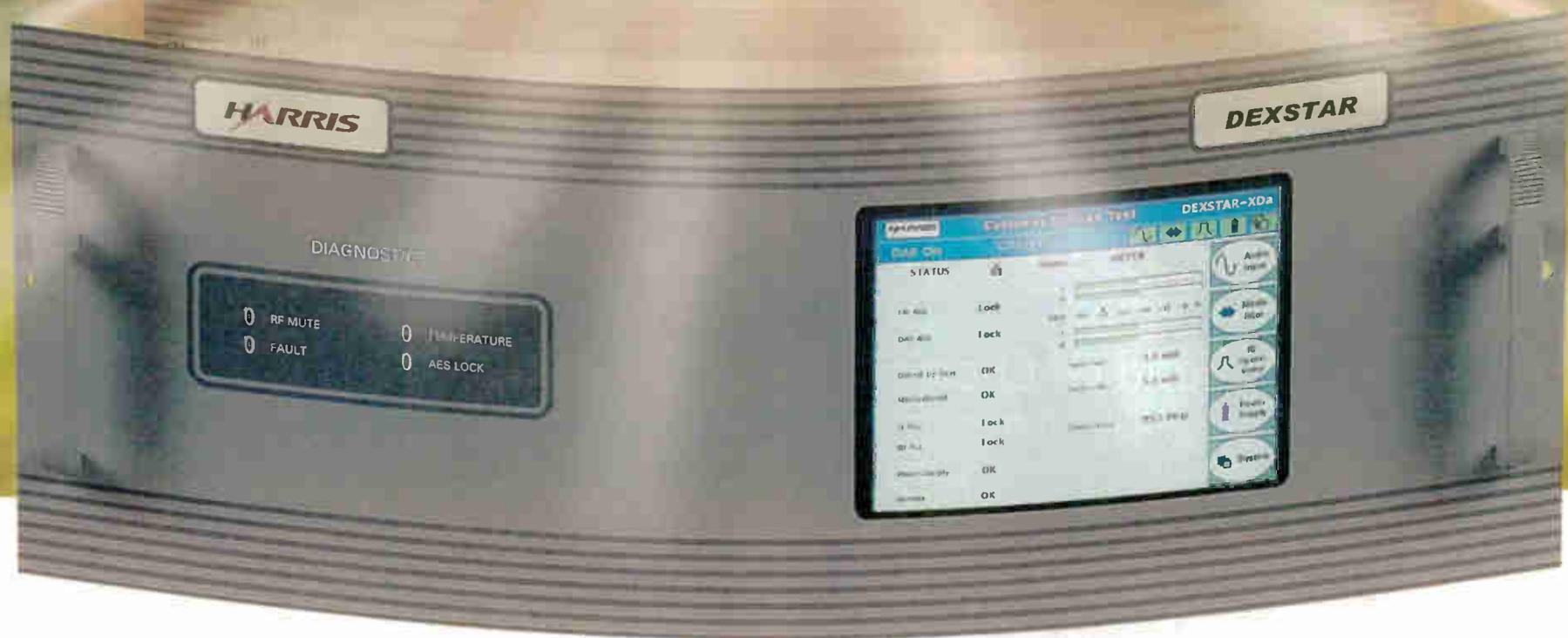
"Pound for pound, Radio World is the best trade magazine of the bunch. I truly enjoy reading it and I have a notebook of articles I've kept from past issues."

Ed Towey, President
— Ed Towey & Associates Inc., Tallahassee, Fla.

"Last April (2001), wind-shear took our 328-foot self-supporting tower down. Radio World was a 'life saver' in giving me contacts of firms who were a part of the total effort of getting a new tower back in place of the old one. WGNS was on the air with a 'horizontal wire' antenna the next day, but we were not back at full-power until July 14, 2001. Radio World was a treasured source of information during that time of crisis."

Bart Walker, Owner/President
— WGNS Talk Radio, Murfreesboro, Tenn.

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next level solutions

SERVICE

SYSTEMS

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TRANSMISSION

HARRIS

Speakers

► Continued from page 37

from the wall by foam rubber, fiberglass insulation or rubber shock mounts.

Isolation prevents sound from traveling through the wall and ceiling to the listener before the direct sound arrives through the air.

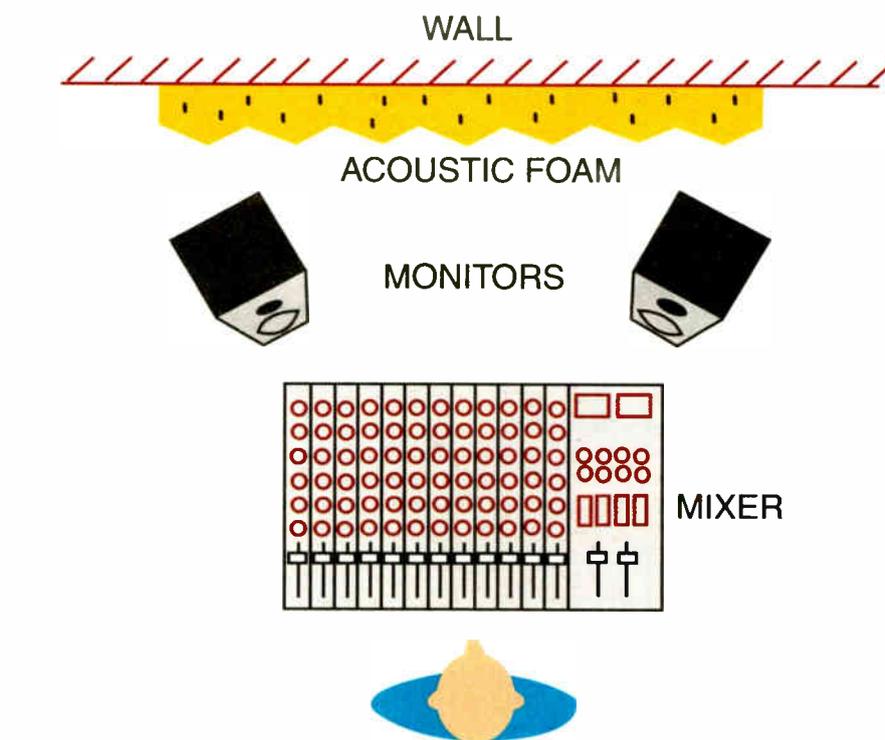
If you find it impractical to flush-mount the monitors, mitigate the wall reflections by placing the speakers at least three feet from the rear wall and four feet from the side walls.

Unobstructed path

Mount the speakers at ear height or slightly higher so the sound path is not obstructed by the mixing console. For best stereo imaging, align the speaker drivers vertically and mount the speakers symmetrically with respect to the side walls. Place the two speakers as far apart as you are sitting from them (about eight feet); aim them toward you and sit exactly between them.

Many control rooms can be improved by putting thick absorbent material on the walls behind and to the sides of the speakers. Use acoustic foam or 6-inch fiberglass insulation covered with muslin or burlap. The benefits include:

- Clearer sound
- Better stereo imaging and depth
- Flatter response
- Less boominess and ringing; sharper transients
- Mixes that translate better to other speakers



The speakers and listener should form an equilateral triangle.

Although large monitors have deep bass and play loud, they can be a pain. Large speakers are expensive, heavy and difficult to install, and are affected by the acoustics of the control room.

To avoid this hassle and expense, consider using a pair of nearfield monitor speakers. A nearfield monitor is a small, wide-range speaker typically using a cone woofer and a dome tweeter. Place a pair of them about three feet apart on top

of the console meter bridge — or on stands — about three feet from you.

This well-known technique, developed by audio consultant Ed Long, is called nearfield monitoring. Because the speakers are close to your ears, you hear mainly the direct sound of the speakers and tend to ignore the room acoustics.

The speakers sound about the same in any environment and you may not need much acoustical treatment in your control room.

enough bass to sound full when placed far from the walls. Since these speakers are small, most of them lack deep bass (below 70 Hz), but you can add a sub-woofer to hear all the lows in your mix.

Place nearfields on top of the console meter bridge, or just behind the mixer on stands. The latter is best because it prevents sound reflections off the mixer that can color the sound.

Nearfields should be at least two feet from the wall behind them, or you will hear too much bass.

Because speakers have the most highs on axis, and sound duller off axis, you can control the amount of treble by how much you toe-in the monitors. If the speakers sound dull, aim them at you. If they are too bright, aim them straight ahead. Do not cover the tweeter with tissue paper, doing so puts peaks and dips in the response.

Orientation

For best imaging, the speakers and listener should form an equilateral triangle. Try to mount the speakers so that the tweeters are at eye height. Orient the speakers vertically to get the most uniform dispersion in the horizontal plane. (Although horizontal placement works almost as well.)

If the speakers are not magnetically shielded, distance them from your computer monitor to avoid distorting the picture.

If you are using small multimedia speakers near a computer, put their front baffles flush with the monitor screen, but separated from the screen by a few inches horizontally to prevent sound reflections

What you hear from the monitors affects the quality of your recordings, so place the monitors carefully.

Additionally, nearfield monitors sound clear, need little or no equalization and provide sharp stereo imaging.

Nearfield monitors are designed for close listening; the woofer and tweeter outputs sum to flattest response about 1 meter away.

Nearfields are meant to be used several feet away from walls; they have

off the screen surface and prevent acoustic coupling between the monitors and screen. Both measures provide a flatter response.

The sound of a monitor speaker depends on its placement. What you hear from the monitors affects the quality of your recordings, so place the monitors carefully. You'll be rewarded with a monitor system that tells the truth. 🌐



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PRODUCT GUIDE

CreamWare Plug-Ins Emulate Analog Hardware

CreamWare announced the release of two high-end plug-ins for the Scope Fusion platform.

The Vinco Vintage Compressor is a compressor/limiter that the company says sounds like analog studio classics. It said conventional compressor algorithms were not used in its development. High-end hardware was emulated in code so the plug-in performs like analog compressors.

The MasterVerb Pro Reverb was designed to meet professional requirements. Features such as its X/Y control, adjusting reverb time and room size simultaneously, make working with the reverb processor easier. The plug-in has 32-bit live processing, unlimited reverb time and a dense, natural sound.

Both are available for download at the CreamWare Online Shop.

For more information from CreamWare, contact the company in Canada at (604) 435-0540; fax (604) 435-9937; or visit www.creamware.com.

◆ PRODUCT GUIDE ◆

Products for Radio Air & Production Studios

Mail info and photos to: RW Product Guide, P.O. Box 1214, Falls Church, VA 22041

Joemeek Recording Channel Fits in a PC

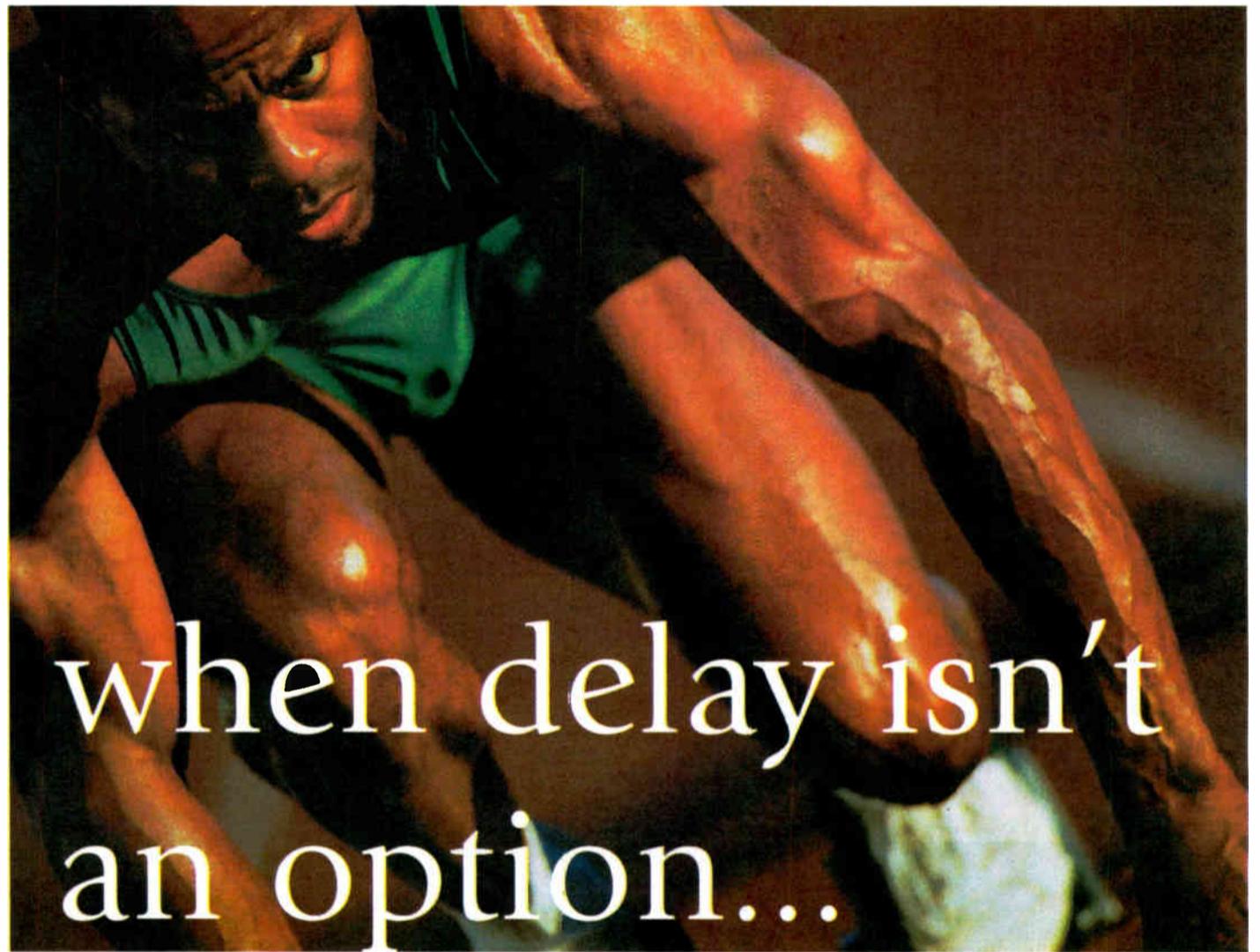
A professional recording channel from Joemeek, the MQ1 fits inside one of your audio computer's drive bays.

