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Radio Tomb Raider
 Kevin Glennon says video gamers could be a ripe target for smart radio marketers.

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Roll Over, Beethoven
 The promo department at classical WRR(FM) is going to the dogs.

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Radio World



\$2.50

The Newspaper for Radio Managers and Engineers

August 17, 2005

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▼ The special ties between ham radio and broadcast engineering.

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Digital Radio Kicks Up Strong Words

Critics Say NRSC-5 Would Cause Irreparable Harm

by Leslie Stimson

Nothing about terrestrial digital radio in the United States has been easy, and now, the burden of making tough decisions about it falls to the FCC.

As the commission begins sifting through opinions about the transmission standard for terrestrial digital radio, staffers will be making judgments about what is needed to complete final rules authorizing the service. Words are strong, with many on both sides arguing that this standard will determine nothing less than the future success or failure of many broadcasters.

Those who oppose IBOC, and others who believe it is a suitable standard for terrestrial digital radio that requires fine tuning, raised concerns in their written comments to the commission. They worry about authorizing AM IBOC at night, about interference to nearby AMs and

See NRSC-3, page 3 ►



Radio Makes a Fashion Statement

Market Sees a New Generation of Stylish, High-Performance Consumer Receivers

by James Careless

There was a time when radios were built not just for the ear, but the eye as well. Whether enthroned inside furniture-quality wooden cabinets, or armored in colorful Bakelite plastic and chrome, these radios were more than entertainment devices; they were public testaments to their owners' sense of style and taste.

As television eclipsed radio in the lat-

ter half of the 20th century, home receivers ceased being status symbols. As a result, consumer radios became utilitarian devices — at best, decked out in lights and dials in an effort to appear high-tech, but not certainly not High Fashion.

Thankfully, radio's dowdy days seem to have come to an end. Today manufacturers such as Bose, Boston Acoustics, Cambridge SoundWorks, Etón, Sangean

See STYLE, page 30 ►

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Senate Committee Restores Public Funding

WASHINGTON The Senate Appropriations Committee approved funding for public broadcasting that would be \$111 million more than what had been approved earlier by the full House. The matter was expected to go to the Senate floor, then to a House-Senate conference committee to resolve differences this fall.

According to the Association for Public Television Stations in July, the

Subcommittee on Labor, Health and Human Services, Education and Related Agencies proposed providing \$400 million in advance funding for the Corporation for Public Broadcasting for its fiscal 2008 budget.

XM to Acquire WCS Wireless ...

WASHINGTON In another sign XM Satellite Radio is broadening its program distribution channels beyond radio, it said it plans to acquire the privately owned WCS Wireless for 5.5

million shares of its stock.

The principal assets of WCS are wireless spectrum licenses in areas covering 163 million people in the United States, including 15 of the top 20 metropolitan markets. WCS licenses include "10 megahertz in the frequency bands adjacent to XM's satellite radio service," according to the firms.

The deal needs regulatory approval; the companies hope to close the acquisition by the end of the year.

Although XM said it plans to reveal details of its plans later, it said the acquisition provides an opportunity to expand its business with a variety of multimedia subscription offerings,

including video and data, transmitted over the new frequencies. Radio World has reported previously on XM's video tests.

... While Fritts Decries Acquisition

WASHINGTON The news, above, that XM plans to acquire a wireless company — one that has 10 MHz spectrum licenses in the top markets in the country — doesn't sit well with NAB.

In a letter to lawmakers in July, President/CEO Eddie Fritts said the satellite radio companies have consistently tried to expand into localized programming using a "longstanding pattern of deception."

Fritts urged lawmakers to support a bill previously introduced by Reps. Chip Pickering, R-Miss. and Gene Green, D-Texas, that would spell out that satellite radio is licensed to provide national programming only and preclude the companies from inserting local content onto terrestrial repeaters, nor use future technologies such as the wireless spectrum for localized content.

Sixty-five members of Congress have signed onto H.R. 998, Fritts stated.

CHUM Asks Canada To Set Aside Rival Pay Radio Licenses

TORONTO One of the entities that want to start pay radio in Canada is appealing a decision by the government that also gives the green light to competing applications that would deliver

See NEWSWATCH, page 7 ▶

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NRSC-3

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FMs and about the lack of a codec specified in the transmission standard for digital radio.

Taking an opposing view are those who want the standard approved swiftly in order to bring certainty about terrestrial radio's digital transition to broadcasters, equipment manufacturers and consumers.

"Having real rules will do a lot to move it forward," said a participant in the Standards-Setting Systems Committee, the standards-setting body sponsored by NAB and the Consumer Electronics Association. He said he didn't envy the FCC the job of sorting through the comments and crafting the final IBOC rules.

The commission sought public comment in June on the IBOC standard, dubbed NRSC-5.

Replies due Aug. 17

Contacted by RW for reaction to the opinions expressed in approximately 40 filings to MM Docket 99-325, most declined, saying the public comment period was still open in July. Reply comments on the standard are due Aug. 17.

In an NRSC vote in April, 20 organizations voted to support NRSC-5, among them NAB and CEA, the co-sponsors of the NRSC. The standard thus has the backing of two industry entities that represent commercial broadcasters, on one end of the U.S. radio infrastructure, and receiver makers on the other.

Both associations described as urgent the need to adopt a single IBOC standard to give certainty to all parties that terrestrial radio really is going digital and that IBOC is the appropriate U.S. terrestrial digital radio standard.

The rules, NAB said, will "permit free over-the-air radio broadcasters to better serve listeners and compete in an increasingly digital world."

A big point of contention leading up to the spring vote on NRSC-5 was whether to include a codec specification. As Radio World has reported, many members wanted to include details about Ibiqity's HDC codec in the voluntary standard. Ibiqity has said that due to contractual agreements, it could not release specifics. In order to have a standard at all, members of the DAB Subcommittee decided to proceed with NRSC-5 without the codec specifics.

CEA urged the FCC to adopt an IBOC digital radio standard, noting that receiver manufacturers, broadcasters and consumers "need the certainty ... in order to have enough confidence in the long-term usefulness of IBOC digital radio equipment to invest in it."

While the lack of a codec specification is "not optimal," CEA wrote, it is acceptable. "While CEA would prefer that a codec be included in the specification, we note that the NRSC made its best effort toward this end and, ultimately, concluded that NRSC-5 is an appropriate standard even without an audio codec."

Also writing in favor of the standard, Harris said more than 350 of its HD Radio transmitters have been purchased so far. A single IBOC standard, it said, ensures equipment compatibility for broadcasters and consumers.

Others don't agree that the standard is complete.

In a joint filing, Microsoft Corp., Broadcast Signal Lab and Impulse Radio, three of the seven NRSC members who abstained from voting on the standard this spring, urged the FCC to adopt a single standard but pointed out what they see as holes in NRSC-5.

The lack of a codec specification, they contend, is serious, and the FCC should send the standard back to the NRSC with instructions to complete it by incorporating both an initial codec and a mechanism that enables the use of alternative, optional codecs. They want the FCC to make it clear that the Ibiqity HDC codec is a market-starter codec only.

They also asked the agency to establish a procedure for resolving disputes concerning further development and licensing of the DAB technology. The commission should "review the terms and conditions on which Ibiqity licenses the technology," the companies state.

"Without this type of commission oversight, it is possible that Ibiqity's licensing decisions could slow innovation and/or hinder the deployment of new products," they state.

An Ibiqity spokesman declined comment on all filing-related questions.

Microsoft, which makes an audio codec, and the other companies in the filing are interested in the data capabilities of HD Radio.

The advent of multicasting, or splitting the digital signal into several streams, opens doors for codec makers, Microsoft, Impulse and Broadcast Signal Lab believe, referring to NPR's tests with different codecs at low bit rates.

"Although a single codec, such as HDC, could successfully be used over a range of data rates and implementations, other codecs might be optimized for particular applications with higher efficiency and/or quality than would be possible for a single, generalized codec," they wrote.

"Given that NRSC-5 allows up to eight audio services to coexist within the relatively constrained bandwidth of a single IBOC DAB channel, it is quite conceivable that such highly efficient and optimized codecs would be in demand. These codecs are most likely to emerge and evolve successfully in the market if the IBOC standard allows their easy and widespread integration."

Johnathan Hardis, who represented the National Institute of Standards and Technology in the NRSC meetings but submitted comments to the FCC as an individual, believes the lack of a codec spec leaves the standard "substantially incomplete and, as such, not suitable by itself for either engineering or regulatory purposes."

What next?

He said the HDC codec "remains a trade secret," which violates Ibiqity's commitment to an open standards process.

He urged the FCC to reject NRSC-5 and rescind all temporary and interim authorizations for IBOC radio broadcasting.

"(N)ow that the Ibiqity system has become successful, overcoming market resistance to become entrenched as the only viable DAB option, they appear to assert trade secrecy rights that would benefit them with a perpetual stream of royalties and a stifling of competitive innovation," Hardis stated. "This is wrong."

Two sources who spoke on background said the commission was unlikely to rescind all station authorizations to go IBOC, given that the rollout has begun and the FCC made it clear it sees IBOC as the technology for terrestrial radio to go digital in the U.S. and supports the activities of the NRSC.

Ibiqity said that by mid-July, more than 450 stations were broadcasting the combined analog/digital signals; 75 percent of them are FM and 25 percent AM. It expects 600 to be on the air by year-end.

The company warns of the possible consequences if the FCC doesn't act swiftly.

"Failure to designate such a standard can create confusion in the marketplace, slow the introduction of this important new technology and possibly sow the seeds of the (technology's) failure," stated Ibiqity.

Whether and under what circumstances AM stations, especially those with directional antenna systems, would experience harmful interference from their IBOC neighbors, was of great interest to many commenters. Several debated whether and how AM nighttime IBOC operations should be allowed.

Leonard Kahn, in his filing, reiterated support for his Cam-D system for AM digital rather than IBOC, and wondered what had happened to his suggestion that the FCC form a panel to replace the NRSC.

"The Blue Ribbon Panel would propose to the commission appropriate procedures for replacing the NAB/NRSC failed advisors, who are clearly subject to a serious conflict-of-interest disability," Kahn states.

Some small-market AM broadcasters opposed IBOC due to the necessary bandwidth changes.

"Recent experience with HD Radio has proven to me that in-band HD is not the way to go," wrote engineer Edward Jurich of Blue Springs, Mo. "This is especially true in the AM band, where interference is a big factor and degrading the current system to 5 kHz is just plain stupid. Considering the number of current AM radios in use today, there is no reason to degrade the AM band any further."

Some commenters the commission establish clear, bright-line numerical targets for what constitutes interference, and how that interference could be mitigated, for AM operation with IBOC.

These would be "targets not based on casual observations, but on real numbers. This is arguably the biggest job the commission has before it," an NRSC source said.

Additional sample excerpts appear on page 6 of this issue.

The commission is accepting reply comments on NRSC-5, which is in MM Docket 99-325, until Aug. 17.

To submit a filing, go to www.fcc.gov/cgb/ecfs/.



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Digital Radio, Warts and All

On July 18, Albert Shuldiner, the top lawyer of Ibiqity Digital Corp., met with the new chairman of the FCC, Kevin Martin. Present in the room were Martin's legal advisor Catherine Bohigian and attorney advisor Heather Dixon, as well as Richard Wiley and John M. Burgett of Wiley Rein & Fielding, working for Ibiqity.

This conference of lawyers was meeting to talk about something technical: digital radio. We know from Ibiqity's subsequent required filing that during this meeting, Shuldiner provided the chairman with a status report on the "significant progress" being made to implement HD Radio. He urged Martin and the FCC to complete its rulemaking to promote the continued expansion of the rollout.

Specifically, he asked the FCC to authorize nighttime AM service and to let broadcasters offer supplemental audio and advanced data services. And he argued that the agency should not delay doing so while it considers adopting the NRSC-5 standard.

I agree.

Fraught

I acknowledge that this issue is marked with distress for many.

Comments to the FCC confirm what RW readers know well: this is not a slam-dunk decision.

Stations worry about the applicability to AM, the potential for interference to lower-power and short-spaced FM stations and the disenfranchisement of listeners beyond city-grade contours. Some observers fret about the dominance of Ibiqity in the digital radio food chain, the lack of a codec standard and the questions of whether to protect digital audio content as artistic property.

However, radio's greater good is in proceeding with the digital rollout.

The words used by Disney/ABC in writing to the FCC could, I feel, describe the industry at large:

"Thus far, ABC Radio's experience with IBOC has been positive and promising, but swift commission action to adopt

a uniform standard — and specifically NRSC-5 — would give much greater certainty to broadcasters like ABC, who are expending significant resources to convert their FM and AM stations to IBOC," it stated.

"ABC's engineers have been involved in the development of the NRSC-5 Standard and have concluded that it is the appropriate technical standard for digital radio. Adoption of the NRSC-5 Standard also would provide certainty to manufacturers of IBOC receivers and equipment, which would encourage the production of IBOC equipment and further expedite the digital radio transition. ...

And looking farther ahead, the CEA is wise enough to recommend that before the commission adopts technical rules for transmitter power levels in an all-digital mode of operation, the industry should have a opportunity to study interference and performance ramifications and make recommendations.

More immediately, how the FCC and the industry monitor and respond to HD Radio-generated interference is a key issue. One commenter, Broadcast Signal Lab, says FCC regulations need to include a "relief valve" for extenuating circumstances where emissions that are compliant with NRSC-5 cause excessive

Generally speaking, and with various qualifiers, both broadcasters and the consumer electronics industry support NRSC-5.

"Also the FCC should proceed to fully authorize nighttime AM IBOC services and should adopt a flexible approach to FM multichannel services."

You can substitute the words "radio broadcasters" for "ABC" in the above text and the conclusions remain valid.

Or as National Public Radio put it, during the last two-and-a-half years of interim IBOC operations, radio has witnessed great growth in new wireless and non-broadcast audio services.

"We are hopeful that adoption of NRSC-5, following extensive industry collaborative efforts to further the development and implementation of digital radio in the United States, will further solidify the groundwork laid by the FCC in its adoption of IBOC technology as the appropriate technology for the U.S. marketplace."

Consumer electronics manufacturers, for their part, argue that while the lack of an audio codec specification in the standard is not "optimal," it's acceptable.

interference. The firm also asks that the methods of evaluating IBOC spectral occupancy be more thoroughly evaluated and described to ensure consistency among results, and we concur.

But generally speaking, and with various qualifying statements, broadcasters and the consumer electronics industry support NRSC-5. The FCC should move quickly to approve the standard, and to issue permanent authorization for multicasting and datacasting as well.

★ ★ ★

Earlier this summer I mentioned some of the interesting sights at Radio City, otherwise known as Rockefeller Center in New York.

In noting the beautiful stainless steel sculpture "News," I neglected to mention the even more relevant "Wisdom With Light and Sound" at what is now called the GE Building. This is a 1933 work by Lee Lawrie. Writers Margot Gayle and

★ ★ ★

And congratulations to our contributor Charles "Buc" Fitch. He wrote recently about his experience taking the first SBE AM Directional Specialist certification test and promised to let us know how he did; he has since been informed that he passed. 🌐

From the Editor



Paul J. McLane

Michele Cohen describe it thus:

"Above the RCA building's entrance is 'Wisdom,' a vast panel, notable for its pioneer use of molded glass. The polychromed figure of Wisdom thrusts his arm downward. With a huge compass he traces on the glass screen below the cycles of Sound and Light, which disseminate wisdom. Over the entrances on either side stone figurative reliefs depict Sound and Light, underscoring the work's cosmic content and alluding to the television and radio studios in the RCA Building.

"The panel commands attention. At 15 feet high and 55 feet wide, it is a synthesis of stone, color and glass positioned at the end of the central axis on the center's most celebrated building."

You can see it at www.artdecoworld.com; scroll down to the Rockefeller Center gallery.

There is also lovely art deco work throughout Radio City Music Hall. And nearby is a work by G.L. Sussman, "Radio and Television Encompassing the Earth," part of a remodeling of the subway concourse between 51st and 47th Streets. It can be viewed at www.sussmanart.com/gls.



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GUEST COMMENTARY

Include Radio in iPods, Phones, Home Media

Broadcasters Need to Push for Inclusion of FM Tuners in New Devices

by Steve Church

The author is chief executive officer and co-founder of Telos Systems, one of the companies developing surround sound technology for HD Radio that have merged efforts to form the MPEG Group.

I sincerely hope you are enjoying this article while digging your toes in the sand and licking the salt off the rim of your afternoon margarita. Okay, perhaps, unhappily, you are not enjoying this Radio World at the beach; but as summer's sun makes way for fall's breezes, it's nevertheless a good time for a bit of reflection about where we and our industry are headed.

and display are colonized by the iPod.

Over in the red-hot mobile phone exhibits, you could see a bunch of phones sporting integrated MP3 players and download services to fill them are getting started. No FM radios.

At the consumer electronics exhibits, flat-screen TVs with surround speaker set-ups were the norm. No FM radios.

There were some demonstrations and a lot of buzz about a new category of living room product called "HDD DVD" just now being introduced. These are DVD player/recorders with a hard drive and some intelligence. They are supposed to be \$299 at Wal-Mart this Christmas.

A similar, but more powerful product is the PC-based "home media center."

A hybrid device that lets this happen in a flexible way would energize gadget inventors and listeners alike. Multicasting is a step in this direction. But there is so much more unexplored potential.

We could tag our on-air programs as well as offer special record-only ones to let a listener build the personal "radio station" he or she wants, including targeted advertising. The individual could listen at home or load up an iPod for the road.

We could integrate elements downloaded via mobile phone channels or the Internet. We could collect fees for downloads. We could offer ad-free programming, for a price. We don't have a lot of bandwidth on HD Radio, but local storage and clever engineering can work around that limitation.

Make radio trendy

With or without these fancy features, we surely want all those media centers and iPods to receive our radio broadcasts. To get this done and protect our future, we need to be perceived as "cool" by techies and teenagers.

Techies because they'll decide whether radio makes it into the products they design and buy. Teenagers because they are early adopters and trendsetters.

We also need to get a capable surround system on the air so that we don't lose because of an obvious and correctable technical deficiency. All those home-the-



Steve Church

ater-in-a-box systems you see in consumer electronics shops should have HD Radio surround tuners in them — and many probably would if we were transmitting this signal today. So would the car "media centers" that play DVD discs in surround.

As computing and networking become ever more a both rival and an enabler to our industry, I wonder where we will end up. These are, indeed, interesting times.

The author adapted this article from one that appeared in the Telos/Omnia/Axia newsletter. RW welcomes other points of view.

What I saw at CeBIT this year was both exhilarating and worrying.

I remember my visit to CeBIT in Hannover, Germany a few months ago. It bills itself as the world's biggest technology exhibition, with 480,000 visitors jostling to get a peek at the wares on display from 6,270 exhibitors — perhaps the best place on Earth to get a grip on what is going on in the world of communications, computing and consumer technologies.

What I saw there was both exhilarating and worrying.

The exhilarating part was the explosion of networking technologies. Ethernet and things to plug into it were everywhere — as if some natural force was causing every ecological niche to be filled. Switches, routers, phones, interfaces, servers, WiFi, WiMax, iPods and other players, a bewildering variety of PCs, optical links, telco central office gear, on and on, aisle after aisle. These are all useful tools for building modern studios.

The power of creativity was everywhere, a vivid reminder of what people can accomplish when they are using their imaginations. One comes away with a feeling of tremendous respect for human inventive capacity and optimism for the future.

The new Walkman

But for our industry, there are developments that look worrisome. The iPod is today's Walkman. You remember that the Walkman started as a cassette player, but quickly went on to include an FM radio.

The iPod doesn't have a radio. The trend is, indeed, going the other way; there are now docks that let you use your iPod as a substitute for your car radio and home stereo.

GM, BMW, Mercedes, Volvo, Ferrari and Nissan have announced that some of their cars will have this as a standard feature. The car radio's speakers, buttons

Several Asian companies were showing sleek devices with TV tuners, DVD drives, hard disks, and network interfaces — wired and wireless.

Wither FM tuners?

As with the HDD DVD boxes, you can record and play TV, but most also let you download music and video from the Internet and you can have terminals around your house that tap into the programs stored on the unit's hard drive. Microsoft says they've shipped more than a million software packages for these devices. But FM tuners? Nope.

Microsoft is covering another base with the soon-to-be-released new Xbox. Sure, it's a game machine, but it's also a DVD player with surround audio, a network terminal and a VoIP telephone. Seems they are planning for it to eventually become your home's main media device. No FM tuner, though.

Remember when *FM receivers* were your home "media center"?

While listeners are mostly still with us, the technology world is finding nothing much compelling in today's radio broadcasting. All these new digital machines need to eat digital food. And their designers need to be convinced that radio matters.

HD Radio finally gets us in the game. Once we have that in place, broadcasters and manufacturers can go on to collaborate to invent devices that have internal storage to make a new hybrid that includes traditional radio programming, podcast-like downloads, and MP3 playback.

As listeners, we often want to actively choose, but we are also happy at times to be in a passive just-play-me-something or tell-me-something mood. And we usually want the comfort of a human connection and knowing that we'll be on top of important news.

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AM, Codec Dominate NRSC-5 Concerns

The following are excerpts of approximately 40 comments filed with the FCC regarding NRSC-5 (story, page 1).

Susquehanna recognizes the concern of many broadcasters who fear the additional interference that AM IBOC may cause to nighttime reception, particularly on first-adjacent channels, but we believe that this potential interference is minimal when compared to the quality and durability improvements that will occur in every station's main listening and marketing area, for both day and night operation.

It is very important that AM broadcasting not be left behind in this transition to digital broadcasting and Susquehanna recognizes that no broadcast service is optimum when

authorized as a daytime-only service. In order to minimize the effect of potential first-adjacent-channel interference at night, Susquehanna supports the position taken by the NAB in their March 5, 2004 letter to the commission stating: "NAB encourages the commission to authorize AM broadcasters to commence nighttime IBOC broadcasts with appropriate interference resolution mechanism. NAB further encourages the commission to extend this authorization to all AM broadcasters licensed for nighttime services without the need for individual station authorizations."

Charles T. Morgan
Vice President
Susquehanna Radio Corp.

It is our belief that the current standard adopts what amounts to an undisclosed system that will have only one implementer (Ibiquity Digital) for not just the core digital audio technology already developed by said implementer, but for any further innovations made in the audio or data aspects of the system going forward. We further do not believe that it serves the public interest to allow such a "monopoly" to be created for AM/FM radio. ...

We believe that it is without question that Ibiquity has wielded an undue amount of dominance over this standard-setting process. It has been the sole proponent of technology; it has, by action and inaction, influenced the timeline for consideration of the various parts of the stan-

dard, and has used its leverage as the dominant voice in the proceedings to gain unfair competitive and commercial advantage.

Paul Signorelli
Chief Technology Officer
Impulse Radio

(The International Association of Audio Information Services) urges the commission to authorize the use of the FM extended hybrid mode within the proposed HD Radio system. This will make possible the establishment of space for reading services for the blind as well as other targeted programming on existing FM services without forcing a competition for space in the main program service.

It will also enable the commission to require that minimal space be made available for new reading services for the blind on public or commercial stations. This creation of a "home" for radio reading services within the new digital service will ensure that for as long as the hybrid phase exists, the small, not-for-profit services for blind and visually impaired Americans will be able to concentrate on delivering high-quality programming and not on survival. IAAIS suggests that the commission consider 25 kbps (or two partitions in extended hybrid mode) for this purpose. ...