The MQ1, aka The MicroMeek, adds a professional music interface to a sound card. The unit uses the company's CurrentSense preamplifier technology, vintage optical compression and discrete MeQ, as in the bigger Joemeek recording channels.

With the MicroMeek and a good sound card, the company says, one can capture sounds directly into a PC with little effort. Connect a condenser microphone to a rear-mounted XLR connector and an instrument source (through a front instrument input) to a PC to obtain professional frequency response and noise performance.

Installation requires one free drive bay and an expansion slot for the connection board. Inputs and outputs are on the MicroMeek's rear mounting connection board; controls for input gain, compression and EQ are placed on the drive bay's front.

For more information contact PMI Audio, the U.S. distributor of Joemeek products, in California at (877) 563-6335; e-mail sales@joemeek.com or visit www.joemeek.com.



FirstCom Upgrades Web Music Search Software

MusiQuick Online, a search, audition and downloading program from FirstCom Music, has been updated.

The upgrades include a project management system that permits users to save tracks into manageable projects and share them via e-mail, including links to audio files.



MusiQuick Online provides clients with the desired piece of music quickly, accessing FirstCom's 1,500 CDs and 28,000 compositions. Searches can be broad or narrow and can include such criteria as keywords, song title, user-defined descriptions, libraries, disc numbers, applications, styles, moods, tempos, instrumentation and composer or arranger.

The software supports Real Audio and Windows Media Player. Clients can download desired compositions as either MP3 256 kbps files or as AIFF files.

According to Kim Nameth, FirstCom vice president of business affairs, "Recent updates to this ... online tool have made it increasingly user-friendly and blazingly fast."

For more information from FirstCom, contact the company in Texas at (800) 858-8880 or (972) 446-8742; e-mail info@firstcom.com; or visit www.firstcom.com on the World Wide Web.



Introducing the WorldNet Milano from Audio Processing Technology

In the broadcast studio as much as on the running track, there are times when delay just isn't an option.

WorldNet Milano guarantees negligible coding delay, resilience to multiple coding along with increased dynamic range by offering 16, 20 and 24-bit Enhanced apt-X™.

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www.aptx.com

Raduga

► Continued from page 37

more features. Shop carefully on this one; you may suddenly want rudimentary music scheduling or voicetracking capabilities a week after you purchase Raduga.

I tried Version 3.5; Raduga is now up to 3.6. The only difference is that 3.6 offers dongle licensing.

"Raduga" is the Russian word for *rainbow*. Amusingly, the Spry Group instead uses an exploding CRT device as a logo, no doubt in tribute to the Russian-made Raduga television set that once had a reputation for self-immolation.

The single screen, shown in Fig. 1, contains all there is to know about Raduga. To the left are three playback slots. The uppermost one shows the cut previously played by Raduga. The one below shows the cut currently playing, and underneath is a counter showing remaining time and the upcoming cut.

Click & drag ease

Underneath is a Directory Tree showing folders where music may be held. The idea is to click and drag a cut from the directory tree window to the Master Playlist on the right. Once a list is prepared, hit the "L" key on the keyboard to clock out the total runtime of the playlist, click the green Play arrow in the lower left corner and you are on the air.

Overlap points for seamless segues can be set in two ways. One, by setting a global default segue point that affect all audio events — say 2 seconds — so all songs, liners and promos trip the next event two seconds prior to the end of the file.

The second way is to add a tilde (~) and a number to the name of a song file. The number indicates the segue point in seconds. So a file name such as:

Creedence_BadMoonRising~3.MP3

will cause Raduga to trip the next audio event three seconds prior to its end.

Simple, foolproof and efficient. Radio itself should be so uncomplicated.

Of course, any inexpensive audio program out there can do nonstop playback. Part of Raduga's appeal is in its implementation of scheduled events that commit certain audio files to play at specific times of day.

Actually, I wish more programs made it this easy. Down in the lower right, the Upcoming Event box shows what is on deck for scheduled playback that particular hour. Hitting the Schedule icon opens an edit window allowing you to add items you wish to be played, either hourly or daily.

This does not take the place of a well-designed log scheduler, but if you absolutely need to have an ID played straight up, or a quarter-hour liner-guy announcement at :15 and :45, this is where to do it.

Developer William Spry and the Spry Group have done some work on this baby since it was first put on the Net to see who would nibble.

The scheduler also can be set to stop down for a live event. If you type *180.live* into a field, you have a three-minute pause to fit in a live remote or a newscast.

You may set the scheduler to delay playback until the end of an event already playing (desirable) or have a cold cutoff of the song on-air to make way for the scheduled event (rather abrupt).

Depending on several conditions — cheap soundcard, lack of RAM, amount of MP3 compression or slow processor —

you may experience clicking or dropouts when such a hard-slam segue occurs. I ran Raduga on an older Dell Optiplex GX1, based around a 266 MHz Pentium II and encountered this fairly frequently. My advice: don't use a feeble machine.

Raduga need not be an automation-only program. It is a capable live-assist machine as well. Load a playlist, select "Manual" in the window in the bottom toolbar, and the day's music schedule is at your disposal.

Job one

Lining up music this way lacks the visual appeal of similar software packages such as Web Jockey or DigiLink Free, but gets the job done.

One lament along the lines of live assist: There are nine "jingle keys" along the top toolbar that let you fire off whatever audio events you wish to load into them via the mouse or the number keys.

My dissatisfaction comes from the small number of keys to play with, how tiny and inconspicuous they are, and a lack of labels that obligates you to memorize what event you wish to play. The name will appear if the cursor is floated over the icon, but is there really anything wrong with nice big buttons with names on them?

A point of confusion in the Master Playlist window: If you get the itch to move one song to a higher point in the list, you may click and drag it. But as you may see in Fig. 1, the highlighted audio event is made obvious by the blue bar.

Raduga assumes whatever event is highlighted blue is *the event now airing*. If you move a tune to a new position, be sure you reposition the blue bar to where it belongs.

And don't double-click the blue bar, for that will immediately segue into the highlighted song.

Raduga makes good use of DirectX compatibility and has a plug-in area to customize its operation. Scare up a good shareware compressor-limiter plug-in and you have instant on-board processing right on your soundcard. Find a neat multiband plug-in and process your own ready-for-air sound without resorting to external gear.

According to the developer, a new DirectX plug-in is available for \$79, which performs an AGC function to keep audio as near to 0 dB as possible.

Just remember that the Live input to Raduga is unaffected by the DirectX insert. Plug in a microphone and you will get loop-through mic only without processing. So if you were hoping for a Boss Jock reverb effect on your old Sennheiser, you will have to set up a rackmount reverb box.

You may voice track with Raduga, but it requires building a mini-playlist and juggling overlap times on songs.

Product Capsule:
Raduga Radio Automation Software

Thumbs Up

- ✓ Stable and functional
- ✓ Plays variety of file formats
- ✓ Time-sensitive scheduler
- ✓ Uncomplicated interface

Thumbs Down

- ✓ Pricey, given the features it lacks
- ✓ Jingle buttons inconspicuous

Price: \$149 to \$999;
\$649 version reviewed here

For information on Raduga, contact the Spry Group in Ohio at (513) 887-0714 or visit www.raduga.net.

While it gets the job done, it is somewhat cumbersome.

Raduga need not be a radio-only device. I intend to try out the program at my community pool this summer, tricked out with my summertime oldies MP3 collection, tied into the PA system and programmed to make relevant announcements at proper times.

Need a simple and dependable in-store or phone announcement device? Raduga pulls it off nicely, though relatively expensively. The same goes for Webcasting; Raduga can upload song information to Live365, assuming that is the channel of choice for a particular Webcaster.

According to the developer, there is a utility available that will print the name of the song that is currently playing to a TXT file. This TXT file can then be uploaded to any Web site to provide that information to viewers/listeners.

Indeed, in my opinion, the one thing holding Raduga back from being embraced more is its price: In a world filled with \$399 playlisters and free voicetrackers, \$649 seems steep for a nonmainstream product, especially given the features it lacks.

Needs more bang for buck

If the price were pulled back to, say, \$400, and add-ons such as a scheduler or a music rotator were thrown in, perhaps Raduga could gain a lot more visibility and do battle in the arena now occupied by products from BTSG, Quic-Pix and Auto-Mate. As it is now, you may purchase a separate music scheduler for Raduga for an additional \$349.

A prettier GUI would not hurt, either. There is no shame in using a product that is functional in appearance, but a little sparkle would not be a bad thing.

Need a different feature set than what is offered now? Raduga 3.6 is available in different flavors from \$149 to \$999. All editions are licensed by a license key (serial number), provided at the time of sale.

With the proliferation of Webcasters and LPFMers, and with remaining small stations needing to streamline, there is a demand for a product such as Raduga. To the company's credit, a fine user forum is maintained on the multilingual Web site to discuss problems and exchange tips.

Raduga was one of the earliest low-cost automation software programs out there, it retained its visibility long after Radio Wolf became hard to find, and new features are thought up for it all the time.

Pull down a demo from www.raduga.net and see if it's right for you. ●

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Charlie Cook, VP, Westwood One Radio Networks

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ASSOCIATED BROADCAST GROUP
LOS ANGELES

Eventide

► Continued from page 38
the delay then is set to be the same as the length of the recorded replacement audio.
The other option, silent filler, is selected by pressing a front-panel key combination. In the same manner that replacement material is recorded, silence can be recorded, thus setting the length of the delay. Maximum delay in either circumstance is eight seconds.

Normal operation

Normal operation of the unit is in either delay or bypass. In the bypass mode, the input is routed directly to the output. In the delay mode, input audio passes through the A/D converter, the delay memory area section and out through the D/A converter.

If during the course of a live talk program the BD960 is running in the delay mode and a bad word makes its way into the program, the host or producer presses the Delete key between the time of the offensive material and the length of the delay.

PRODUCT GUIDE

ATI Nanoamp Series Adds Monitor

The Audio Technologies Inc. Nanoamp Series of compact devices can be mixed and matched and used in a variety of ways to solve audio problems.

The AMM200 analog monitor is a stereo line amplifier and monitor with balanced XLR line inputs and amplified outputs, stereo headphone drivers and a stereo LED meter.

The two-color LED meters are switchable for measuring line input or output levels; meter range is -15 dB to 12 dB in 10 3-dB steps. Switched rear panel RCA jacks control of the external self-powered speakers from the headphone amps. Price: \$399.

For more information from Audio Technologies Inc. contact the company in Pennsylvania at (215) 443-0330, (800) 959-0307 or visit www.atiguys.com.

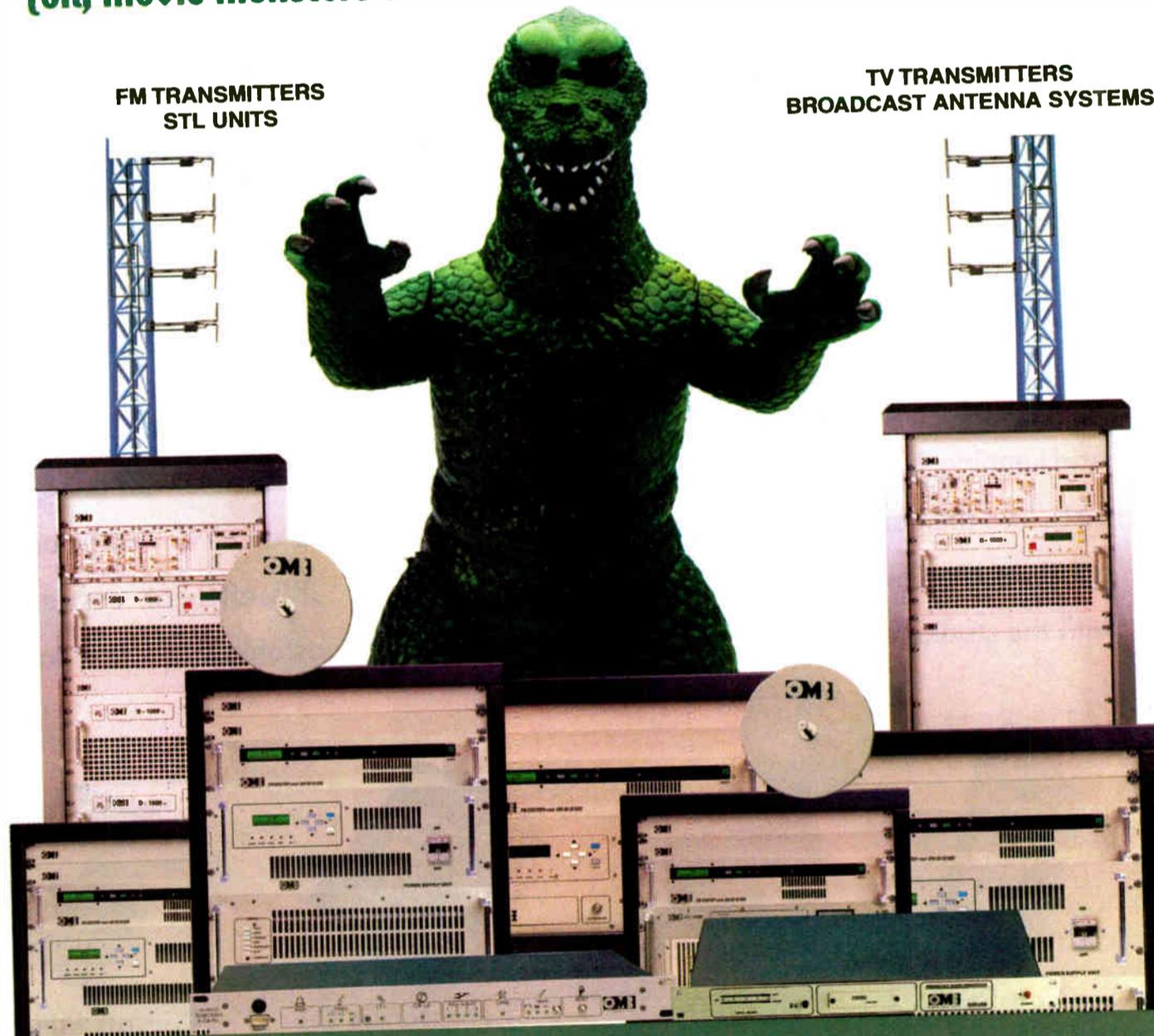


Only one thing could endanger the reliability, durability and quality of an OMB equipment

(ok, movie monsters are rare and unusual ...but it could happen)

FM TRANSMITTERS
STL UNITS

TV TRANSMITTERS
BROADCAST ANTENNA SYSTEMS



Product Capsule:
Eventide BD960
Digital Broadcast Delay

Thumbs Up
✓ 24-bit 48 kHz sampling
✓ AutoFill function
✓ Price point

Thumbs Down
✓ Does not "ramp" in and out delay for seamless transitions

Price: \$1,995

For information from Eventide, contact the company in New Jersey at (201) 641-1200, or visit www.eventide.com.