IAAIS proposes that any FM operator that makes available digital spectrum to a reading service for the blind or other 501(c)(3) community service shall be eligible for the following incentives: A reduction in the Annual Regulatory Fee, adjusted according to the bandwidth donated; a positive point at license renewal; and a positive point during a comparative hearing in the case of mutually exclusive applications for spectrum.

David W. Noble
Chairman, Digital Radio Subcommittee
Technology Committee, IAAIS

The IBOC system ... causes significant noise and interference audible on a significant portion of existing AM radio receivers. ...

Daytime AM IBOC testing is in process in my city of residence (Portland, Ore.), thus giving me an ample opportunity to evaluate the many claims of noise and interference made by opponents of AM IBOC. While not scientific in nature, I have noted the following noise and interference-related artifacts on a sampling of ordinary analog radios. ...

I see no reason why we cannot go forward with FM IBOC while working hard to address AM radio quality issues on a separate path that may or may not eventually lead to digital service. ...

Is granting monopoly status to Ibiquity ... in our collective best interests when open technologies, such as OggVorbis and MPEG4 remain viable options?

Doug Dingus

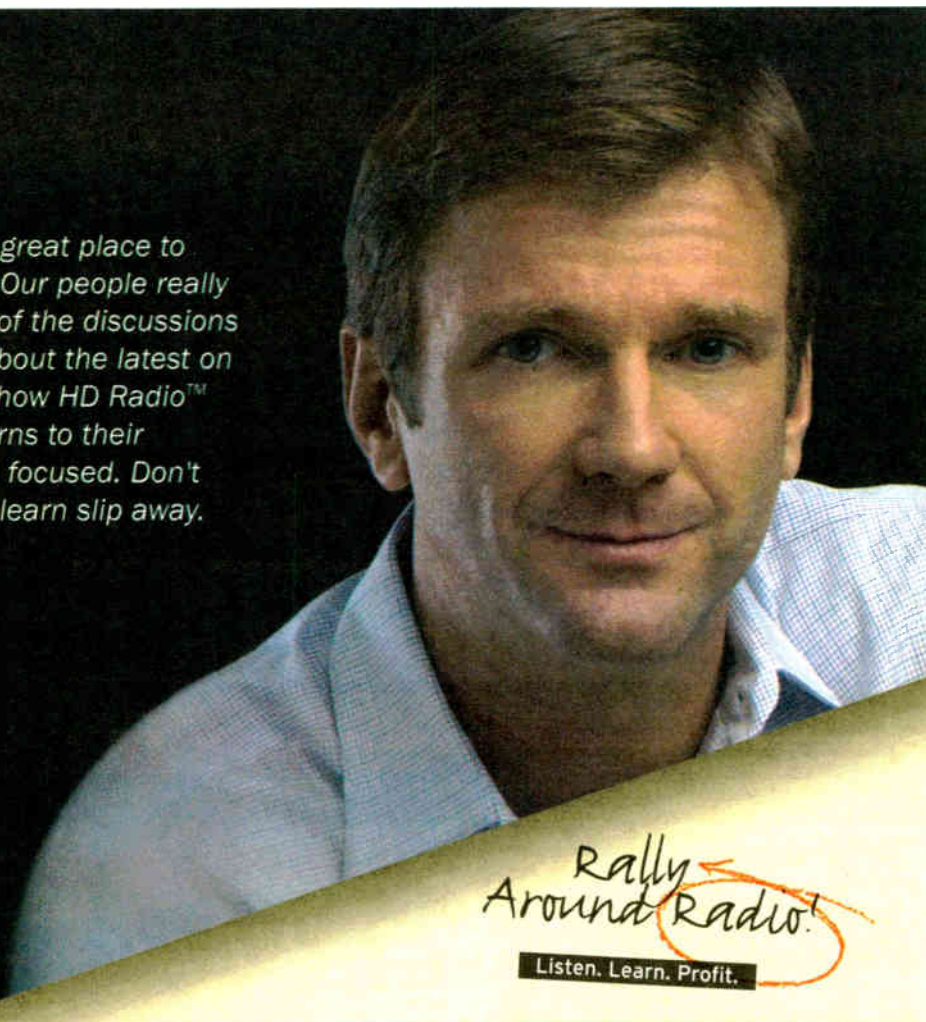
Terrestrial radio is the most ubiquitous, most accessed content delivery medium in the United States, and we believe the multicasting functionality of digital technology, in particular, will reinvigorate the service capabilities of the radio broadcasting medium. Accommodating multicasting within NRSC-5 is essential to adoption of the standard and the success of digital radio. ...

We specifically urge the commission to embrace the reference spectral masks as appropriate service delimiters in adopting service rules for digital radio broadcasting. At the same time, the commission should avoid setting minimum bit rate allocations for main or supplemental audio services. Those matters are properly left to local licensees, which are the best arbiters of the service and audio quality needs of their listeners, and continuous improvements in audio codec processors will translate directly into improved radio service.

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John Dickey
Executive Vice President
Cumulus Media, Inc.
Atlanta, GA



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Newswatch

► Continued from page 2
two satellite services.

Earlier appeals came from French-language cultural organizations and a coalition of English-language cultural lobbyists and labor groups.

CHUM and Astral Media had proposed a terrestrial repeater-based service using the Eureka-147 DAB technology. They now have appealed to regulators to set aside the approvals of its rivals. Several other broadcasters joined the appeal.

CHUM/Astral question the level and quality of Canadian content in the satellite offerings. Ten percent of the Sirius and XM channels would have to be Canadian, with 2.5% French-language. CHUM/Astral's content, it says, would be nothing but Canadian.

CHUM executive Paul Ski called the content quotas imposed on its rivals a "dramatic departure" from precedent that would harm Canadian artists.

In a statement, CHUM and Astral also said they believe the decision to allow U.S.-based Sirius and XM to operate in Canada has implications beyond radio, as at least one of the sat-casters has announced plans to launch video services, setting a precedent for the "entire audio visual sector in Canada as new wireless entertainment devices emerge."

The Canadian cabinet can set aside the regulators' ruling, effectively dismissing the licenses, or return the matter for reconsideration, according to the *Globe and Mail*. The cabinet must make a decision by September.

Meanwhile, the Toronto entrepreneur teaming with XM in Canadian Satellite Radio has been quoted in Canadian media as saying CHUM wants a monopoly on pay radio. John Bitove said his company earlier turned down an attempt by CHUM to buy a majority interest, the *Globe and Mail* reported.

CHUM said it was approached to explore its possible interest in acquiring a minority stake in CSR but that it did not accept the offer, "nor did we 'try to buy a majority interest' in CSR," CHUM President/CEO Jay Switzer said in a statement.

Radiosophy Adds USB Port To MultiStream HD

NORTH SOUX CITY, S.D. Radiosophy is adding a universal serial bus port to its MultiStream HD Radio receiver, due to ship to retailers this month. The inbound-only service port would eliminate the

need to return the unit to the manufacturer for software updates so users can receive software updates via the Internet using a computer.

Radiosophy President/CEO Richard Skeie said the company is capitalizing on the fact that the MultiStream HD is a computer with an operating system and a programmable display.

"We wanted to make sure our customers wouldn't have an obsolete radio because of a software change," Skeie. "This could extend the useful life of a MultiStream HD by years."

Some broadcasters plan to make use of the USB port to program the receiver's preset buttons, including the oversized button in the middle of the unit designed to receive a station's logo decal.

The unit's price is \$259.

Canadian XM Firm to Spend \$100 Million

TORONTO Canadian Satellite Radio has budgeted \$100 million over seven years in Canadian programming and infrastructure. The company, a Canadian-owned partnership between XM Satellite Radio and Toronto entrepreneur John Bitove, is one of three applicants approved by the government to provide pay radio in Canada.

CSR is spending much of the money on building a terrestrial repeater network, according to the *Globe and Mail*. Asked how many repeaters would be needed, President/CEO

Stephen Tapp told the paper that one repeater could service a smaller city with a lower skyline, such as Ottawa, while several repeaters could re-transmit the satellite signal for a larger city such as Toronto.

"While we are still evaluating ... the eight Canadian channels requested by the (Canadian Radio-television and Telecommunications Commission), the pressure from retailers and automotive manufacturers to commence service this fall has resulted in us beginning our major investments now," Bitove said in a statement.

CSR has hired a consulting firm to test coverage patterns and performance levels to determine where repeaters should be sited. The company also plans to build studios, according to the report.



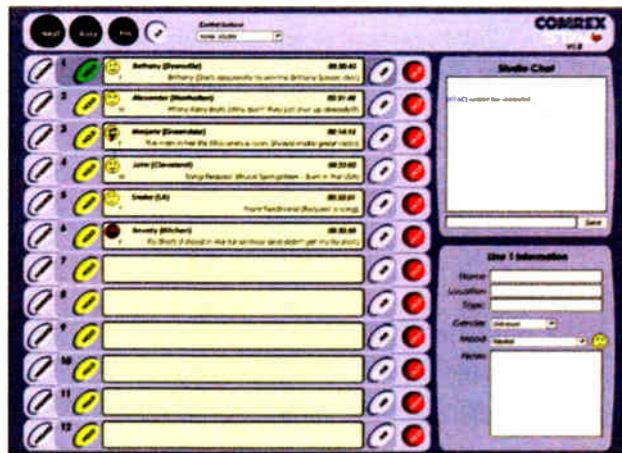
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Streaming's Return Affects Ad Insertion

Patent Holders Step Up Licensing Efforts
By Soliciting Broadcasters for Fees

by Randy J. Stine

DENVER Two Colorado businessmen say they hold the rights to the process by which radio broadcasters substitute content from their on-air signals with alternate materials for their Web streams; and they want stations to pay for using the technology.

The business partners, David Minter and Al Baldocchi, believe their ad-insertion patent is becoming more valuable as streaming media usage increases and more groups resume or begin streaming. They are now approaching major broadcast groups in regards to licensing the ad-insertion process.

However, some analysts believe it's unlikely broadcasters will ever pay to use it.

The patent — "Internet Radio System With Selective Replacement Capability" — covers the real-time removal of content in an Internet radio broadcast and was issued by the U.S. Patent and Trademark Office in 2003 to Minter and Baldocchi.

According to the patent, "The invention is directed to the replacement of the portion of the content in a radio station broadcast that is distributed over the Internet that is local in nature or otherwise unsuitable for the

Internet audience with content that is relevant to the broader audience that is capable of receiving the Internet broadcast."

Streaming is back

Burdensome copyright rules had forced many stations off the Internet in 2002. However, recent research — such

We have contacted the top 10 broadcast groups ... regarding buying the patent or signing licensing agreements.

— Al Baldocchi

as the finding by Arbitron and Edison Media Research that the Internet radio audience has grown to 37 million per month — has convinced some broadcasters to resume streaming content.

"From our perspective there has been more interest in the past several months ... in licensing or buying our patent," Minter said. "We are confident that our ad insertion patent is an asset that is growing in value over time, just as Internet radio is growing."

Minter is president of Minter and Associates, a consulting practice that specializes in the entertainment industry, based in Denver. Baldocchi is an independent business consultant and investment banker in Boulder.

additional talent fees due its members for the second use of copyrighted material as a result of Web streams, analysts said.

"Even though the AFTRA issue still remains, ad insertion makes it almost a non-issue anymore," Bundy said.

Clear Channel, Entercom and Infinity Broadcasting are among the broadcast groups making a heavy commitment to streaming, Bundy said.

"A few major groups have plans for major Internet initiatives for 2005," Bundy said. "We are seeing stations coming back on at a steady rate, especially in the major markets."

What broadcasters say

That includes nearly equal numbers of news/talk and music stations, Bundy said, now that copyright issues are pretty much settled, including performance fees paid by over-the-air broadcasters to artists because of their Web streams.

"The fear of the unknown has been pretty much settled and (broadcasters) are better able to gauge their streaming costs," Bundy said.

A Clear Channel spokeswoman confirmed that Minter and Baldocchi have contacted the company about the patent but declined further comment. Infinity Broadcasting and Emmis Communications officials said they could not confirm that the patent holders had contacted them.

Several suppliers offer products that incorporate ad insertion functions. For example, Broadcast Electronics' SoniXstream Web-based media delivery system has ad replacement and insertion capabilities.

Neil Glassman, BE vice president of strategic planning, said, "There are certainly intellectual property matters to be considered when radio stations stream their programming. BE is vigilant in respecting the intellectual property rights of others in all of our product and service offerings."

Broadcasters using the patented process and companies that provide ad-insertion software have been a part of discussions regarding the patent, Minter said.

"We have contacted the top 10 broadcast groups, in terms of stations owned, regarding buying the patent or signing licensing agreements. No one has disputed the fact that we hold the patent. Some are doing due diligence right now to understand the patent and what it covers," Baldocchi said.

Ad insertion allows broadcasters to replace local commercials with content that would be more suitable for listeners over a larger geographic area, Minter said. "An example would be replacing local material with an ad for Coke or Pepsi for the Internet stream."

But broadcasters likely will look to software companies or streaming providers as the parties that should pay, said George Bundy, chief executive officer of BRS Media, an Internet consulting firm that specializes in radio streaming.

User pays

Minter declined to speculate on the estimated value of the patent. He said the businessmen have contacted several software companies that sell insertion products, but are concentrating their efforts on striking license agreements with broadcasters.

"We think that strategically this patent fits best in the hands of a broadcaster. They are the ones using the technology. We hope to eventually find either a strategic buyer or a group that has interests in patents and patent enforcement to sell to," Minter said.

Licensing intellectual property, or enforcing it, is sometimes an expensive process, Minter said. "I don't believe that is the way for us to go. I think eventually we will sell the patent," he said.

Ad insertion capabilities came onto the industry's radar screen 2001 when the American Federation of Television and Radio Artists voiced concern over



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Axia is already working with some great companies. Like Enco Systems, Prophet Systems, Scott Studios, Radio Systems, Balsys Technology Group, and of course Telos and Omnia. Check AxiaAudio.com/partners/ to find out who's next.

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An expensive proprietary router isn't practical for smaller facilities. In fact, it doesn't scale all that well for larger ones. Here's where an expandable network really shines.

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Put your preamps where your mics are.

Most mainframe routers have no mic inputs, so you need to buy preamps. With Axia you get ultra-low-noise preamps with Phantom power. Put a node in each studio, right next to the mics, to keep mic cables nice and tight, then send multiple mic channels to the network on a single Cat-6 cable. And did we mention that each Mic Node has eight stereo line outputs for headphones? Nice bonus.

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A networked audio system doesn't just replace a traditional router — it *improves* upon it. Already, companies in our industry are realizing the advantages of tightly integrated systems, and are making new products that reap those benefits. Working with our partners, Axia Audio is bringing new thinking and ideas to audio distribution, machine control, Program Associated Data (PAD), and even wiring convenience.

Are you still using PC sound cards?

Even the best sound cards are compromised by PC noise, inconvenient output connectors, poor headroom, and other gremlins. Instead, load the Axia IP-Audio Driver for Windows® on your workstations and connect *directly* to the Axia audio network using their Ethernet ports. Not only will your PC productions sound fantastic, you'll eliminate sound cards and the hardware they usually feed (like router or console input modules). Just think of all the cash you'll save.

Put your snake on a diet.

Nobody loves cable snakes. Besides soldering a jillion connectors, just try finding the pair you want when there's a change to make. Axia Audio Nodes come in AES/EBU and balanced stereo analog flavors. Put a batch of Nodes on each end of a Cat-6 run, and BAM! a bi-directional multi-channel snake. Use media converters and a fiber link for extra-long runs between studios — or between buildings.

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There are plenty of ways to control your Axia network. For instance, you'll find built-in web servers on all Axia equipment for easy configuration via browser. PathfinderPC® software for Windows gives you central control of every audio path in your plant. Router Selector nodes allow quick local source selection, and intelligent studio control surfaces let talent easily access and mix any source in your networked facility.



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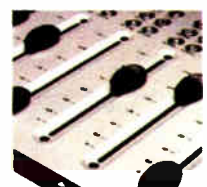


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Workbench

Radio World, August 17, 2005

Past columns are archived at www.rwonline.com/reference-room

★ ★ ★

When a Ground Isn't a Ground

by John Bisset

Bob McLeod doesn't work in the broadcast industry directly; he's in power generation operations. He's also a ham, WAIRM.

sites. A contract engineer told me recently of a very large voltage potential noted between a transmitter equipment rack and the "ground" strap. He found it by, you guessed it, touching the strap while also

My guess is it was used to "fix" some PD's stereo. Plug in the AC, and watch the fireworks as the RCA plug is inserted (by the PD, of course!).

What do you think? E-mail your sugges-

Last column Paul Sagi wrote of the benefits of those little keychain-type LED flashlights.

Torrance, Calif.'s LEDtronics has a powerful LED FlashLED, the FLT-4001, seen in Fig. 2. It's not a keychain, but a compact flashlight — or rather, a "flashLED" — that can provide 1,800 foot-candles of white



Fig. 1: Can you identify this jumper cable?

He says he enjoyed our recent column on grounding and wanted to comment on the lack of proper grounding of large transmitters.

Bob cautions that before you grab a ground wire to check if it is attached to something, you should short the unknown ground to a known ground, or at least use a pair of lineman gloves, with a HV rating, to protect yourself while checking. If possible, bring another person along too. You could get quite a surprise, not to mention a good jolt, if you became the path to ground.

A great tip, Bob. One never knows where wires may go, especially at undocumented

touching the "grounded" rack.

Reach Bob McLeod at ramcleod@comcast.net.

★ ★ ★

Speaking of safe grounds, Cumulus Youngstown's engineering team of Wes Boyd and Dan Kerr share the "dead-man's cable" they found at WPIC(AM) in Sharon, Pa., a few years ago, shown in Fig. 1.

They weren't sure what it was used for but couldn't resist snapping a photo for *Workbench* readers. So can you come up with a good use for this cable?



Fig. 2: The battery on this FlashLED will last for eight days.

tions to me at jbisset@bdcast.com.

★ ★ ★

Consulting Engineer Charles "Buc" Fitch, P.E., writes that Nationgrid Electric is sending out electrical workplace safety kits to customers to highlight the 10-foot minimum safety zone concept. The kit includes decals, brochures and a safety video.

For information, go to www.nationgrid.com/safetykit. The Safety tab on the company's site also leads you to other helpful safety-related topics.

light from its 1-watt Luxeon LEDs.

The company says these are the brightest solid-state light sources available commercially. The LED integrates a collimator that focuses the light into a tight beam. Of particular use for the engineer is that the white LED lamp operates for more than six years.

The battery life of the FLT-4001 is spec'd at eight days on three alkaline C-cells. The FlashLED is about 10 inches long and weighs about a pound with the batteries installed.

With specs like that, no more dead flashlight. Visit www.ledtronics.com.

See WHACK THOSE WEEDS, page 12 ▶

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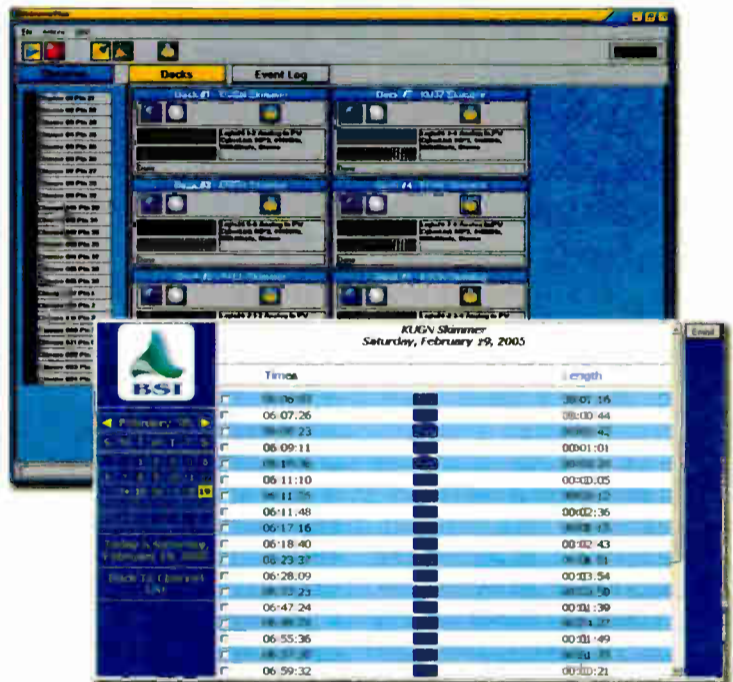
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News of recent sales of equipment and services. Stations and suppliers can send project news to radioworld@imaspub.com.

Telos Systems said recent clients using its ProFiler system include **Northwestern College Radio**; **KSSN(FM)**, Little Rock, Ark.; **WBZX(FM)** in Columbus, Ohio; and **WYCD(FM)** in Detroit. Stations purchasing Omnia processors include **WMZQ(FM)** in Washington; **WNVE(FM)** in Rochester, N.Y.; **KCOF(LP)** in Captain Cook, Hawaii; and **KCDX(FM)**, Phoenix. ...

Whack Those Weeds

► Continued from page 10

★★★

While we're on the topic of new products, MuxLab Inc. (www.muxlab.com), a manufacturer of security video and audio-video connectivity products for copper twisted pair, has an addition to its line, the Quad Audio Balun (Model 500033).

This one was developed for the custom audio market. It allows up to four analog line audio channels to be transmitted via



Fig. 3: Dry grass is a real fire threat.

twisted pair, thus allowing four coax audio cables to be replaced by one Cat-5 cable.

The balun supports line-level analog audio up to 5,000 feet via Cat-5 and works in pairs or with MuxLab's other analog audio baluns.

★★★

We'll wrap up with a word of warning about those transmitter sites you never find time to visit.

Logitek sold two Mosaic digital consoles to **Westwood One** for use in its NCAA studios in New York. Westwood One purchased one Logitek Audio Engine, a Mosaic-24 console, a Mosaic-12 console and five GST-22 guest turrets.

Separately, Logitek said Internet provider **godaddy.com** purchased a console system comprising an Audio Engine and the vMix "Virtual" Console for a podcasting application. The supplier shipped two Mosaic-16 consoles to **Jiangsu Radio** in China through distributor **JCE**, which also ordered a Mosaic-20 for **Zhejiang TV**. And Australian distributor **Maser** placed an order for a large console system including three Audio Engines, two Mosaic-12 consoles, two Remora-4 consoles, several guest panels and a suite of router controllers. ...

Bayrak Radyo Televizyon Kurumu (BRK) in the Turkish Republic of Northern

Cyprus purchased **Broadcast Electronics FM 5C** solid-state 5 kW and **BE FM 250C** transmitters. The project was the third FM put on the air in Northern Cyprus using BE transmitter products, according to the supplier.

Separately, **Minnesota Public Radio** took delivery of a **BE FMi 703** transmitter package with HD Radio multicasting capability and optional studio signal generation for **KSNJ(FM)**, serving the Twin Cities area. An identical **BE HD Radio** system is for **MPR station KNO(FM)**, also in that area. Mike Hendrickson is chief of network engineering responsible for planning and implementing HD Radio for **MPR**. Shane Toven is chief of **KSNJ**. The orders were placed through John Sims with **RF**



Fig. 4: Exposed cables threaten the air-worthiness of this station should fire strike.

worth it, cutting down on rodents, insects and the fine pollen the grasses would release next spring.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is northeast regional sales manager for Broadcast Electronics. Reach him at (571) 217-9386, or jbisset@bdcast.com.

Submissions for this column are encouraged, and qualify for SBE recertification credit.

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the listening device of choice for new programs." It then purchased four 900W transmitters for the launch of six digital broadcasting programs, including moving images, during the second half of 2005. ...