For example, if there is a four-second jingle recorded as replacement material, the producer or host would have four seconds to react and hit the Delete button, either on the front panel or remotely.

The contents of the delay then are switched out, and the replacement audio, whether silence or otherwise, is played. Whatever audio is fed into the unit immediately after pressing Delete will be the first audio to hit the airwaves.

Remember there is no feature that allows the delay to slowly build when it is put into the circuit and ramp back down to zero when done. Most stations likely would leave the unit in the delay mode all the time. Otherwise there will be silence on the air while the audio makes its way through the delay after it is taken out of the bypass mode.

Also, note that there is no option to simply dump the delay and jump directly to real time with no silence or filler material. As such, the on-air sound of a "dump" operation may not be as smooth as that of the more expensive delays. (According to the manufacturer, a bypass button can be used for dump and jump in real time. Bypass and delete are independent, so they can both be hit at the same time for "extra insurance.")

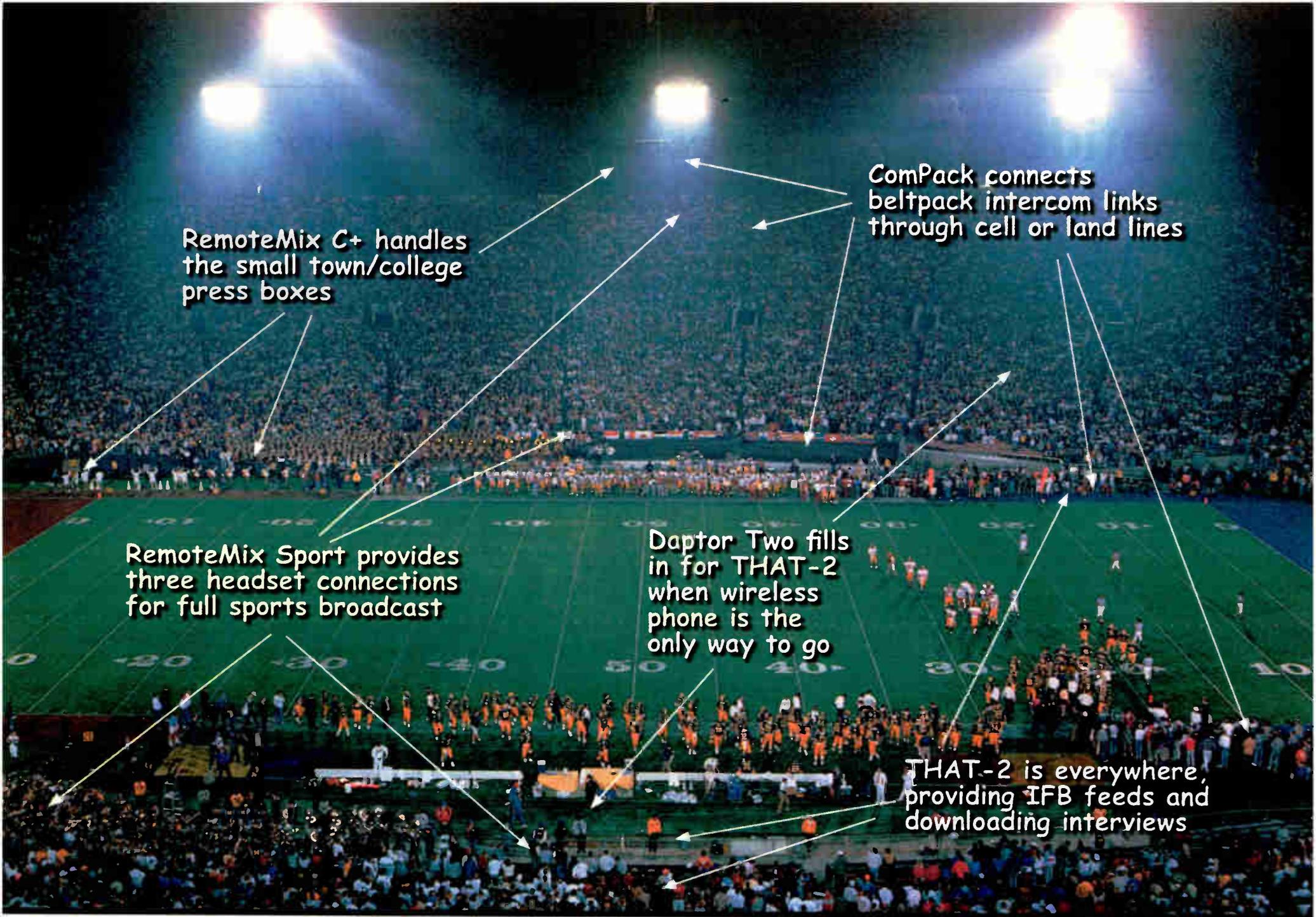
Even though it lacks some of these features, the BD960 is, nevertheless, a quality product that will allow stations to protect themselves from airing objectionable material.



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the field, and with the outside world. JK Audio makes it possible with our intelligently designed tools. Give us a call or visit us on the web to learn more about JK's efficient, cost-effective, reliable solutions and establish your first line of defense.



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Inside

Radio World

Codecs, Remote & STL Gear

August 1, 2002

USER REPORT

AudioTX Creates Software Codec

by Dave Immer
President
Digifon

FAIRFIELD, Conn. Digifon was recently contacted by a Long Island production facility seeking to establish a real-time, broadcast-quality two-way audio connection with a studio in Manhattan. The studio in New York has ISDN. The Long Island facility is unable to get ISDN, but it does have a cable modem Internet connection.

Using AudioTX's Communicator, a novel all-software codec for the Long Island link, and a standard ISDN hardware codec for the New York City link, Digifon was able to bridge the two studios together. The voiceover session proceeded as a normal ISDN connection would, with the producer and talent unaware of the transmission complexities.

Communicator is a "new-generation" all-software codec that is able to establish a streaming point-to-point, broadcast-quality two-way audio connection over IP. It has a simple and direct interface and is easy to use.

Additionally, using a standard ISDN card in the PC, Communicator can turn a standard PC or laptop into an ISDN codec, which functions like its hardware equivalent, and is compatible with the major types of ISDN codec in use, including the CDQ Prima and Telos Zephyr.

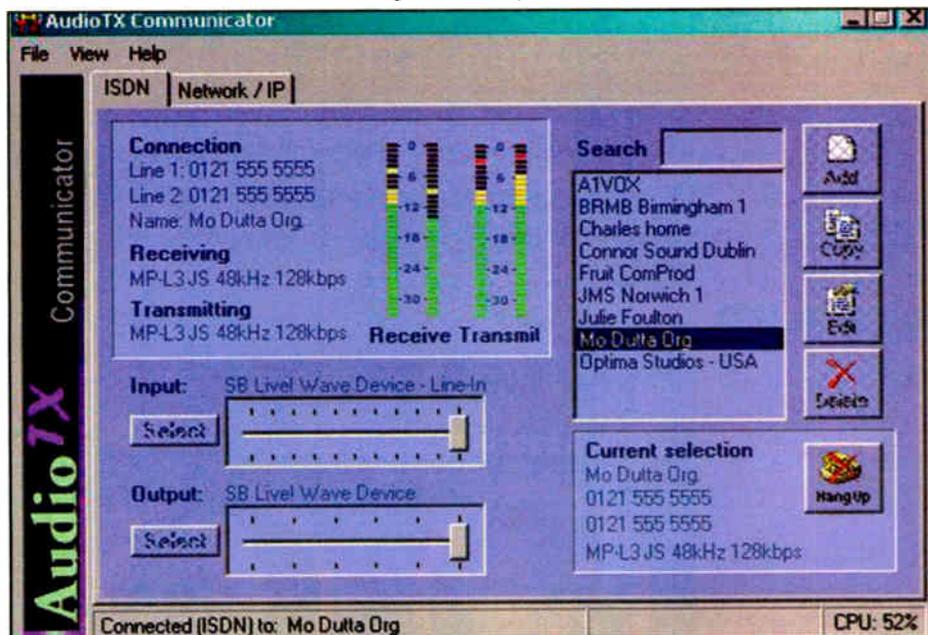
AudioTX Communicator works well and runs under Windows 98, Me, 2000, NT or XP. I found that using a USB audio interface with Windows 98 didn't work all the time for me; this is due to an issue surrounding USB audio in the Windows 98 operating system in general.

You should be running on at least a 400-MHz P2

CPU. The computer running Communicator can be connected directly to the cable/DSL modem; if you use a router or firewall in between, you'll need to configure it to allow an incoming connection. With Windows XP, there is a built-in firewall that may prevent incoming connections unless it is disabled. Go to Local Area Connection/properties/advanced.

Performance

Audio delay will vary with each connection. Depending on your settings and ISP, round-trip delay over the Internet can be as little as 250 ms or as much as five seconds. You will want to select the smallest buffer with no skips or dropouts. Also, the codec algorithm will affect the delay somewhat. MPEG Layer III coding has a higher latency than MPEG Layer II.



Screenshot of the AudioTX Communicator

ISDN connections will have delays similar to hardware codecs.

The Internet and your ISP can be "bursty" and subject to traffic conditions. I think this is the biggest question mark in making the decision to use this application or not.

See AUDIOTX, page 50 ▶

USER REPORT

Harris Connects WNYC After 9/11

by Steve Shultis
Director of Engineering
WNYC(FM)

NEW YORK CITY When the tragic events of Sept. 11 occurred, we at WNYC had to scramble, like many other broadcasters, to replace our transmission equipment atop the World Trade Center.

In the past, WNYC 93.9 had relied on just the one transmitter. However, after Sept. 11, we decided that we could no longer depend on a single site. Instead, WNYC needed to change to a system of two complete sites with built-in redundancy.

When we went off the air and realized the extent of the tragedy, I immediately placed a call to Harris to order two complete systems. Along with the transmitters, we ordered the equipment necessary to outfit new sites, including new audio processors, coaxial cable and two Intraplex STL Plus and CrossConnect systems.

Fast fix

By borrowing ISDN lines and physical space from other stations, we were able to piece together an interim site at the Empire State Building in New York, which was back on the air by the Sunday after the tragedy.

Our site at 4 Times Square currently is carrying our signal, while we complete our primary transmission site on the Empire State Building. We plan to go forward with both sites operating simultaneously in a cross-connect system.

With the new system of cross-connecting our transmitter sites, a self-healing ring had to be created between our station and two transmitter locations. If a transmitter site loses power, we needed to be sure that the STL path will be rerouted immediately without disrupting our air signal.

This is where the Harris Intraplex STL and CrossConnect system came into play. The Intraplex STL offers the benefit of transporting the audio from the studio to the transmitter through T1 lines, spread-spectrum

See HARRIS, page 49 ▶

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**THE NAB
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USER REPORT

ComPack Makes Remote Radio Easy

by **Bob Heckler**
General Manager
WXBH(AM)

ALBANY, N.Y. WXBH is a small station in the Albany market (No. 61), and, as such, we do not attempt to compete with the larger, corporate-owned stations, which have unlimited budgets and investors to please.

Why is this important to start with? Because it establishes the basis under which we have been searching for additional, and inexpensive, remote broadcast equipment to get our local hosts out of the studio and broadcasting directly from an advertiser's place of business, or some new locations that will give us promotional visibility.

site link to our out-of-state hosts to make them aware of this great, new product that they could afford to buy.

We up set the ComPack with a mic, a mic stand and all the cabling in place and attached to both a regular and a cell phone. The power was not plugged in. We put this setup right where the hosts prep for their shows, right in their way, and explained its purpose.

You never saw such excitement and possessiveness. They all wanted it, or they all wanted to be the first to take this new ComPack for a trial run. Exactly the reaction we had hoped for.

We have been putting this ComPack unit through its paces for several months with wonderful results. Dave Laraway, host of "The Northeast Gardener," has been using it on remote broadcasts from various business adver-

tisers throughout the region, each one with a different phone setup.

The good news for us is that he does these remotes by himself, dialing in on any available POTS line. This guy is intimidated by technology, but the ComPack frees him from this concern and allows him to set up quickly and stay focused on his show and whatever the advertiser's needs are, not the technology of broadcasting.

Good news

More good news is that the advertisers just love seeing us out there. This Thingy is really a creative little money-maker as well.

We're going to put a "Y" connection on the mic side so we can do sit-down interviews with two mics. We also find that most of our hosts are anxious to do

more paid remotes and get into the public eye, which is great for them and for WXBH. They have said that it gives them a sense of accomplishment along with a freedom of action they would not otherwise have.

An additional benefit is that we didn't have to buy another unit to "shake hands with the first one." Obviously, one hand *can* clap! We do find, however, that voice quality can vary with some calls, and this requires a quick dial-back from the host to get them on another circuit or a quick change of mic to one with a different sound output. Easily resolved problems. You couldn't pry it away from us.

The bottom line: we believe JK Audio has created a wonderful product in the ComPack, packaged in a little black box, that delivers a lot more than it costs.

The ComPack retails for \$545.

For more information contact JK Audio in Illinois at (800) 552-8346 or visit www.jkaudio.com.



Salespeople are a time- and energy-consuming activity that we want to avoid. But a host on remote is the best sales tool we could possibly have, and we have been looking for an easy way to get them out of the studio. As creative talent, however, they must be free from the technical difficulties of any equipment.

Along these same lines, we wanted our hosts to be able to set up a remote by themselves, quickly, easily and without the aid of an engineer. We had previously made the investment in other remote equipment units but found that it/they intimidated our hosts and they refused to do any remotes by themselves.

Then we read the first announcements about JK Audio's ComPack, an affordable, briefcase-size little black box that anyone can hook up to any phone system, dial the studio and be directly put on the air. Too good to be true! Just what we were looking for: cheap and easy.

So we bought one right away and set it up in our studio for our local hosts to see. We also e-mailed JK Audio's Web

USER REPORT

New Comrex Models Enhance POTS

by **Bob Kelley**
General Manager
WFMW(AM)/WKTG(FM)

MADISONVILLE, Ky. I recently purchased the two new codec models from Comrex, the Matrix and the BlueBox. The sound quality I've been able to achieve over a plain ol' telephone line (POTS) is amazing.

I had been considering the purchase of a codec for some time. So when we decided to broadcast a one-hour show from an area sports bar every week, I knew it was time to jump.

I told the folks at BSW that I needed a great-sounding system that wasn't too pricey. I also said it would be nice if it could work with cellular as well as a phone lines. They recommended a Comrex Matrix for the field and a BlueBox at the studio end.

Both codecs provide 15-kHz duplex audio on a single line. Each has a -10 dBu tape input for connecting to MiniDisc or DAT; audio I/Os are three-pin XLR.

As soon as the system came in, my engineer and I gave it a test run. I was amazed at the sound quality. We wired the BlueBox into my AM and FM simultaneously. The next day I told all the announcers how great this new toy sounded. I could tell they were skeptical.

The next weekend we had a remote at a local auto parts store. I warned the manager that the store would be a guinea pig for our new equipment.

The setup was a snap. You plug into a phone line, plug in your microphone and headphones, then dial up the studio. As my engineer said, "This thing is idiot-proof."

are three-pin XLRs. You can flash upgrade the software through a multi-use dataport.

The BlueBox automatically detects the optimal data rate, and you can set a



Well, the skeptics back at the station turned into believers. It sounded like the remote was being done from inside our studio instead of through a telephone line. Incredible.

Two weeks later, we got our hour-long show from the sports bar started. We had a host with a headset mic and a Shure mic on a stand for interviews. The sound was so good, it sounded better than a network satellite feed. I could even tell the difference in the sound quality of the two microphones. I can't wait to try out the Matrix on high-school ballgames this fall. The radio station across town will be quite envious.

The next thing to investigate is how well the cellular interface works with the unit. As soon as a local carrier starts using GSM digital, which they've promised, we'll try it.

Both codecs provide 15-kHz duplex audio on a single line, and they each have a -10 dBu tape input for connecting to a MiniDisc or DAT player. The audio I/Os

MaxRate before starting for stability. It's also got a quick rate drop feature that sets a new MaxRate with only two seconds of audio loss. It weighs about 1.5 lbs.

The Matrix comes as either a portable or rack-mountable unit, with the portable weighing 2.5 lbs. It has a "store and forward" feature so that the 15-kHz audio cuts can be sent in "non-real-time," good for when a circuit can't sustain adequate data rates for modem transmission. The Matrix also accepts modules to expand its features.

Going from a plain broadcast unit to the Matrix is like going from a Yugo to a Ferrari. Anyone doing more than three minutes at a time from a remote location should call Comrex and look into the Matrix.

The BlueBox retails for \$2,800, the Matrix Portable for \$3,700 and the Matrix Rackmount for \$3,700.

For more information contact Comrex in Massachusetts at (800) 237-1776 or visit www.comrex.com.

USER REPORT

Telos Xstream Is AAC and More

by **Johnnie Dymock**
Director of Remote Broadcast Specialists
Wired for Sound

LONDON The name Zephyr has almost become a generic term in broadcasting. The Telos Zephyr has been the world's best-selling audio codec for many years now. So its successor, the Zephyr Xstream, has kept the family name, although it's a completely new product with a chassis, innards and user interface redesigned from scratch.

The trusty Zephyr owed its popularity to the fact that it was flexible, compatible with many other codecs and exceptionally easy to use. (It was also the first with MPEG Layer III.)

New algorithms

Telos has built on these winning criteria, adding the latest MPEG coding algorithms and a host of features to the Xstream, while retaining the sort of intuitive, operational simplicity that means you can use it for the first time without reaching for the manual.

The Xstream is available rack-mounted or portable, with or without a four-channel digital mixer. Like the Zephyr, the Xstream has MPEG-2 Layer II, Layer III and G.722. But MPEG-2 AAC, the newest coding method selected by MPEG, also has been implemented, as well as MPEG-4 AAC Low Delay.



With the Xstream, however, it's also possible to receive 15-kHz audio from two separate locations — particularly useful when contributions are needed from several outside sources.

The Xstream incorporates advanced features including MP3 audio streaming

via TCP/IP, remote control via LAN/WAN, software updates direct from the Telos FTP site and selectable audio processing by Omnia.

Other, more "basic" improvements add to the desirability of the Xstream: its ability to receive as well as make

POTS calls, the lack of a cooling fan, the integral power supply in the portable versions and my favorite, the clever flip-down stand that angles the unit up towards the operator.

The unique Low Delay mode is desirable to many broadcasters, including the BBC, which according to Telos is specifically requesting Xstreams for more and more events, such as the World Cup and the Queen's Silver Jubilee celebrations.

U.K. users

Graham McHutchon, senior sound supervisor at BBC News, said he likes that the mixer version has versatile input and monitoring facilities. "Low delay is very important to us. The Xstream is already at the heart of News Sound Operations for BBC Radio 5 Live and increasingly so in other areas of the BBC."

Another happy user is Alex Lakey, chief engineer at Virgin Radio, who used Xstreams for World Cup coverage. "We sent stereo music and two presenter mics into the MXP and applied basic limiting using the built-in processor."

He likes the flexibility of the mixer and the choice of algorithms.

"The network port is great and we're now looking into the possibilities of streaming from it."

The Zephyr was a hard act to follow, but the Xstream is a worthy successor.

The unit is available starting at \$4,295.

For more information contact Telos Systems in Ohio at (216) 241-7225 or visit www.telos-systems.com.

USER REPORT

Opticodec a Hit at All-Star Game

by **Steve Leventhal**
President
SRN Broadcasting and Marketing

LAKE BLUFF, ILL. At SRN Broadcasting and Marketing, on-the-scene sports reporting is a major element of our business. We have correspondents at major college and professional sports events, covering the locker room for pre- and post-game comments from players and coaches, and getting one-on-one interviews.

In the field

This audio is used on "The Diamond Gems Baseball Show," a syndicated radio program hosted by veteran baseball analysts George Castle and Red Motlow, which SRN Broadcasting and Marketing has produced over the last five years, and is used by select radio stations that need audio from these games.

The audio also is sent to the sports Web sites of major U.S. newspapers for on-demand streaming. SRN online sports sites clients include the Los Angeles Times, New York Times, Chicago Tribune and Washington Post.

We wanted to try out the new Orban Opticodec 7000, a mobile ISDN unit that edits on site. Orban also makes a stationary rack-mounted unit for ISDN and TCP/IP, the Opticodec Model 7400. For our purposes, however, a mobile ISDN unit that can edit on-site was what sparked our interest.

Field reporting at sporting events pre-

sents a whole array of challenges never envisioned by the crusty old reporter lugging a No. 2 pencil and notepad. Audio, video and still photographs have to be supplied to the electronic media in near-real time to meet the insatiable demands of a public clamoring for

reference or interview. We then feed the sound to the studio over ordinary phone lines.

Looking for ISDN-quality audio, I was excited to put the Orban Opticodec 7000/V 4.22 to the test personally during the 2002 All-Star game festivities in



The Orban Opticodec 7000

the latest news on their favorite sports figures.

Under normal circumstances, our reporters would have to bring a portable cassette or MiniDisc, a laptop and every cable in the arsenal to cover a press con-

Milwaukee in early July.

The 7000 is a portable recorder/editor and codec in a self-contained unit. I obtained pre-game interview segments with Major League Baseball's World

See ORBAN, page 49 ►

APT Links Classical WQXR in NYC

by Rodney Belizaire
Chief Engineer
WQXR(FM)

NEW YORK WQXR(FM) is New York City's only classical music radio station and is the most listened-to classical station in America.

The signal, from atop the Empire State Building, covers the five boroughs of New York City, northern New Jersey, Long Island, Westchester, Rockland and Putnam Counties, and Fairfield, Conn. The New York Times Co. has owned WQXR since 1936.

When it was decided that the WQXR newsroom was to relocate to the New York Times building, I had to organize the migration from our Flatiron location on 5th Ave. to the Times building located on 43rd St. in the heart of Times Square, a distance of 30 blocks. That alone was one issue, but the bigger challenge was to route the news feeds on an hourly basis from the New York Times to WQXR.

Historically the local telephone companies could, with sufficient notice, install balanced copper circuits for remote or studio-to-transmitter links. However, in recent years this technology has become harder to support; and the onerous task of balancing the circuits has culminated in the telephone companies no longer supporting this service.

Although other technologies have been presented to fill this vacuum, invariably there have been problems, especially when the program content is classical music or traditional jazz, specifically when related to dynamic range. These solutions tend to require proprietary HDSL availability, adding a

considerable delay to installation time. There also were loop length issues involved.

Representatives from the local telephone company, Verizon, recommended a service using a product known as the Program Channel Access Unit, or PCAU. This product uses the apt-X 4:1 compression algorithm as the core technology and is the result of collaborative work between **Audio Processing Technology** and **Pulsecom**.

I had worked with the apt-X algorithm before in both the Harris Intraplex T1 units for STLs and the Scott Studio systems for radio automation, and as such was satisfied with the performance of the compression algorithm, particularly with the low delay (latency) and the good audio response. This was reaffirmed after an in-house demonstration from Verizon.

Maximum performance

However, once convinced of the technology, I had to order up the service. In this case, for the news feeds I required a 15-kHz mono, fully duplex link. The bandwidth was necessary to implement the maximum performance of the PCAUs and the return feed was required for talk back and monitoring.

At this point I had two remaining concerns: the length of time for installation and the number of central offices that would be used to route the signal. Would both issues result in unworkable or unmanageable delays?

The Verizon staff surpassed themselves and managed to install the service in less than two weeks. This was aided by the fact that the PCAU card uses telco-standard 2B1Q 128-kbps

serve as a remote broadcast unit with two XLR analog MIC/Line inputs.

The Orban Opticodec 7000 is the type of unit suited to our needs; it is made for mobile radio and TV broadcasts and broadcast news and sports applications. SRN Broadcasting and Marketing reporters can record the game interviews, edit immediately after the interview is completed and can deliver the edited audio in ISDN quality, with one compact unit.

Questions about its usage and capabilities are answered by Orban's customer service department. It is a quality unit that I would recommend to those in my field.

SRN Broadcasting and Marketing is letting our reporters across the country know about the Orban Opticodec 7000 for use in their individual markets. Additionally, should our "Diamond Gems Baseball Show" need to broadcast live and on-location, this will be our delivery method from those events. You don't have to be an engineer to use it, and it's rugged enough to take the punishment most reporters dish out to their equipment.

Now we will use this product to cover the NFL and World Series ... that is, if there is a World Series and no MLB work stoppage. Let's keep our fingers crossed.

The Orban Opticodec 7000 sells for \$3,650 per unit.

For more information contact Orban in California at (510) 351-3500 or visit www.orban.com.

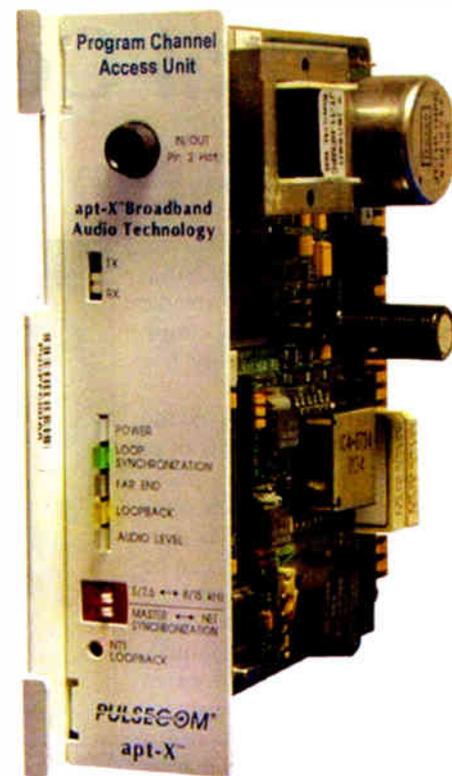
technology for data interface.

When installed, we were told that three COs were being used to route the signal (i.e. 18th St., Broad St. and 42nd St.). At this time the low coding delay of the apt-X algorithm made its presence felt — i.e. sub-4ms end-to-end at a 32-kHz sampling frequency. This allowed the newscasters to monitor their own voices off-air after the program content had gone from WQXR to the New York Times newsroom, back to WQXR and then STL'ed to and broadcast from the Empire State Building.