Dalet Digital Media Systems said **Emap Radio** will add **DaletPlus** for content management and distribution. The client is a subsidiary of **Emap Plc**; **Dalet** said **Emap** owns one of the largest digital radio networks in the UK. It already uses **Dalet** systems in its studios and now interconnects the information flow among them using the new asset management system. ...

Wicks Broadcast Solutions signed a deal with **Connoisseur Media** to integrate **Wicks** software into **Connoisseur's** corporate office and 10 new radio stations.



Engineers for BRK visited BE's factory to take part in RF transmission training for a new installation in Northern Cyprus. From left: Ken Ruzicka and Matea Simovic with BE, Halil Balbaz of BRK, Stuart Peters with BE, Lutfi Aysan with OnAir Medya, Tom Beck with BE, and Alkin Gedikoglu, Bulent Aksertel, Mustafa Serhat Hamidi and Tuncel Karli with BRK.

Specialties of Missouri. ...

And **WPRM(FM)** became the first station in Puerto Rico to air HD Radio, after installing a **Broadcast Electronics FMi 31** HD Radio transmitter in April. The station is owned by **UNO Radio Group**. **WPRM(FM)**, known as the **Salsoul Network**, is a 25 kW tropical format. ...

Promo Only MPE and Destiny Media Technologies said the **Promo Only MPE System** had distributed some 600 tracks for **Universal Music Group** since its launch in October of 2004 and roughly 1,200 tracks for all labels on the system. ...

Harris Broadcast Communications Division said **Beijing Radio** selected its **DAB 660** transmitters for a **Digital Mobile Broadcasting** application.

The supplier said **Beijing Radio** began a 3G digital audio trial broadcast in April "with a view to targeting mobile phones as

Connoisseur will standardize on **DeltaFlex** traffic and billing software and **InterAcct** accounting system software, the supplier said, and will use its **Control Tower** technology to capture corporate reporting data. **Connoisseur Media** will put 10 stations on in the next 10 months or so. The group was formed by **Jeffrey D. Warshaw** and **Michael O. Driscoll**. ...

Prophet Systems said **John Marquis** is using its **NexGen 101** at his company, **JustGreatRadio**, which he calls a turnkey business opportunity for entrepreneurs who want to run their own radio stations on the Internet, in locations not served by traditional stations.

JustGreatRadio provides technology, programming, licensing and software systems to start a station. **Ellsworth County Radio** in **Ellsworth, Kansas**, is among its clients. ...

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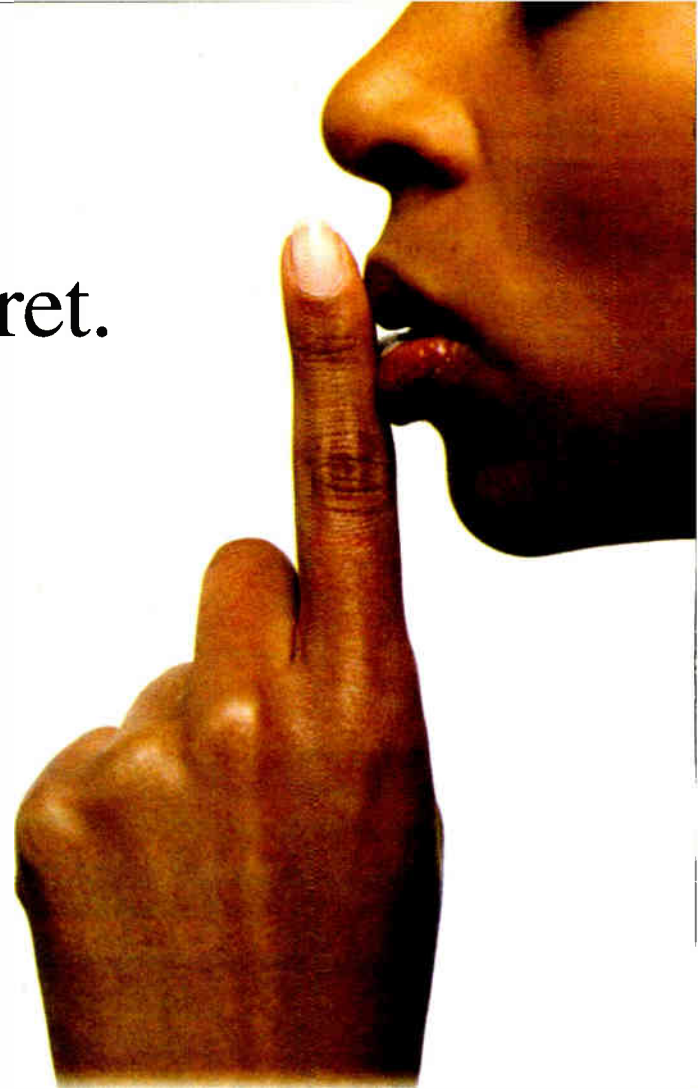
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IT Service Delivery in Broadcast

by William M. Eldridge

Information technology is playing a much larger role in the broadcast facility, and this series examines how to acknowledge and work with this change. In the June 8 issue we discussed a general sketch of IT Service Management. Let's dig into the different areas of ITSM along with practical applications for the broadcast industry.

First, it should be noted that the term "information systems" includes not just the IT equipment, but also the personnel, support structures and users of these systems.

Managing these systems in a controlled fashion is the goal. Integrating business concerns with this management is necessary in an industry focused on mergers, bottom-line margins and downsizing.

We noted previously that IT Service Management contains two major parts: service support and service delivery.

Service delivery involves higher-level planning and managing expectations; while support is more involved in the nuts and bolts of assuring those expectations are met. This part of our series will focus on the financial and service level agreement elements of service delivery, as they include

the business considerations that should drive its implementation in the facility.

Frequently a disconnect exists between business and technical concerns in broadcasting. Budgets are held tight while everyone clamors to have the newest gadgets advertised. Pivotal technical decisions are often made by what an exec saw in a trade

first. It is more important to develop the structures for service delivery than to pin down all details. IT Service Management is an evolving process in terms of new features and quality improvement, so all documents will continue to be revised over time.

A continuous cycle evaluates "Where do we want to be?" (vision and objectives), "Where are we now?" (baseline assessment), "How do we get there?" (process and resource improvement) and "How do we know we've arrived?" (metrics).

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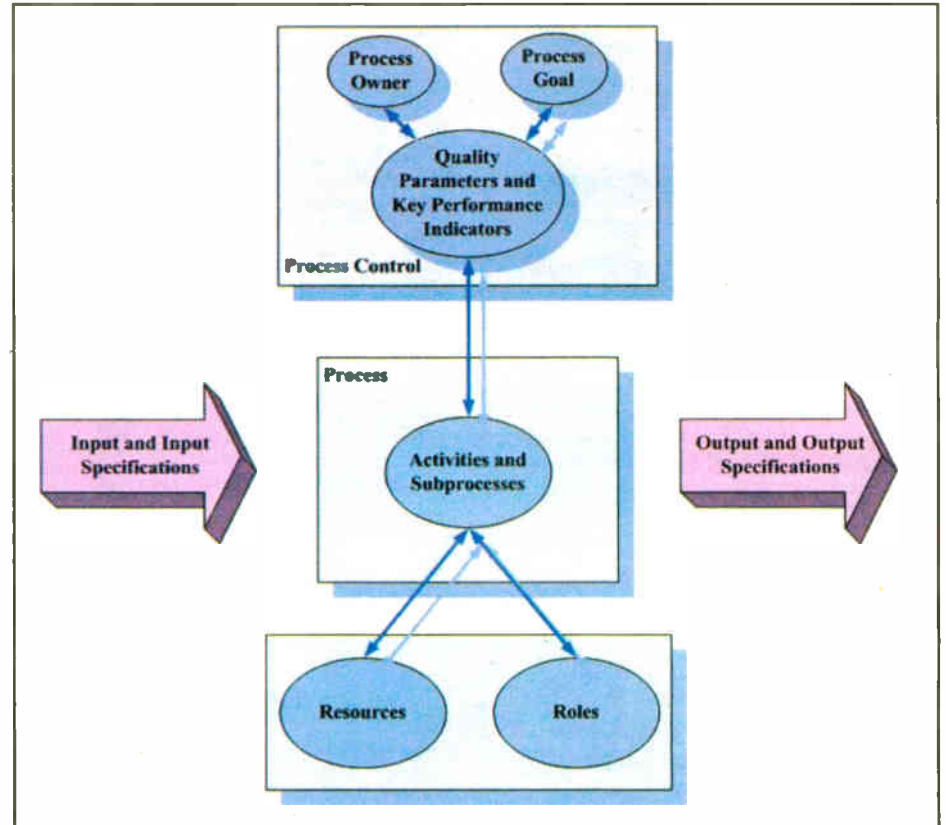
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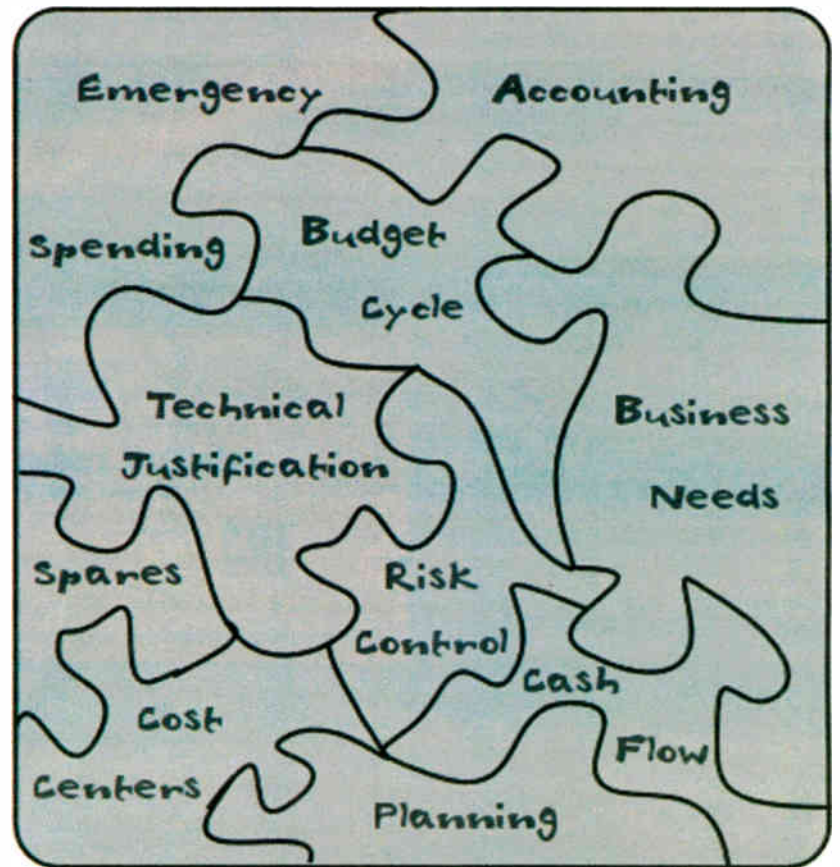
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The Professional Standard



For broadcast engineers, the concept of process-based information management has a lot in common with black boxes and signal flow. Graphic is derived from 'IT Service Management: An Introduction' by Jan van Bon.



Looking at broadcast systems in business terms is an important step towards meeting IT goals and communicating with non-technical decision makers.

magazine, rather than a sober analysis of the facility needs or business plan.

Judging from exalted sources such as "Dilbert," this phenomenon will not go away, but it can be managed better by having a business and technical context to place it in.

The definition of services is a complex task, but it need not be overly demanding at

Primary in service delivery is the service level agreement or SLA, the basic understanding of the functions of the facility. This will include metrics on performance, response, capabilities, ability to expand, emergency measures, costs, et al.

While SLAs traditionally are thought of

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Service

► Continued from page 14

as documents for external providers, there is no good reason why SLAs cannot apply to in-house functions as well, especially as finance departments start looking at everything as “cost centers” with their own efficiencies and cash flows.