The total delay was a manageable 20ms, and it sounded excellent.

I ran some tests on the link, and the dynamic range was close to the maximum of 96 dB for 16-bit audio. Headroom was 24 dB, and the response was flat from 20 Hz to 15 kHz. With the front panel indicating Power, Network and Far End Synchronization and Audio Level, I had "status at a glance," always a comforting feature for a station engineer.

For WQXR, the PCAU card addressed a number of problems without compromising audio quality or delay. I will be strongly considering the PCAU card for additional circuits, both



voice and music in the near future.

For more information, including pricing, contact APT in California at (323) 463-2963 or visit www.aptx.com; or contact Pulsecom in Virginia at (800) 381-1997 or visit www.pulse.com.

Orban

► Continued from page 48

Champion Arizona Diamondbacks team member Luis Gonzalez, and Bob Brenly, who served as manager of the National League squad. These clips were in turn sent to Diamondback flagship station KTAR(AM) 620 in Phoenix for use on its sportscasts prior to the All-Star game.

The interviews were recorded into the Orban Opticodec. Once I became familiar with the unit's editing process, my cuts were done in no time. The graphical liquid crystal display allows for precise placement of editing markers and cropping sound bites to the desired length. SRN's client needs vary from the short 10- to 20-second cuts favored by radio to interviews lasting five or more minutes as preferred by the Web sites of newspapers like the New York Times.

We input KTAR's ISDN numbers and codec settings and were able to transmit the sound to the station's Telos ZephyrExpress with no loss of sound quality. The interviews sounded great, as confirmed the KTAR engineer who took the feed from us.

The 7000 weighs 3.2 pounds with two lithium-ion batteries capable of operating for 1.5 hours. The 48-MB PCMCIA flash card can hold 48 minutes of stereo or 96 minutes of mono audio. In addition, the Opticodec can

Harris

► Continued from page 45

or microwave links without digital compression or distortion. Additionally, using terrestrial T1 lines, the Intraplex STL can operate over any distance without needing a direct line of sight.

The cross-connect equipment works hand-in-hand with the Intraplex STL. The equipment acts like a routing switcher for up to six T1 circuits. The CrossConnect automatically switches to a backup T1 line when it senses a network problem, so the system is protected from failures.



The Harris STL PLUS

The system relies on a combination of physical T1 lines and spread-spectrum microwave radio links. With New York City slowly rebuilding its phone system and having phone lines that are still not working, the microwave links are important to me as I do not have to rely on the phone company to transmit my signal. With the CrossConnect system, I'm using the T1 microwave links as the primary links and the "physical T1" lines as my backup to which the system switches in case of a primary failure. CrossConnect also can consolidate traffic onto underutilized T1 lines.

I like the smart backup switchover of the cross-connect equipment and the closed-loop redundancy that the Harris Intraplex STL provides. Now WNYC has several ways to connect to our transmitters, by either three T1 circuits or the two Spread Spectrum microwave links.

Our site at Times Square site is up and running, with the Empire site to be completed shortly. In fact, the Times Square site has become a field test site for Harris' IBOC-ready Intraplex PT/PR-353 audio module. The module plugs into the Intraplex STL and provides transport for uncompressed audio in several sampling rates. We are currently utilizing the linear 44.1-kHz

sampling rate of the field-test card. We have been using the card since mid-April and it sounds great.

The basic linear uncompressed STL PLUS lists at \$8,800. The IBOC-ready STL Plus with the new 44.1 modules (PT/PR-353) lists at \$9,800. The PT/PR-353 IBOC-ready package for upgrading an existing STL Plus is \$3,750. The CrossConnect lists at \$3,960.

For more information contact Harris in Massachusetts at (978) 486-9000 or visit www.broadcast.harris.com/network-access.

USER REPORT

Digital CellCast Is Portable Tool

by Mike Gannon
On-Air Personality
WISS(AM)

BERLIN, Wis. Just turn it on and go. Plenty of remote units can make the claim, but not all can actually live up to it.

A "manual" test is the best litmus test I know of to find out which ones make the grade and which ones do not. The premise is simple: if the equipment can be set up and used without a field engineer so much as cracking open the manual, then it passes. Add extra points if the gear in question is set up by a radio announcer in a small market.

Not that we're all thumbs when it comes to broadcast equipment; we're just simply busy with other remote broadcast duties, so most of us don't like to be bothered with the technology.

Scenarios

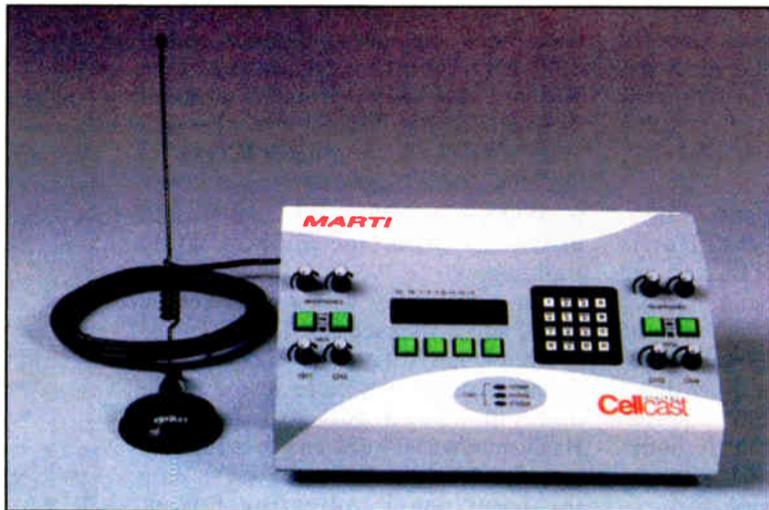
In this respect, and others, I am happy to report that Marti's Digital CellCast passed the litmus test, thumbs up. This all-in-one mixer and digital cellular phone was so easy and intuitive to use that I learned to use it effectively in a few minutes, without reading the manual. You can't say that about many remote units, or even today's consumer cell phones.

When we purchased the Digital CellCast three months and 15 remote broadcasts ago, I anticipated a steeper learning curve. Foremost on my mind was ease of use during a variety of remote scenarios.

WISS(AM) 1090 is a classic country station with heavy involvement in Berlin, Wis., and neighboring communi-

ties. All of our remotes are carried on WISS(AM) and some are simulcast on WAUH(FM) in a nearby community.

lightweight unit (weighing only around five pounds) could have a mixer and cell phone rolled into one box.



Its four-channel mixer has separate POTS for each channel, which can be set up for program or cue, mix or line selectable. Each headphone has its own volume control. Most of the remotes we've done have been announcer-only broadcasts, but we expect the four-channel mixer to be useful this fall when the football and basketball seasons start.

Another plus in the adaptability area is the power options that come

with CellCast. In just about any remote environment you can imagine (and remote broadcasts have their share of interesting scenarios!), the CellCast can take a power source from an electrical outlet, a battery and even my car cigarette lighter, if it came to that. The unit comes with a battery pack and an AC/DC converter.

And, of course, as a radio announcer, I'm always a stickler for audio quality. Digital CellCast delivered on that, too. We were able to get good, quality audio through the Digital CellCast during the remotes we've done so far. We traveled a good 45 minutes from the station for one remote, and the unit still delivered clean audio.

Needless to say, this remote unit proved to be a worthy road companion. It's adaptable, capable and easy to use. I have yet to crack open the manual, but I keep it around just in case.

The unit retails for \$3,300. For more information contact Marti in Texas at (817) 735-8134 or visit www.martielelectronics.com.

Our remotes can take us just about anywhere, from school sporting events to the local car dealership. We need to adapt our remote broadcasts to all those environments.

Fortunately, in our search for a new remote unit, I didn't have to contend with line-of-sight, phone access and antenna issues. Marti had done away with those concerns years ago when it introduced the CellCast for the old AMPS analog cellular networks.

I did wonder how Marti's newer unit for digital cellular networks would adapt to the various digital cellular services out there today.

The unit proved capable in this regard. It can be set up for AT&T's or Cingular's TDMA cellular service as well as for GSM services from providers like VoiceStream. Digital CellCast comes in several variations: TDMA Dual Band, TDMA Tri-Band, GSM 900 MHz and even in the European GSM 1800-MHz systems.

I was impressed that such a small,

AudioTX

Continued from page 45

Fortunately, you can download a working demo from www.musicamusa.com and do some tests to see if your Internet connection is up to the task.

For IP usage, both ends must have fast Internet connections such as cable/DSL/T1 and both ends must be running Communicator on their PCs.

Some users' Internet connection speeds may allow them to send/receive linear audio. In the connection setup window you can specify "No Compression." I tried this by connecting with another user on the same ISP, who also has a cable modem. It sounded perfect.

There is a status bar on the lower edge of the AudioTX window that shows who you are connected to, your send and receive bitrate (I was seeing over 700 kbps) and the CPU percentage. When connecting via IP

over a dedicated local network, linear audio will work well consistently and with a low audio delay of around 50 ms.

At less than \$800 for the software, AudioTX definitely delivers the goods in a simple, easy-to-use, relatively low-cost package — low-cost compared to dedicated hardware codecs. Still, my overall position on Internet vs. ISDN for real-time broadcast quality audio hasn't changed, which is: ISDN, being synchronous and private, is much more reliable and predictable than the Internet, which is packet-switched and public.

With AudioTX's Communicator you have the choice of both ISDN and IP. If the Internet is your only digital network to the outside world, you should take a close look at AudioTX Communicator's IP capability; ISDN is still the best way to go for reliability.

For more information, including pricing, contact Musicam USA, the U.S. distributor, in New Jersey at (732) 739-5600 or visit www.musicamusa.com.

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TECH UPDATES

Telos Expands Line With Xport

Telos' Zephyr Xport enables broadcasters to transmit audio from remote locations where ISDN circuits are not available.

The Xport is designed to use up-to-date MPEG coding and Telos' DSP modem technology to offer affordable connection stability and fidelity.

The lightweight portable system has a mixer that provides mic and line inputs with selectable Omnia dynamics processing. A local mix provides a combination of the transmitted audio along with audio received from the station, which is available on headphone and line-level outputs.

Features include an Ethernet port for remote control via Web browsers and

updating software. The port also allows remote talent to send audio from a laptop computer to the Xport, allowing reporters to take advantage of computer-based mixers.

By using Circuit Switched Voice technology, the Zephyr Xport places calls to a standard ISDN-equipped Zephyr Xstream at the studios. An optional ISDN plug-in will allow the use of ISDN as well. For more information on this subject, visit www.telos-systems.com/xport/q_a.htm.

The Xport starts at \$2,390.

For more information contact Telos Systems in Ohio at (216) 241-7225 or visit www.telos-systems.com.

TieLine Touts Multiple Codecs

Tieline Technology has a suite of audio codecs covering several applications, including the Patriot and i-Mix products launched at NAB2002.

The codecs deliver 15-kHz audio over regular POTS links with 100ms delay.

The Patriot is targeted at users who require a basic POTS-only link. It has one mic/line balanced input, one stereo RCA unbalanced input (summed to mono) with intelligent adjustable gain control, one CMOS relay closure, an RS-232 interface and wireless compatibility. It's priced at \$2,595.

The i-Mix Codec was designed for the sportscaster market. It is a five-input remote mixer with a 15-kHz POTS codec. It has an option for an ISDN upgrade, wireless compatibility and data broadcasting capability.



The Tieline i-Mix Codec

It also features intercom buttons on the input channels, allowing off-air communications between headsets; channel on/off buttons; cue and relay control buttons for local and remote control of equipment over the link; and two balanced outputs.

The Commander POTS codec with optional ISDN upgrade has two balanced mic/line inputs; a wireless interface; 15-kHz, bidirectional, low-delay audio; two CMOS relay contact closures; remote control facilities; a serial data port for connection to computers and RS-232 compatibility. The plug-and-play ISDN card delivers 15 kHz of audio over one 56- or 64-kb B channel, or 7 kHz using the G.722 algorithm. It is available in a 2RU rackmount or field version.

For more information, including pricing of other products, contact Tieline in Indiana at (317) 259-8000 or visit www.tieline.com.

Aztec IP2 Provides Remote Control

Aztec Radiomedia's IP2 remote control solutions allow the monitoring and control of multiple devices, including transmission equipment, using a Web browser or telnet client.

Operators use the 19-inch rack form device to connect via the Internet or local-area network. The IP2 systems turn multiple serial and logic remote monitoring and control systems into TCP/IP. The IP2port connects to equipment on a remote site via its eight RS232 serial ports, eight relay outputs and 16 digital inputs.

Peripherals connected to the IP2port

are accessible via one fixed or dial-in network connection (STN, ISDN, ADSL, Ethernet or cable). The system is flexible in connecting with legacy devices.

It has an embedded Web server for monitoring and commands and a history log. It can send alarms to users and manages equipment with SNMP.

IP2 technology also is found in the IP2io, which connects via four relay outputs and 12 digital inputs.