SLAs do not arise out of themselves. They are a tradeoff of finances and the various measures that IS needs to provide — such as how many workstations and studios, remote feeds and storage, automated delivery with easy scheduling.

The SLA itself is derived both from external requirements as expressed by the client or customer, evaluated business needs and internal technical specifications. A service catalog is an overall non-technical representation of the IT services and functions provided. The SLA is a less technical document that describes specific service levels for various services, intended for both end users of these services and management.

An operational level agreement (OLA) translates the SLA into detailed technical plans, processes and resources, while an underpinning contract is used for the portions of the service that are outsourced to an external provider.

Reality check

A danger to be noted here is that technical performance is easier to evaluate in obvious quantitative ways, whereas other functions of the company (such as reporting quality, general administrative services, human resources) may not receive the benefits of this kind of strict definition. Some functions such as reporting and advertising are seen as the primary function of the business and therefore receive top priority.

A well-written SLA will address the relationship with other star functions, and it should be obvious how more reliance on technical systems improves the core business functions, and if not, the technical planning should be adjusted to make that happen. Naturally there are functions that are taken for granted until they fail, and these need to be addressed strongly enough to rise above the fray and to provide a well-rounded description of the technical needs and focuses.

Above all, SLAs should be achievable and practical. Every consideration runs up against limits such as time, money, lack of technology or trained personnel.

A technique called the “balanced scorecard” helps to clarify that these choices are tradeoffs, and to evaluate the proper balance.

As an example, having all staff on call 24x7 might guarantee uptime, but it will also cost money or generate resentment. A smaller percentage of staff availability may achieve near the same performance without many of the negative effects. Relating technical systems to estimated effect on journalist performance or advertising revenue or potential disaster can help reduce interdepartmental turf wars. As an example, not all data is equal, so expensive storage systems should be focused on mission-critical data, especially near-term on-air material. Each category should be graded on its importance.

While availability, capacity and continuity management are important parts of service delivery, financial management holds all the trump cards. Translating specific IT services into dollars and cents can be difficult, and determining the business value of a service may be as much marketing and psychology as it is economic analysis, but it is essential both for internal PR and for proper

planning.

Management may like to brag about its “24x7 facility,” but a system that is “24x7 minus just a little” may be a lot cheaper to maintain. We tend to approach technology as looking for the best and the fastest, but ITSM is more about “right-sizing” — finding the best fit of technology for an application, including future needs.

NASA uses old 286 computers on space-ships because they’re dependable, will run for years, don’t put out much heat and are sufficient for the task. Broadcast systems should be evaluated in much the same way, both for use and maintenance.

Systems usually benefit some more than others. Determining shared costs of services requires a bit of finesse.

Activity-based costing on a service desk may note 50 percent of time spent handling user requests, 30 percent installing new sys-

tems and 20 percent on maintenance. Yet help calls from the advertising department may be more frequent but less time-consuming than those from the finance department (such as converting a document vs. programming a new financial report). Last-minute requests from broadcasters may necessitate a higher level of support staff and more spare resources held in reserve. Late-night staff may not meet the same productivity as daytime staff, but is required in case of emergency.

While it may be a change of behavior or process may save costs and improve service delivery, the first step is a dispassionate baseline evaluation of the services and their value. Perhaps the “flawed” version is the most practical system compromise.

The budgeting process itself is frequently arbitrary. Budgets based on previous years may have little to do with current needs.

Unknown emergency spending may outweigh known expenditures, whereas areas such as security planning use a high degree of analysis and guesswork in assigning values. The timing of the budget may also have a great effect. Some non-profits receive all their funding once a year, whereas revenue-based organizations may have steady or cyclical flows of cash. Future funding may be predictable for some and not for others. Saving money on staff or spare parts in the short term may hurt operations later.

SLAs and budgeting tend to provide tight limits to service planning. Next time we talk about the services themselves.

Bill Eldridge is a musician and engineer who has worked in studios, the Internet and radio broadcast for 20 years. Currently he lives in Prague and is involved with mobile phone video streaming and project management. Write to him at dcbill@volny.cz.



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How to Develop a Budget

Cap-Ex Time Is Coming. Here Are Tips To Help You Prepare, Not Procrastinate

by Frank Grundstein

Summer's almost over and that means every engineer's heart turns to capital budgets.

We have spent time in past articles talking about operating budgets. Now it is time to talk about "CapEx." We also have described how some large groups handle capital spending. This article will focus on methodologies used by mid-size and small groups as well as independently owned stations.

Capital spending generally falls into two categories: replacement capital and new equipment capital. Each is necessary for the facility to grow.

Engineers I have talked with have varying viewpoints on how to start preparing a capital budget

The List

Chris Sarris, director of engineering for WBEB(FM) in Philadelphia, probably the most successful independently owned station in the country, says his capital plans start with a list.

"You can't know what you need to replace unless you know what you have," he said. Sarris maintains that when you are hired at a station or when your company buys a new one, you'll need to generate a list of equipment. In an acquisition situation, a list is probably available through the station's "due diligence."

Once you have a list, establish anniversary dates for all the equipment as well as the expected lifespan for each piece of gear. Sarris says this will help greatly when it comes time to develop an ongoing replacement plan.

If management wants an aggressive replacement program, you could establish the depreciation date as the replacement date.

The Plan

Once you know what you own, develop a capital spending plan — not just for next year, but long-range. These typically project your spending for five years, about as far as you can predict technology changes that might affect your station.

If you don't have a plan, develop one now. Without a viable capital spending plan, you are simply reactive in your spending. Management may perceive that you are just riding the wave of the current fad in engineering. Show the group or station management that you have thought about how you are going to use their resources for the next five years to

enhance station value.

This approach also will prepare your superiors so they are not surprised when you talk about this year's planned spending. There is the key word: *planned* spending, not just *proposed* spending.

If you are the market engineer in a group, it is probably your responsibility to develop the plan for your station(s). Talk to your manager and department heads; find out what their goals are.

Conrad Trautmann at Westwood One says the justification for a capital item usually comes down to one of three factors: ROI; opportunities for increased revenue; and risk management.

Any market consolidations the ownership might be planning will affect your budget, so let management know that you need to be aware of such discussions.

What about HD Radio conversions? Are they planned, and for when? Format changes can involve significant spending. You should be aware of these if possible. A station that is about to go from satellite automation to a live format with a full morning show is going to need to spend some serious capital dollars.

Try to incorporate all such items into your capital plan. They may be thrown out later by the market or station manager; but at least they will have the information needed to make an informed decision, and you'll have a record of your recommendations.

Prioritize

Now that you have identified the planned projects, you have two more jobs.

First, put a dollar value on them. Use real dollars for projects for this year; use list price dollars for anything farther out. Make cost estimates if you can. If not, write "price to be determined" with a best-guess dollar range. More information is better than less.

Second, prioritize the items. Your management needs to know which expenses you consider priorities. While your programming department may lust after a hot new air processor, you may know that a new transmission line is more pressing.

Prioritizing proposed expenses may be particularly important if your budget is going to a group engineer who must compile budgets from several markets.

This may be as far as you go with this stage, if you are an independent working with only one or two stations in a single market. If you are part of a group, your proposal then goes to the group engineer. He will compile all the proposed projects into one master budget.

Capital funds available probably will not be sufficient to handle all the projects from every station. Projects, again, should be prioritized by the group engi-

neering manager when presented to group management.

Try to keep your project priorities in line with the group management's plan. If HD Radio conversion is a high priority at your company, this should be reflected in your project priority.

Also note when projects and priorities intersect. For instance, if the group has an aggressive HD conversion plan and the station is running with marginally reliable 15-year-old main and 25-year-old backup transmitters, reinforce the twin goals of keeping the station reliable as well as going digital.

Sarris points out that in planning for projects, you should be aware of lease requirements and restrictions. Punching an extra hole in a wall for a run of transmission line might violate a clause in your lease. That could open the lease for complete renegotiation with the landlord. You could find yourself with a very expensive hole — or, worse, having to find a new site under an uncomfortable timeframe. Check leases when planning improvements to make sure you don't put the station, and yourself, in a bad situation.

Remember the unforeseen

Tom Atkins, vice president of engineering for small-market group Backyard Broadcasting, includes in his budgets a line for emergency capital.

Some of the stations that Backyard buys are not in pristine condition. "I am often working in a crisis management mode with capital," he said. "My engineers have to try and get the most life they can out of the equipment that we get in the station acquisition. Hopefully they will be able to keep the equipment functioning until the next formal budget cycle, but that is sometimes wishful thinking."

"If we don't have some money budgeted for crisis purchases, we can be in big trouble, as these purchases are always triggered by reliability issues."

He is working to get past the crisis management stage to the point of risk management; but for now, emergency funds remain among his capital budget lines.

Sarris also insists on a line for funding disaster recovery. What are you going to do if you have to evacuate your studios for a weather disaster — or a man-made one? What if you have to evacuate your studios for a bomb scare? How will you stay on the air?

I once worked at a radio network located in the same New York City building as an office of the state governor. We had to deal with weekly bomb threats that caused the evacuation of the building. We chose to ignore them. But that isn't really a plan.

Things to consider in planning and budgeting for disasters: How long do you want to be able to operate out of the studios? How close to normal do you want operations to be in those circumstances? How fast and seamless do you require the transition to be? Should the emergency facility be on property you own, or elsewhere? All these factors influence budgeting for the project.

Justify, justify, justify

OK, you have a plan; now what? You need to justify each of the expenses.

Sometimes justification means return on investment, or ROI; sometimes it is less tangible. But you must justify each expense.

These are capital items, not operating expenses. You are requesting them because you, or someone else in the station management, feels they are necessary. You need real reasons the company should spend this money.

Conrad Trautmann, senior vice president of engineering for Westwood One, says the justification for a capital item usually comes down to one of three factors: ROI; opportunities for increased revenue; and risk management.

Some items can overlap multiple categories. Remember our old transmitter mentioned earlier. You can demonstrate risk management by demonstrating that this product is no longer serviced by the manufacturer and thus service is problematic and loss of airtime likely at some point. You can show the ROI for a new transmitter. You can illustrate cost savings in utilities for a more efficient unit.

Detail maintenance savings, man hour savings for the maintenance and monitoring of the outdated equipment. Most transmitter manufacturers will be happy to provide you with an ROI analysis.

Such analysis can be motivating. During the utility crisis in California a few years ago, I was able to demonstrate that a new 50 kW solid-state AM transmitter would pay itself off in 2-1/2 years thanks to the utility savings, incentives from the power companies and maintenance savings. The decision to replace the transmitter took five minutes of the CFO's time once the numbers had been presented to him.

Crisis budgets and disaster recovery budgeting are both sub-categories of risk management.

Not all expenditures are easy to defend; but you'll need to be ready to defend any capital dollars you propose to spend. If your reason is that "another department head told me they need it," ask that person to help you with the justification. Questions to help them clarify their need: How will the expense increase productivity in the department? How will it keep the station competitive? Will the expense drive new revenue sources, e.g. remote kits for the promotions

See BUDGET, page 18 ▶

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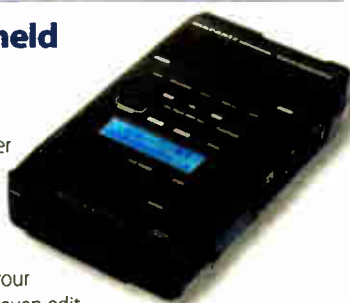
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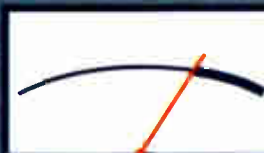
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SBE Debuts Frequency Coordination Software

The Society of Broadcast Engineers has developed a software tool for use by local, regional and event frequency coordinators.

SBE Toolbox is free to SBE and affiliate coordinators, and uses a runtime version of Filemaker Pro. It allows the user to import records used in SBE's previous DOS-based software, and calculates distance and bearing from lati-

tude and longitude.