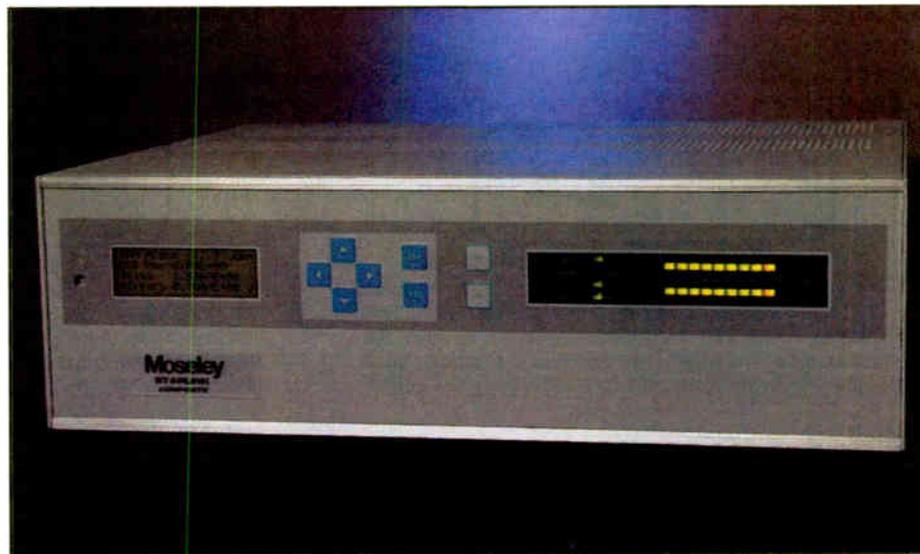
For more information, including pricing, contact Digigram in Virginia at (703) 875-9100 or visit www.digigram.com.

Moseley Starlink Puts Digital to Work

Moseley's Starlink Digital Composite STL accepts analog composite input and yields analog composite output with 16-bit sampling resolution. The advantages of digital processing, Moseley says, are in noise, separation and distortion.

The system also enables 2432 Mbps transfer rates for compliance with Part 74 frequency allocations.

The company says 16-bit sampling overcomes analog composite performance limitations, achieving SNR of >85 dB. Amplitude-linear and phase-linear FIR digital filtering yields stereo separation of >70 dB and distortion below 0.02 percent.



Composite bandwidth low-frequency response to 0.15 Hz addresses low-frequency square wave response and overshoot issues. Another advantage of the design, the company says, is that its audio filters may be "stacked" on top of the filtering already provided through audio processing for improved audio bandwidth.

Better RF performance is achieved through digital QAM transmission. Reed-Solomon error correction and data interleaving and a 20-tap adaptive equalizer increase signal quality restoration and robustness and yield error-free transmission in hostile RF environments. The 32 QAM mode supplies a 53-kHz composite channel and one to three data channels. The 64 QAM mode adds a 57-kHz subcarrier.

Because the Starlink Composite operates to a threshold of -91 dBm or 6V in standard mode, increased system gain maintains audio quality. As a signal level drops, or adjacent or co-channel signals interfere, the dynamic range and separation are maintained with no degradation.

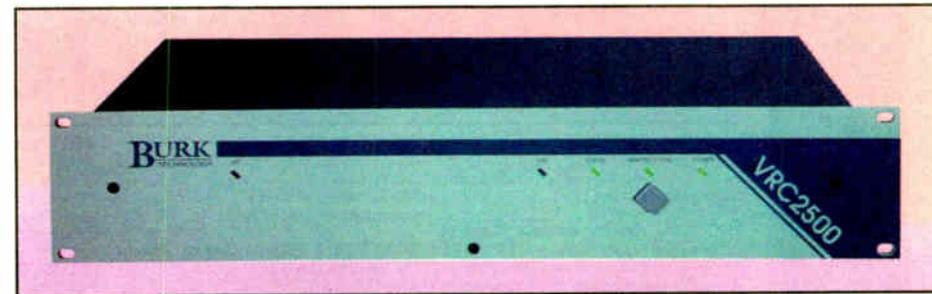
The system retails for \$12,950.

For more information contact Moseley in California at (805) 968-9621 or visit www.moseleysb.com.

Burk Enables Transmitter Control

Burk Technology is offering two solutions for transmitter site remote control: the VRC-2500 for single-site use and the new, expandable ARC Plus for multiple transmitters. The systems can monitor a site via phone or computer, report problems and correct them.

The ARC Plus is for full-time, multi-site use. An ARC Plus group can control 16 sites with 256 channels per site, and multiple groups can be linked for expansion. The main unit employs a VFD display for meter readings and graphs. Changing sites and



channels is performed with a jog wheel. Smart Switches allow the user to define labels for the channels on the unit's buttons. The ARC Plus corrects problems at the transmitter sites using macros.

The AutoLoad Plus software sets up the ARC Plus from a PC, and options include AutoPilot Plus software for connecting a PC to site controls and an Enhanced Speech Interface for monitoring and controlling sites via telephone.

The VRC-2500 is a single-site transmitter remote control. User-created macros fix problems automatically when something goes wrong. The system can notify the user during problems; the user can correct them over the phone. It responds to verbal commands using a synthesized voice interface. The system also can display site conditions on a computer.

Security is provided through a multiple-level access, for observers to monitor conditions, operators to alter them and system controllers to set up the unit's configuration.

For more information, including pricing, contact Burk in Massachusetts at (800) 255-8090 or visit www.burk.com.

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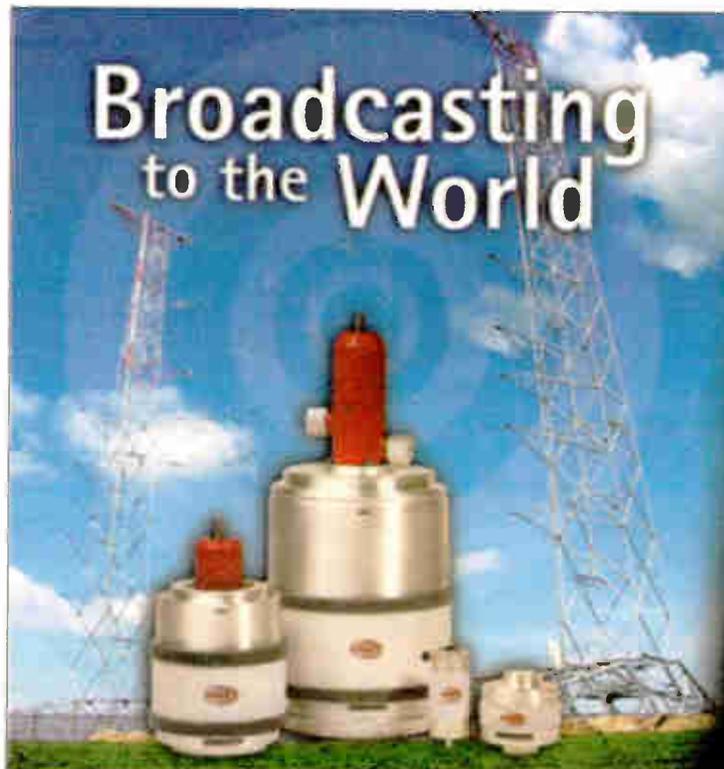


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The SRC-8 provides a means of adding 8 channels of remote control to RF, wireline, and fiber type STL systems and may also be used with dedicated modems (full and half duplex models).

AVR-8 Alarm Voice Response
Used as a voice response and remote control system, the AVR-8 automatically reports changes detected on any of its eight digital inputs to a remote telephone and/or pager.

BOS, ROS & PBB-24 Switch Panels
The BOS offers 12 N.O. dry contact switches with status LEDs in a desktop panel. The ROS is similar, but is a single-space rack unit. The PBB-24 provides 24 momentary buttons that can be programmed to output ASCII or hex character strings.

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UI-411 Universal Interface
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With 512 events intended for controlling up to two RS-232/RS-422 serial devices; 16-SPDT relays; auxiliary serial ports and relays all in a single rack space. The PSC-II controls functions by either scheduled time and date, time and day of week, serial port commands and remote input contact closures.

BOR-4 (Box 'O' Relays)
The BOR-4 provides four independent 2PDT relay interfaces with two optically isolated or 5-volt TTL/CMOS compatible inputs.

ENC-16 Encoder, Auto-Coupler & Dialer
A dial-up, dial-out or direct connect DTMF encoder. The ENC-16 is capable of automatically calling in, out or connecting to the DEC-16, DTMF decoder or other DTMF decoders.

SRC-32 Serial Remote Control
Equipped with 32 opto-isolated and CMOS/TTL compatible inputs, 24 open-collector outputs and 8-Relay (Form C) outputs that may be controlled from a host computer or a pair of units may be used in a stand-alone configuration (relay extension cord).



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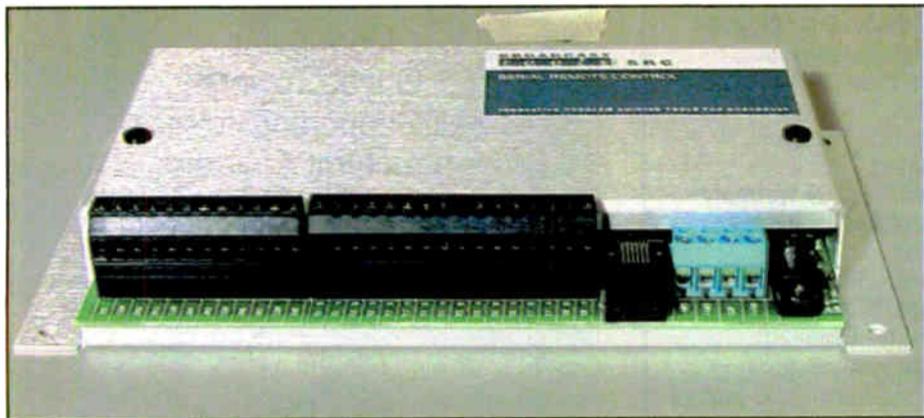
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TECH UPDATES

BTI's SRC-8 Sports Eight Channels

Broadcast Tools Inc.'s SRC-8 Serial Remote Control provides eight channels of half- or full-duplex relay control to most STLs, codecs and POTS remote boxes with data ports. The system can be used with dedicated modems. Baud rates are selectable from 300 to 38.4 K.

The system consists of two units, with one unit at each end. The units are equipped with RS-232 and RS-485/422 data ports. The digital inputs may be TTL/CMOS-compatible or optically insulated, while the SPDT relays are rated at 1 amp. LEDs are provided to display inputs, relays, data and power status.



Connections are via screw terminals. A 12 VAC wall wart is provided with the system. Optional RM-2 or RM-3 rack panels each hold two units. The overall system is 7 x 1 x 4.15 inches and weighs 2 lbs. Retail prices start at \$469.

For more information contact BTI in Washington at (360) 854-9559 or visit www.broadcasttools.com.

Aeta Upgrades HiFiScoop Codec

Aeta Audio has developed the HiFiScoop 3 5AS, a new version of the company's HiFiScoop 3 ISDN codec.

When receiving a call, the 5ASystem (named for "Aeta Audio Advanced Adjustment") recognizes the mode of the remote codec and adjusts itself automatically, taking into account the algorithm, the mode (mono, stereo or joint stereo), the sample frequency and bit rate. In case of a loss of connection, the Redial Function automatically recalls the correspondent after the cause of the problem is solved.



Features include an Ethernet interface so a station's codecs can be supervised remotely via a TCP/IP connection using Telescoop2 software running on a Windows system.

For more information, including pricing, contact Aeta in New Jersey at (973) 659-0555 or visit www.aetausa.com.

Marti Transitions STLs and RPUs

Marti is transitioning its RF STL and RPU products from crystal-controlled to synthesized. The company said the change will make its products more reliable, easier to tune and more powerful. It also hopes to shorten delivery times thanks to a common architecture in both product lines.

The lines have a common look and feel. They are designed so module replacement is uncomplicated, tuning times are short and the bandwidth is wider.

Among the new products is the SRPT-40A. It is a frequency-agile, wide-band, higher-power RPU that replaces the SRPT-40 and the SRPT-40E.

Depending on the frequency band, the SRPT-40A delivers 20 to 60 watts. It operates at 50 watts in the 450- and 455-MHz bands.

The frequencies in the selected band can be chosen from the front panel, and bandwidth can vary from 25 to 50 MHz depending on the band selected. For example, an export version for the 300-MHz band will cover from 300-320 or 320-350 MHz in 10- or 12.5-kHz steps. The VHF version can tune from 135 kHz to 185 kHz at 60 watts.

The SRPT-40A has four XLR inputs, including one that is mic/line switchable, as well as a subaudible tone encoder, DC power connector and type N antenna connector.

For more information, including pricing, contact Marti in Texas at (817) 735-8134 or visit www.martielectronics.com.

Musicam USA Creates Liberty

The Liberty POTS codec from Musicam USA is designed for broadcasters "who want the best sound they can get on a POTS remote," according to the company.

It can connect on marginal POTS lines and provides bidirectional 15-kHz mono audio response at connection rates of 24 kbps and above, though it also works below that level. On bad phone lines it connects in "telephone" mode with a 3.3-kHz response.

When line quality changes, the unit renegotiates in less than one second, and has an audio delay of less than 100ms.

Its mixing inputs are one balanced XLR switchable for mic or line level plus a stereo pair of consumer-level RCA connectors, mixed to mono internally. A VU meter is visible on the LCD menu display; individual peak flashers are at the mixer knobs for each input.

Liberty has limiters to protect against over-modulation, and it lets the studio control the mix level at the remote unit, freeing the remote announcer of the task.

The headphone monitor is fed from separate level controls labeled Send and Return. Announcers can listen for return cues while monitoring their program mix. Liberty supports ancillary data through its RS232 interface, and provides a 3.3-kHz audio interface for use with cellular telephones. It lists at \$2,595.

For more information contact Musicam USA in New Jersey at 732-739-5600 or visit www.musicamusa.com.



Crown Adds Remote Management

The Crown Broadcast Remote Management System enables remote access by phone to Crown FMX transmitters or to previous Crown models equipped with the new Digital Management System upgrade option.

The RMS is an optional module that adds telephone access to a transmitter without the use of a computer, modem or special software. It allows the operator to stay apprised of transmitter performance and make changes to parameters from remote locations.

The RMS talks to the user and can call if there's a significant fault. It can enable monitoring of other remote site functions such as HVAC, tower lighting, STL status and security status via digital, analog and relay-type connections. It attaches to the rear of the unit.