Additionally, SBE Toolbox has automatic e-mail and letter writing features, and wireless mic and IFB tables. It is suitable for local coordination, as well as event coordination purposes.

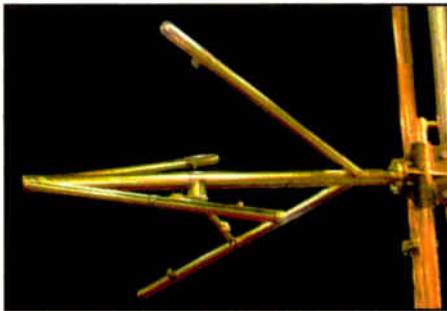
For more information, contact the SBE National Office in Indiana at (317) 846-9000 or visit www.sbe.org.

Jampro Antennas Aimed at HD Radio

For those considering HD Radio, Jampro offers its JMPC-HD and JSHD antenna systems.

The JMPC-HD, shown, is the medium-power version of the Penetrator antenna, and has been designed for use

as a separate or interleaved antenna for HD Radio broadcast. Each circularly polarized bay consists of a radiating



element with a 1-5/8-inch shunt feed line with a 10 kW maximum input. Multiple frequency design is also available.

The JSHD Dual Input HD antenna provides isolated and separate inputs

for analog and digital transmitters. This approach allows the digital transmitter to operate at its target power with no power lost in a reject load and no power reduction caused by lossy digital injectors. There is no single point failure that can take the antenna totally off the air. The system uses two separate and isolated RF paths, for redundancy. Either input could be used for analog or digital RF after considering power levels.

Contact the company in California at (916) 383-1177 or visit www.jampro.com.

SBS Amplifier Is Lightweight

The SBS PA1000 is promoted as a compact, lightweight power amplifier for use as a back-up system or universal IPA for higher-power and tube transmitters.

The 3RU device uses a low-maintenance, heat-dissipating "fresh-air-tunnel" concept. The airflow of the dual-fan cooling system has minimal contact with active components, keeping sensitive areas free from dust and contaminants; it and needs no filtering in most environments.

For harsh environments, sbs supplies clip-on filter kits that attach to the outside of the PSU and RF sections of the PA1000.

Metering indicates PA forward and reflected power, voltage, current and temperature. Output power is set from the front panel and there is a remote control/monitoring interface.

Contact the company in England at 011-44-1789-768870, e-mail info@sbsfm.com or visit www.sbsfm.com.

Budget

► Continued from page 16 department?

Justification starts at the local station department head and flows upward. If they can't defend the purchase, you will have a hard time doing so in front of your management. Your corporate people may even need to justify their capital spending to the organizations that have advanced financing. Often, capital spending is restricted when leveraged financing is involved.

Present your budget

Here we are again, back to the spreadsheet. Get to know Excel. It is your friend.

Put all the items you are proposing in a spreadsheet. If you have a five-year plan, put each year on a separate sheet. Make notes for each year. These notes can be attached to the cells; or you can have a separate page for those.

In the notes, include your justifications, those from other department heads and any other supporting material, such as estimates from subcontractors and legal documents. Send it all upstairs.

Eventually, you will have a meeting at which you will have to re-justify what you are asking for. If you plan properly and justify profusely, the next thing you will be doing is executing the project.

The author has worked as a radio chief engineer, video facility manager and equipment sales executive. He is domestic sales manager for Logitek. The opinions are his own.

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SUPPLY SIDE

A Few Words With WIT

Supply Side is a series of occasional articles about companies you don't know, or things you don't know about companies you do.

This Q&A is with Bill Gillman, partner and director of hardware development for WIT Inc.

The company is new and some readers won't have heard of it. What should we know about WIT Inc.?

WIT Inc. was incorporated a year ago to bring the easi-8 remote monitoring and control system to market. It does business from Draper, Utah, a suburb 16 miles south of Salt Lake City.

Who owns it and how many employees does it have?

WIT currently has three full-time employees, all equal partners, all of whom did time at the former Gentner Communications. I am the hardware designer, Chris Clark is the software designer, Kevin Davis runs the business. The company utilizes a number of vendors in the Salt Lake City area to manufacture the product.

What's innovative about the easi-8?

A year and a half ago, Chris and I considered the extraordinary changes in the last 10 years and how this has impacted monitoring and control requirements.

New solid-state transmitters are much more reliable and include monitoring and control software that is built in. This software offers far more detailed information and control options than can be yielded by a traditional remote control system. However, the transmitter vendor can't anticipate and does not offer control of the auxiliary transmitter, antenna switching, environmental systems, generators or alarm the tower lights or building doors.

The transmitter-to-remote control interface was always the easy part of any system design. The transmitter provided low sample voltages for metering and contact closure inputs for control. The peripheral items are always a challenge — 120 volts AC legs, dry contact closures that needed to be powered, 24 volts control and status signals all required external circuitry to facilitate the interface.

We also noticed that the risk equation has changed. If an eight-station



Bill Gillman

cluster in a market has a momentary transmitter loss, this affects a fraction of the audience. In some instances the loss of a single file server at the studio can result in the loss of the entire clus-

ter. The importance of monitoring and control has defused throughout the entire operation.

The easi-8 features eight universal inputs configurable as metering or status; input channels that auto-DC; eight isolated relay outputs are built in. Also, monitoring and control are via a standard browser software and Ethernet communication; event notification is via e-mail to the desk top or cellphone or pager; and there are time-of-day functions and event logging

We felt that eight channels and a low cost allow the unit to be placed where the action is. It's easier to cable CAT-5 to the easi-8 than it is to extend metering, status and control cables backing to the rack room. The small footprint of the unit can be inserted in the

equipment to be monitored such as a generator transfer switch or it can be rack-mounted with the included panel. An included sensor offers accurate monitoring of temperature.

A single browser display can reference several easi-8 units for a user-defined, integrated display. There is no software to be installed on the PC. Multiple easi-8 units operate autonomously without a hierarchy, avoiding a single point of failure like the current large-scale remote control systems that require a PC file server.

The system offers an open Web API interface that allows the user to easily write their own custom applications for long-term logging, macro automation, etc.

What does it cost?
\$1,295.

How to build the perfect console.



Start with a flexible routing system that can accommodate all of your facility's audio distribution, along with intercom functions, EQ and dynamics processing, profanity delays, timers, and more. Next, select the right frame size for the router's control surface. Populate the frame with the number of faders you want, along with programmable pushbuttons, countup/countdown timer controls, and meter bridge with extra graphic displays. The result? Your console, exactly as you want it, with the functionality your talent craves and a sleek design that complements the studio perfectly.



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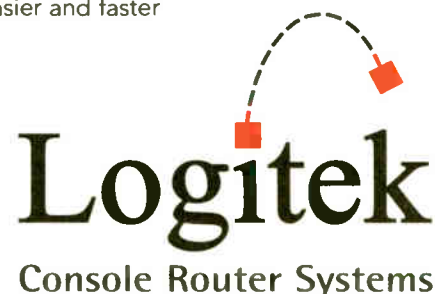
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FIRST PERSON

That Radio Network Sound

A Long-Time Engineer and Announcer Recalls Working With His Friends at Toll

by Fred Krock

Back in the days before satellites, radio network broadcasts had a certain characteristic sound.

Every rookie announcer's dream was to work for a network some day. Most despaired of ever developing that network

mission, it's amazing that it sounded as good as it did.

The amount of degradation was a function of distance. On the West Coast, programs from Chicago sounded better than those originating in New York.

Even a relatively short transmission distance would impart noticeable network

tures as well as sound. Later the television duties were split off to what was known as TOC for television operations center. Audio circuits were handled by what was renamed AOC, the A standing for audio. We still called it toll.

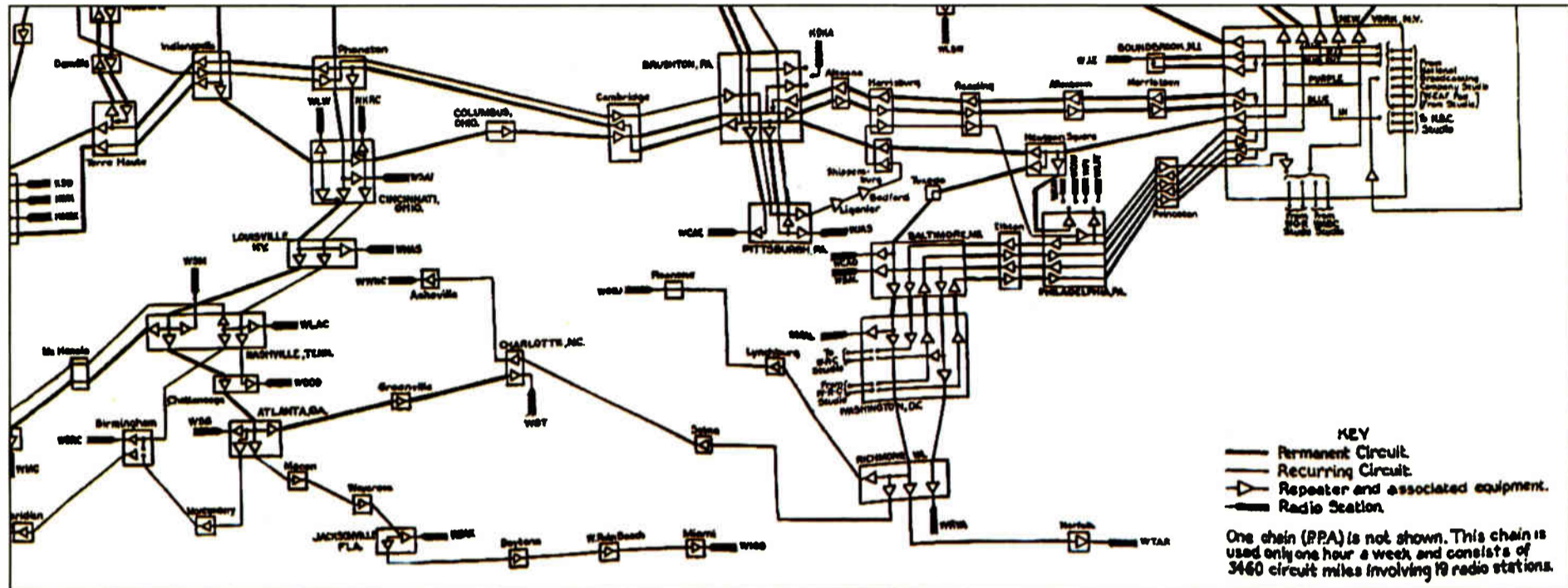
Most telephone company employees belong to the Communication Workers of America union. In San Francisco broadcast toll employees belonged to the International Brotherhood of Electrical Workers.

was to time-shift commercials in network newscasts, insert regional commercials in newscasts and to supply all service to the West Coast until 11 p.m. Pacific Time after the eastern network went goodnight at 9 p.m.

Please, not over dinner

Laxative spots always were shifted. Laxative spots at mealtime brought listener complaints. A spot fed at 9 p.m. Eastern Time, a prime time for a laxative account, arrived on the west coast at 6 p.m., dinner-time. Other accounts paid a premium for spots to run in drive time. They were delayed three hours.

Some spots were tape-delayed from their



Part of a graphic from the Bell System Technical Journal, January 1930, showing NBC's network connections. John Schneider, the radio history buff who provided this image, notes that 'NBC and AT&T had created a very elaborate hookup system just three years after the formation of the network' and that NBC's choices of locations for its network programming centers were based upon AT&T's program line connections. Only Chicago, New York and Washington could feed the entire system; San Francisco could feed only West Coast stations, and Los Angeles could not originate programming because they were at the end of the line. AT&T's line repeaters were not yet reversible.

sound in their voice. What they didn't realize was that the network announcers didn't have that characteristic mellow sound in their voices, either. It was a product of the telephone company transmission, not the network announcer's throat.