The RMS requires a telephone with a standard tone keypad. Commands are sent from the keypad; responses are generated by a plain-language speech processor. Preset limits trigger the RMS to dial control operators automatically to alert them of problems. It has a battery backup option in the event of a power failure to allow it to call specified phone numbers and inform the user of the failure.

The unit can monitor audio sources available from the FMX DMS as well as the RMS unit. These include a demodulated L/R channel "on-air" tuner in the FMX DMS, the L/R channel audio at the XLR inputs on the back of the unit, the L/R channel audio output of the Audio Processor/Stereo Generator boards or the L/R channel audio of the external loop audio on the back of the RMS unit. These sources allow the user to troubleshoot audio problems over the telephone.

The RMS lists for \$1,195.

For more information contact Crown Broadcast in Indiana at (219) 262-8900 or visit www.crownbroadcast.com.



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One of the most requested FM broadcast products over the past year has been a "radio station in a box". Overseas customers, as well as some of the new LPFM licensees have a need to quickly "get on the air" at temporary locations or in the interim to their installed studio/transmitter setup. A number of overseas customers also had to originate short term programming from various remote origination sites for disaster preparedness broadcasts! Well, here you go...a radio station in a box!

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TECH UPDATES

Cat-Link Enables Audio Transport

QEI Corp. says that its Cat-Link is the only T-1-based digital STL series capable of transporting a composite FM signal.

It uses T-1 (DS1) telco circuits to transport composite FM signals and discrete audio channels, and provides real-time encoding/decoding with no compression or audible delays.

The Cat-Link can be deployed in various configurations. The system was designed initially to use T-1 circuits provided by the local exchange carrier, which are capable of transporting 1.544 Mbps.

The system comprises two mainframes located at each end of the circuit, typically one at the studio and the other at the transmitter. It has an assortment of encoder and decoder modules capable of accepting composite or discrete analog audio signals, AES/EBU digital audio or telemetry signals.

It also can be used with an 18- or 23-GHz video or T-1 microwave, an optical fiber (with an optional converter), an ISDN line or a directly connected twisted pair.

According to QEI, "The Cat-Link's real-time encoding/decoding, without compression, means it can send composite and high-quality discrete audio with more transparency than a typical composite 950-MHz STL system."

The system is bidirectional, so audio backhaul and telemetry and control signals can share one circuit. The company says that the system's capability to combine multiple channels of audio and telemetry on a circuit can mean additional savings if the system is replacing multiple analog phone lines.

For more information, including pricing, contact QEI in New Jersey at (800) 334-9154 or visit www.qei-broadcast.com.

Audemat Offers Monitoring Systems

The GoldenEagle from Audemat earned a Radio World "Cool Stuff" Award last year for its utility as an off-air monitoring unit.

The product is available in AM and FM versions. Installed on-site or in a reception area, it can monitor the continuity and quality of 40 programs. Configured by the user, alarms can be rerouted to relevant technicians should a problem arise.

Options include audio recording, audio streaming, automatic scanning and measurement storage. An embedded Web site and Linux-based OS provide adaptability and stability.



The FM Version of Audemat's GoldenEagle Monitoring System

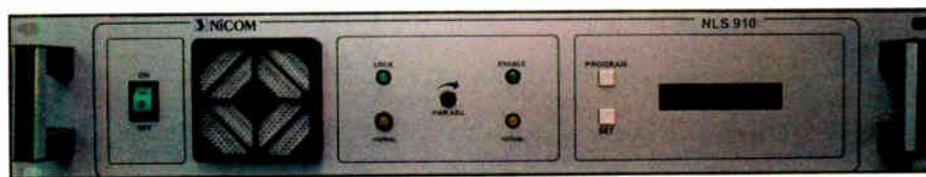
A companion product is the Manager Web server software, which helps controls remotely situated units by centralizing data and measurements from a GoldenEagle. The remote units can be visualized and accessed via a map, which makes alarm and on-site status information obtainable more easily.

For more information, including pricing, contact Audemat in Virginia at (703) 430-5677 or visit www.audemat.com.

Nicom Makes Composite System

Nicom offers a composite STL system formed by its NLS 910/LCD 10-watt transmitter and NLR 900/LCD receiver.

Frequency is externally adjustable, as is tuning of the front-end filter. The password-protected LCD multimeter displays and changes frequency and monitors forward and reflected power and modulation levels.



The Nicom NLS 910 STL Transmitter

For the operator using a PC, the system has software for changing frequency via remote control with an integral RS-232. The software allows the monitoring of forward and reflected power and internal temperature; it can turn the units off and on.

The system is 12-15-V DC capable for battery-powered operation and is available in frequency ranges from 200-240, 300-330 and 900-960 MHz. Bandwidth is 30 Hz-15 kHz.

Its list price is \$5,100.

For more information contact Nicom in California at (619) 477-6298 or visit www.nicomusa.com.

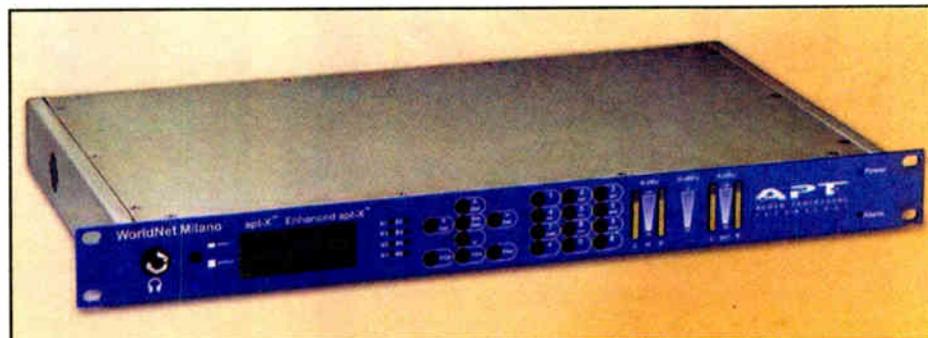
APT Codecs Provide Studio Links

Audio Processing Technologies offers its WorldNet Rio and WorldNet Milano codecs for use with broadband leased lines to link stations to transmitter sites and create station-to-station networking.

Using 10 WorldNet Rios or WorldNet Milanos (which offer ISDN backup) and two generic Multiplexers, a broadcaster can have 5 x 15-kHz fully duplex stereo on a 1.5-Mbps T1 connection.

The APT codec solution configured for a 32-kHz sampling frequency (10 Hz-15 kHz bandwidth) has an end-to-end typical delay of 6 ms.

This allows program content originating from the station and transported to the transmitter and broadcast to be picked up for off-air monitoring. It also lets a DJ listen to content off-air and not be adversely affected by delay.



APT's WorldNet Milano Codec

The multichannel APT system also is suitable for nationally produced programs that are being mixed with local content or identity prior to emission at the regional transmitter.

According to the company, "Competing compression technologies (including AAC low delay) can offer delay figures of at least 100 ms, with the exception being J.41. However, to supply 15-kHz stereo audio, J.41 will require a 768 kbps simplex path and the audio resolution will be restricted to 14-bit audio.

"Using an apt-X solution for 15-kHz stereo fully duplex requires 25 kbps for 16-bit audio."

Other features of the APT codecs include analog and AES/EBU I/Os; 32-, 44.1- and 48-kHz sampling frequencies; a 3:1 sample rate converter; alarm ports; RS-232 and remote-control I/Os; and 16-, 20- and 24-bit audio resolution.

For more information including pricing, contact APT in California at (323) 463-2963 or visit www.aptx.com.

Sonifex Features Multiple-Use Codec

Sonifex's NICA X is a multifunction codec system that can handle a range of applications outside normal ISDN use. Its programmability and feature set make it suitable for fixed-link operations, and the modular system can be reconfigured for several modes of operation.

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Its main area of use is for studio-to-transmitter links where it can use its X.21 fixed line interface with an optional ISDN "S" bus interface in the event of a main link failure.

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The ISDN "S" bus interface allows connection to international ISDN services and operates at a maximum data rate of 128 kbps. The NICA X can be used in the United States with an NT-1 adaptor.

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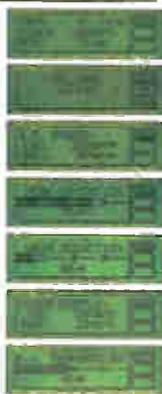
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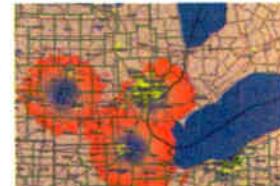
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Distinctive on-air personality with a whatever-it-takes attitude, ready for you, are you ready for me, will relocate. Artie, 918-808-2075.

On-air producer & production talent, willing to relocate, reliable hard worker w/experience. Larry, 918-483-5502.

Recent ABS grad, looking to become an important asset, proficient in cool edit pro, energetic, fast learner, great sense of humor. L Stokes, 972-293-5819.

So good it hurts...painfully creative copywriting master w/cool edit, natural promo genius & recent ABS grad, willing to travel. Laura, 405-376-1990 or Evardim@aol.com.

ABS trained me with all aspects of radio, any format, Texas stations only, Authur, 817-919-2366.

Deep, smooth voice. Great news, production, copywriting, digital editing, multi-tracking. News/talk preferred. Chris Jackson, 972-463-8496; cijack2001@earthlink.net.

Explosive personality! Recent broadcasting school grad, willing to travel. T.J. 918-245-3124. or dayofcaedmon@yahoo.com.

Fully trained broadcasting & radio professional, looking for on-air position in any place at any time. Jason, 972-267-0404.

Girl next door seeking entry level position at any Dallas/Ft. Worth area radio station. Kristy Reeves, 817-498-0037.

The hottest rookie DJ on the planet will provide you w/copywriting, board ops, on-air & digital production, willing to travel. Adam, 405-359-1632.

James Johnson, just completed my training at ABS & looking to get started at your station. Willin to travel, 817-881-3790.

Looking for a team player? Creative, responsible radio grad looking for production or board ops. Interested in working in the Tulsa area. Betty, 918-955-5537.

Looking for radio work. Radio school grad involved with music for 26 years, willing to relocate within Oklahoma. Brent, 918-955-7590.

Matthew Crawford, ABS graduate. Hard working, dependable, love radio production & would like to pursue a career in that field. 254-580-2691.

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Radio World's Broadcast Equipment Exchange provides a FREE listing service for radio stations only. All other end users will be charged. This FREE service does not apply to Employment Help Wanted ads or Stations For Sale ads. These are published on a paid basis only. Send your listings to us by filling out the form below. Please be aware that it takes one month for listings to appear. The listings run for two consecutive issues and must be resubmitted in order to run again. Thank you.

Please print and include all information:

Are you currently a subscriber to Radio World?
 Yes No

Signature _____ Date _____

Contact Name _____

Title _____

Company/Station _____

Address _____

City/State _____

Zip Code _____

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*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

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Radio World

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| 1-9 col inch (per inch) | \$100 | 95 | 90 | 85 |
| 10-19 col inch (per inch) | \$85 | 75 | 65 | 55 |
| Distributor Directory | \$125 | 120 | 115 | 110 |
| Professional Card | \$95 | 90 | 85 | 80 |
| Station/Studio Services | \$185 | 157 | 133 | 113 |
| Classified Line Ad | \$2/word | | | |
| Blind Box Ad | \$15 additional | | | |

Call Simone Fewell, Ext. 154, Classified Ad Manager, to reserve space in the next issue. Use your credit card to pay, we now accept VISA, MASTERCARD and American Express.

◆ READER'S FORUM ◆

Radio World, August 1, 2002

He solves the EAS puzzle

So they're looking at EAS again, huh (June 19, "EAS Gets Further Scrutiny")?

I counted at least 15 people on the MSRC council. We all know what a giraffe that was designed by a council looks like.

Rather than wait till their next announced meeting in November, I've decided to solve the EAS problem all by myself and hopefully avoid what a council might do to us.

First, we eliminate the leapfrog system of one radio/TV station monitoring another. We know how well that doesn't work. Next, we eliminate any decisions on what to rebroadcast on a local level. We'll let "Central" take care of that. (More on "Central" follows.)

I've decided to solve the EAS problem all by myself and hopefully avoid what a council might do to us.

— Larry Tighe

We connect our decoder/encoder to an addressable satellite receiver tuned to one of the national satellites such as XMSR, Sirius, DirecTV or EchoStar. The U.S. government's FEMA can pay the rent for the downlink to one or more of these satellite providers. FEMA will have a direct linkup with the satellite provider.

When an emergency comes up, the responsible activating authority calls FEMA — I like to call it "Central" — and it activates the applicable receivers via the satellite link, sends printed data or breaks into the program with emergency information.

Remember, the receivers, right off the shelf from Radio Shack, are already addressable. The information is customized to the affected area or an "all call" to the entire country is broadcast. No PDs, managers or DJs would be responsible for the "wrong" decision when it comes to interrupting "the for-

mat." Reread Radio World's articles about EAS' nonactivation during 9/11 regarding wrong decisions made by a "primary" station.

Now that I've solved the fundamental EAS problems, I'll let the council take care of the little details. Keep it simple.

Larry Tighe

Owner

WRNJ(AM)

Hackettstown, N.J.

Note: The author of the above shared it with colleagues as well as with Radio World. One responded:

Very nice! You must be on to something good. I can envision what you are thinking about for "Central" — probably a high-tech call center with trained people that can create the proper messages for the appropriate area. In times of crisis (like a hurricane on the way) it could be staffed at higher levels.

Some system of authenticating incoming callers would be required. Messages could come in via telephone or Internet. Perhaps a private network is needed from each state's Office of Emergency Management.

Richard T. Walsh

Chief Engineer

WKSS(FM)/WHCN(FM)/WMRQ(FM)

WWYZ(FM)/WPOP(AM)

Clear Channel Communications

Hartford, Conn.

'Cool Stuff'

I just wanted to let you know that I received my Radio World "Cool Stuff" Award just the other day via UPS. It's really beautiful and will make a great addition to my desktop! Everyone here has been admiring it.

I want to thank you again for the honor you have given me with the award.

I was quite surprised and happy to see the interest that my GE project generated at NAB this year. It's good to see that a lot of folks are still interested in our beginnings and history.

Thanks again.

Steve Hemphill

Owner

Solid Electronics Laboratories

Newtown Square, Pa.

Plumbing the archives

I was wondering if any reader has a copy of a particular article that ran in Radio World about 10 or 12 years ago. It was about "Remote Broadcast vs. Frequency Advertising."

This was a great article that all sales staffs need to read and understand. The article focused on the nonsense of selling remotes to some clients, instead of a high-frequency ad campaign that would work much better. It would have run in the time frame between 1988-92.

I carried the article for years, but it has been misplaced, and I would love to get another copy. I can be contacted at DMack100@cox.net.

Danny McWilliams

Morning Show Host/APD

KGEE(FM) 100

Odessa/Midland, Texas

Ad is distasteful

Thank you for the diversity of information in Radio World. I have little technical knowledge but usually learn something as I scan those articles. The content that is more directly related to management is interesting and helpful.

I would never choose to do business with any company that would lower itself to this type of advertising.

— Mike Laipply

I want you to know that I find the Eventide Broadcast Division ad distasteful and offensive (June 19). Certainly there are other ways to make an ad scream "Look at me."

I would never choose to do business with any company that would lower itself to this type of advertising. Mine is only one voice but perhaps you will reconsider accepting this ad.

Mike Laipply

Vice President

WBCO(AM)/WQEL(FM)

Bucyrus, Ohio

IBOC

Skip Pizzi mentions in the June 19 issue ("IBOC DAB, in the Public Eye") that public radio broadcasters favor separate programming on the digital vs. analog channels of IBOC.

It's obvious to me why Ibiquity is strongly against this use. The IBOC signal is relatively fragile and receivers will revert to the analog channel in poor-reception areas. This makes it vital that the IBOC digital and analog channels carry the same content.

Robert Carpenter

Rockville, Md.

Wired for Sound column

I appreciated Steve Lampen's latest article in Radio World (June 5, "Data Cables, Moving Audio Around").

I went online at www.radioworld.com/reference-room and read all of his articles there. Great stuff, very well presented. I'm impressed at how he can cover a topic for a reader of zero knowledge and take the conversation all the way to the most precise technical detail.

Thanks. I just wish the full archive of his articles were online.

Tony Mayo

CEO

PingAUDIO

Reston, Va.

Write to Us

RADIO WORLD READER'S FORUM

P.O. Box 1214 Falls Church, VA 22041

radioworld@imaspub.com

Open mouth, insert hoof

An article in the June 19 issue gave me quite a chuckle, albeit unintentionally ("CFA Co-Inventor, Marketer Clash Over Sales Rights").

Randy J. Stine's coverage of the Crossed-Field Antenna issues contained the phrase "Bad weather, illness and hoof in mouth disease in the area are among the reasons given for the delays."

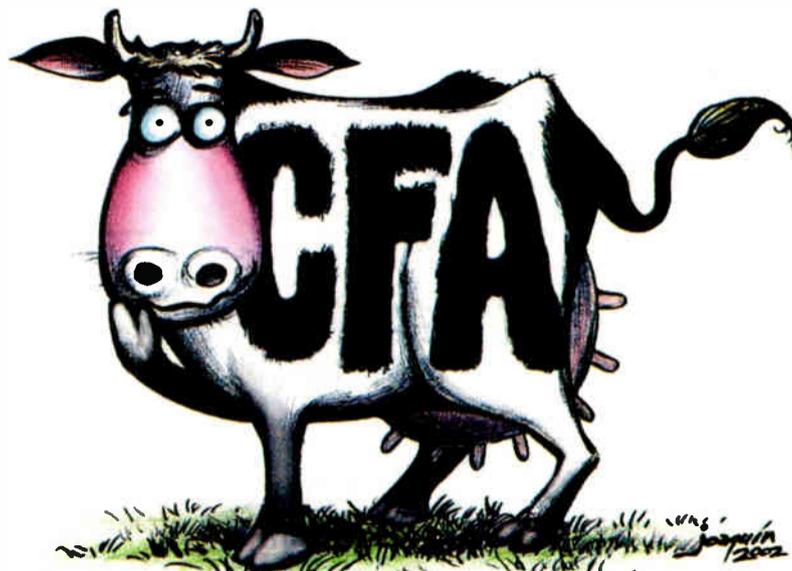
The actual name of the disease that infects the cattle in Europe is "hoof-and-mouth disease" — although given all the other problems that the CFA group has had to deal with, perhaps "hoof in mouth" is truly the more appropriate phrase.

Edward C. Dulaney

Chief Engineer

Crawford Broadcasting Co.,

Colorado Region Denver



Corrections

Price information for the Harris BMXdigital Console that was provided to Radio World for the July 3 *Buyer's Guide* was incorrect. The console's price is based on configuration and starts at \$19,000. For information call (800) 622-0022.

Also, the story "KUSC Makes Digital Comeback" in the July 3 issue contained an incorrect title for Pablo Garcia. He is director of engineering and operations.

GUEST COMMENTARY

Radio Inspires a Sense of Mission

by Ben Martin

The author is president of the International Association of Audio Information Services.

Traveling to the IAAIS Conference 2002 in June caused me more stress than usual because the events of last September were fresh in my mind.

Each time I considered that I would soon be boarding a plane — I've never been very comfortable in crowded airports, or in the air — I was petrified. But I did so with a deep sense of mission as I recalled an event that occurred almost one month to the day after last year's tragedies.

On a picture-postcard Sunday afternoon, I stood on the fishing pier of Smith Mountain Lake State Park in Huddleston, Va., with a visitor from Uganda. The events of Sept. 11 seemed a world away from this quiet paradise.

Mutual learning

Wilson Okaka had just commented that Appalachian Power's engineering feat was a creative use of natural resources. "Nature has blessed this place," he said with a sigh, as we looked out over the vast expanse of lake before us.

Suddenly, this reverie was broken when his eyes caught what was, for him, a strange sight back on shore. "These fishermen are throwing their catch back into the water," he cried in astonishment. "Back home, this is unprecedented. There would be a great tug-of-war if you tried to get a Ugandan to throw his fish back into the water."

"These fellows were probably participating in a tournament," I reasoned. "We have lots of them here."

"In Uganda," Okaka retorted, "men do not normally fish for sport."

My guest's visit to America was sponsored by the IAAIS, a membership organization of reading services that use technology to provide access to the printed word for blind and print-impaired individuals.

The educational course he was attending was developed in cooperation with the United States Telecommunications Training Institute, an organization offering tuition-free technical and management training in telecommunications and broadcasting to qualified participants from countries throughout the developing world. We essentially offer a "How to Develop an Audio Information Service" class.

Okaka, 43, is president of the Northern Uganda Press Association. His paid job is as lecturer on Environmental Communications at Kyambogo University in Kampala. He has

served as assistant secretary in the Ministries of Information, Labour, Energy and Culture and Community Development. He has presented 22 papers at various conferences and seminars throughout Africa and abroad.

Now, he had traveled to Roanoke to learn from me!

"What will I do," I asked myself as I greeted my guest at the airport, "when after 30 minutes, I have taught him all I know about broadcasting? What will I do with the rest of the week?"

On the shores of beautiful Smith Mountain Lake in Bedford County, I breathed a sigh of relief as Okaka viewed the fishing spectacle back on shore. It would be just as important for him to see America and how Americans live as it would be for him to see WVTF's transmitter atop Poor Mountain.

Indeed, we would learn much from each other. And we did. Okaka loved what he saw during his seven days in Virginia.

Along with Smith Mountain Lake in Bedford County, he ate in a fast-food restaurant for the first time, stared in amazement at the sheer size of a Wal-mart Supercenter and visited my family farm.

Proudly, I showed him a horse-drawn plow my father used as a boy, thinking he would be impressed by this piece of Bedford County agricultural memorabilia. I was humbled when he said that he had seen many of them. Ugandans, he said matter-of-factly while munching on an apple from a nearby tree, still use them.

Okaka did not come to the United States for a tour, though. He came to the United States on a mission.

Ten percent of his fellow countrymen have vision problems that are due, in no small part, to inadequate health care. The rate of illiteracy in his homeland is absurdly high. Many people who can read are unable to afford to buy newspapers and magazines. The wage of the average Ugandan is 40,000 shillings a month, or \$20 American dollars.

The average Ugandan has no experience with cable television, VCRs or CD players; the average Ugandan does not even own a radio (there goes the discussion on FM sub-carriers, I thought). As recently as five years ago, there was only one government-operated station in the whole country.

Now that the industry has been privatized, there are about 70 stations, and Okaka sees in them an opportunity to bring the printed word to Ugandan's vision-impaired and illiterate citizens.

Okaka took home a model of how Americans meet the "life communication"

'Payola' Is An Ugly Word

Although he didn't expect to see action on his legislation in this session and had no immediate co-sponsors jumping in, there's plenty of reason to watch Sen. Russ Feingold's bill.

The Wisconsin Democrat touts his measure as a way to limit station consolidation and curb what he believes are payola-like concert promotion practices. Feingold is one of a growing chorus complaining that audiences

have fewer viewpoints from which to choose on the radio dial since passage of the 1996 Telecom Act.

The bill would prevent further relaxation of local ownership limits. Not only would that limit the flexibility of groups to acquire and enlarge their "platforms" of multimedia offerings to advertisers; it could cause Wall Street investors to cool on radio if they feel it is no longer a growth industry. That, in turn, could cause stock values to drop.

Several consumer interest groups, the trade association of record labels and the National Association of Black Owned Broadcasters support the measure. Jim Winston, NABOB executive director, said that before 1996, about 120 radio groups out of 5,000 were minority-owned. Now, he said, that figure is closer to 100 out of 3,900.

The proposal would close what the senator considers a loophole in LMA regulations to ensure that any station that receives a "significant" amount of its playlists or advertising from another station is counted under the local ownership cap.

It directs the FCC to revoke the license of stations that use cross-promotion of radio services or venues to discriminate against artists, concert promoters or other radio stations. It also would require the commission to ensure that audience measurement for local radio markets is "independent" and "not subject to manipulation." We're not quite sure how that would work, as the FCC has no jurisdiction over Arbitron ratings.

The bill strikes us as a slapped-together attempt to paint radio with one big, dirty brush. It tries to solve several unrelated matters of varying degrees of urgency. Further, it would be a step backwards in the reasonable trend toward deregulation and efficiency in the business. We favor fewer restrictions on radio, not more.

But perhaps Feingold is doing radio a favor. The word "payola" — even implied — carries heavy baggage; and that issue is of legitimate concern. As radio ad revenues are only now beginning to rebound from the recession, radio owners should realize they need to clean up their image on their own, and make sure the "payola" label doesn't stick.

— RW

needs of our citizens who can no longer read standard newsprint. He was impressed by both the model and the cadre of volunteers we depend on to make it a success.

He asked many questions. He read scores of newspapers, magazines, brochures and training materials I gave him. Then he asked more questions.

Power of radio

"I am thankful to be here," Okaka said to everyone he met. I, on the other hand, was thankful to hear him express this sentiment.

Though a great gulf separates our lifestyles, he was not critical of ours. He applauded it. Less than a month after those horrible terrorist attacks, it was refreshing to hear someone, particularly from a developing country, praise the United States and its way of life.

"If I were banished to a desert island," Okaka said at the dinner table on his last night in America, "I would only ask for two things: a radio, and a Bible."

A Bible in Uganda is rare and expensive. In August, Okaka allowed himself an extravagance. He purchased a new King James version at a cost of 20,000 Ugandan shillings. He plans on keeping it at his office.

"This way," he explained, "if something

happens to my old one, I'll have a bit of security."

Like everyone else in our country, I had been feeling very insecure. I looked at this man at my kitchen table who had no qualms about boarding an airliner and traveling 20 hours to a nation still reeling from one of the worst tragedies in all history. Wilson Okaka's visit made me feel secure, and it gave me courage, too.

How refreshing it was to discover how secure we really are. We are the most prosperous nation on earth, and Wilson helped me to see just how thankful we, as Americans, should be.

"We have been very refreshed by what we have seen here," he said when we left the dock and headed back to the car.

Yes, Wilson, I thought, we have.

RW welcomes other points of view.

More Letters On Page 61

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Radio World

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World Radio History

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- **Two Mono/Mix-minus busses**
- **Full-featured monitoring**
- **Twin VU meter pairs (PGM & switched)**
- **Opto-isolated control logic**
- **Built-in cue and headphone amps**

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THINK INSIDE THE BOX



ONE INTERCONNECT DOES IT ALL!

THAT'S RIGHT — ONE DUPLEX FIBEROPTIC LINK OR A SINGLE CAT-5 WIRE = 64 channels of simultaneous bi-directional digital audio, intercage communication, logic signals, X-Y controller commands, plus auxiliary RS-232 data streams. *This single interconnect between your studio and central rackroom can save you thousands — if not TENS of thousands — of feet of wire in a typical installation!*

THE WHEATSTONE BRIDGE DIGITAL AUDIO NETWORK ROUTER can start small with a single cage and only a few cards, or fully populated units can be stacked to form larger systems. Wheatstone's STAR TOPOLOGY ARCHITECTURE lets you connect multiple locations to your central rack room, providing shared resources for all yet still permitting independently functioning studios, each with its own combination of plug-in modules specifically suited for a select set of gear.

SIGNALS ARE ROUTED entirely in the digital domain. sample rate converters on each input, freeing you from sample rates throughout your facility. A family of plug-in makes installation easy, letting you mix varied signal standards all within the same cage. WHEATSTONE'S intuitive setup software handles system configuration, matrix selection sets. All systems interface directly with Wheatstone consoles source selection and display.

All AES cards have worry about varying connector modules technologies and graphic based and salvo pre- for seamless



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