Listeners sometimes were amazed when visiting Los Angeles or New York how different some of their favorite network personalities sounded when the program originated locally. Even today a quick listen to a recording from the golden age of radio reveals whether that recording was made where the show originated or whether it was recorded on the end of a network line.

That sound

Frequency response was not a major problem in those days of AM broadcasting. Radio network lines had frequency response up to 8 kHz. After World War II the networks cut back to 5 kHz lines to save money. Telephone company customers paid according to the bandwidth used.

Frequency response was essentially flat to 5 kHz. At 5,100 Hz it was 30-50 dB down.

A few stations in extremely small markets used 3.5 kHz circuits. Networks paid for delivering programs to most affiliates. If the market were too small to be worth the expense, the station had to pay for the circuit from the nearest network access point. The cheapest circuit was 3.5 kHz. In a few other cases, that was all the telephone company could provide into remote areas.

Considering all the things that were happening to the sound during network trans-

mission, I was surprised to hear it on a network newscast I read in San Francisco rebroadcast from Chico, Calif., a distance of 183 miles by road. It was audible even on a car radio.

At one time the telephone company played a major role in radio broadcasting. (The "telephone company" meant the Bell System, "Ma Bell." AT&T and its wholly owned local telephone companies provided almost all telephone service in the United States. In a few scattered locations, General Telephone or a small independent local company provided service. In the earliest days of broadcasting AT&T even owned a few radio stations.)

The FCC would not license radio links for broadcast use unless the station could demonstrate that the telephone company could not provide service. It provided virtually all studio-to-transmitter circuits and most remote lines.

Only in larger cities did the telephone company provide a facility dedicated to broadcast circuits. In small markets, you were lucky if you could find a test board man who even knew where the broadcast circuits were located. Often the radio station engineer would have to show a circuit installer how to equalize the line.

The operative word is man. In those days I never heard a female voice while talking to any telephone company technicians.

Broadcasters referred to the telephone company broadcast circuit test board as "toll."

When television broadcasting began, the same telephone company crew handled pic-

Stations usually bought one full-time circuit from toll to the station for incoming remote broadcasts. Then a circuit would be bought from the remote site to toll. Circuits between telephone company central offices (COs) could be bought by the quarter-hour as needed. The crew at toll would patch the various circuits as scheduled, which saved stations a lot of money. The telephone company did not charge extra for this service at that time.

A lot of remote lines were routed via toll, even though a shorter path might have existed. This allowed quick access by trained personnel in case of trouble.

Circuits were bought either as transmit or receive. Since passive equalizers were used, if no amplifiers were in the circuit, audio could be fed in either direction. Equalization was not perfect when audio was fed in the wrong direction, but it was better than no audio at all in case of a line failure. After the telephone company switched to active equalizers, this emergency backup capability was lost.

In 1958 the station where I worked became the Mutual affiliate in San Francisco. In addition to the network audio circuit, the telephone company installed a ring-down telephone to toll. Pick up that telephone twenty-four hours a day and someone answered at toll.

Ring-down telephones were supplied free to all major-market network affiliates. About 10 years later the ring-down was disconnected after a telephone company budget cut.

In 1960 the station became the West Coast hub for the Mutual network. Our job

earlier network broadcast. Most were played from transcription discs supplied by advertising agencies.

Radio network circuits between New York and Chicago were called the "round robin." They made a big loop from New York to Chicago and then back to New York. Any station within the round robin could feed the net.

Switching from one point on the round robin to another was instantaneous. The loop must be opened at the station that begins feeding. Occasionally an operator would forget to open the loop when starting a feed. The result sounded like a tape echo as the sound went around and around the loop until the operator woke up.

From Chicago to the West Coast the network was one-way westbound. The telephone company could reverse the circuit during a silent period so a West Coast station could feed the nation. Networks allowed 30 seconds for the telephone company to reverse the circuit.

Reversing the network was a major operation. All amplifiers in the circuit had to have their input and output connections reversed.

Starting in 1936 the telephone company would supply, at extra cost, customer-controlled reversing equipment. Reversing the line between the West Coast and Chicago caused about three seconds of dead air. Literally thousands of relays would throw.

On-air reversals usually were done only during newscasts. The East Coast newscaster would say something like, "Now, with a See NETWORK, page 22 ▶"

Investing in Surround Sound is Good Business

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- ◆ Market demographics: Who's listening to surround sound?
- ◆ Surround sound's use and impact in sports, music and educational content
- ◆ Planning for conversion
- ◆ Budgeting for equipment design and staff training
- ◆ Quality control and maintenance

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8 a.m.-9 a.m. On-site registration and continental breakfast

9 a.m.-5:30 p.m. **Seminar Program:**

- Introduction/History and Overview of Surround Sound
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- Implementing Surround Sound at the Broadcast Facility (separate breakout sessions for TV and Radio run concurrently)
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- Station Group Owners, Network CTOs and Engineering Directors
- Audio Engineers

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Skip Pizzi is a renowned expert in digital audio and co-chair of the NRSC Surround Sound Audio Task Group, as well as a Contributing Editor to Radio World. He is also a former technical training manager for broadcast technology.

Registration Form

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YES, please sign me up for the Surround Sound Seminar:

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Network

► Continued from page 20

pause for switching, we go to Los Angeles for a report from (name of newscaster).” Three seconds later the Los Angeles announcer would begin talking.

Mutual had discontinued customer control reversing between Chicago and the West Coast long before we became the West Coast hub. We did have customer reversing between Los Angeles and San Francisco. Some newscasts were fed to the West Coast from KHJ in Los Angeles.

The reverse

Network reversing control equipment at the station occupied two rack units. It had a small two-position rotary switch and red, white and green lights. The same type of lights and switch were used on telephone switchboards built by Western Electric.

The switch turned on a phantom voltage on the network line. This control voltage was repeated from each amplifier to the next all the way to the far end of the network line. If neither end was feeding control voltage, a white light was displayed on both ends. This indicated that the network was unlocked and could be switched to feed from either end. The network audio path did not change until the former receiving end began to send control voltage. If one end had control, the transmitting end displayed a green light while the receiving end displayed a red light.

The network could be reversed only when



Master Control Room at NBC's Radio City in San Francisco, December, 1944. Standing: George Greaves, engineer-in-charge of NBC San Francisco. Seated: Lee Kolm, control room supervisor. The operator determined which studio program was fed to which broadcast phone line on the network. Fourteen circuits could be fed simultaneously. All programs fed to KPO, KGO and the two networks originated here. Audio patch panels could be used to substitute a failed studio amplifier in case of emergency. A telegraph sounder on the desk was used to communicate with the KPO transmitter in Belmont.

the white light was on. If the receiving end turned on the switch, nothing would happen while the red light was on.

A few seconds before a hot switch, the transmitting end would turn off the control voltage. Ideally the white light would come on at the receiving end at same instant the

switching cue ended. Half of the switching time was required for the white light to come

on at the receiving end.

You didn't want to drop the control voltage too soon because a lightning strike or other disturbance along the line could cause a premature reversal. When the receiving end heard the cue and saw the white light, the operator would turn on the control switch and cue the announcer after waiting for the network to finish reversing.

We would experience line trouble on the incoming feed from the east between once and twice a week on average. Sometimes the network would operate for a few weeks with no problems and then be followed by a dozen outages in a single week.

Much of the circuit was underground cable. It was subject to backhoe fade. A backhoe has been described as the perfect tool to find a buried cable.

The telephone company maintained spare circuits for use in case of trouble on the regular network circuits. These spares also were available for occasional-use customers.

Service

Our friends at toll took pride in restoring service very rapidly in case of trouble.

Sometimes they had to reroute circuits half way across the country to make good service. Once after a major line failure somewhere in Nebraska, our network service was routed from Chicago to Dallas to

See NETWORK, page 24 ►

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How They Got That Sound

What did Mother Bell do to make radio networks sound that way? Network sound was degraded in five major ways:

1. Harmonic and intermodulation distortion
2. Group delay
3. Ringing
4. Noise modulation
5. Single sideband carrier transmission problems

The distortion was not surprising; the sound may have passed through hundreds of amplifiers on its way to an affiliate station. Since the frequency response was limited to 5 kHz, no second harmonics were heard from frequencies over 2500 Hz or third harmonics from any frequencies over 1667 Hz. Total harmonic distortion on a transcontinental broadcast probably was in the 10 percent range. Limited frequency response kept it from sounding as bad as it was.

The circuit equivalent of a twisted pair, such as used by the telephone company, is a large number of extremely small-value inductors wired in series shunted by a large number of extremely small-value capacitors. The result is a low-pass filter. The telephone company would compensate for the high-frequency loss by connecting a passive equalizer consisting of series capacitance shunted by inductance. The result is relative phase shift. When a large number of these circuits are connected in series, group delay will reach a very high value.

You might also recognize these equivalent circuits as similar to those used in delay lines. As a result network radio signals traveled across country well below the speed of light. Attempts by the telephone company to use existing radio network circuits to transmit audio for early network television programs resulted in loss of lip-synch in as short a distance as between New York and Washington.

All that reactance in network circuits would cause a number of resonant frequencies in the circuit. A transient near the frequency of one of these resonances could excite the circuit into producing a damped wave at the resonant frequency. This was called ringing. The effect was audible on program material.

The telephone company frequently used companders (the word is a synthesis of "compressor" and "expander"). The signal dynamic range was compressed on the sending end and expanded at the far end. This increased the signal-to-noise ratio of the overall path. It also meant that the noise level went up and down as the signal level went up and down. The noise was not completely masked if the signal were primarily high frequency. A soprano voice or solo violin usually produced audible noise modulation. Even if the noise were masked, it caused the sound to become muddy.

The telephone company often used carrier circuits for long hauls. They allowed putting a number of different circuits on the same pair of wires. To allow the maximum number of circuits on a single pair, single sideband suppressed carrier signals were used. Carrier equipment was prone to all sorts of problems.

The most common problem with network radio feeds was what we called carrier whine. A continuous tone would appear between 30 and 40 dB below program level. Sometimes several of these tones would appear at the same time.

Even after the telephone company started using microwave transmission equipment, radio networks remained on the same old landlines they had been using for many years.

— Fred Krock

The Architecture of Spatial Coding

A Look at the Proposed MPEG Standard for Sending Surround and Stereo Over the Same Channel

by Skip Pizzi

Much of the discussion regarding surround sound on digital radio worldwide these days has involved a developing specification in ISO/MPEG called Spatial Coding, or SC.

On its surface, it is a mechanism that allows a stereo or mono audio signal to be sent in its usual form, but accompanied by a small auxiliary data stream that describes how a surround mix of the current signal would be created.

Legacy receivers just ignore this aux data stream and play out the stereo or mono audio as usual, while SC-enabled devices interpret the aux data and apply it to the same audio signal to recreate the surround mix. The system is codec-agnostic, so it could conceivably be applied to any transmission or storage scheme. It also is scalable over a wide range of input and output channels (meaning that it is not fixed at encoding 5.1 audio into stereo, but could also be used to extract 10.2-channel audio from a mono signal, for example).

Like most perceptual audio coding systems, MPEG Spatial Coding does most of its work in the frequency domain.

Conceptually this seems simple enough, and also sounds like a great solution for managing digital radio transmission that addresses a variety of emerging content and listening environments — just as the stereo multiplex provided backward compatibility to existing FM mono transmission in the 1960s.

But for those not intimately familiar with the technologies involved, how the system pulls this off seems hard to fathom when you actually start to think about it. For those accustomed to matrix surround, it's hard to understand how Spatial Coding can faithfully recreate a surround signal using a very low bit rate data channel (~5 kbps), even from a monaural audio feed. (Matrix surround always requires at least a stereo transmission channel, hence its "4-2-4" nomenclature.) The system allows the use of either the same audio signal

Perhaps hardest of all to grasp, however, even for those comfortable with other 5.1 coding systems (like AC-3), is how the system can allow the use of either a downmixed surround signal for the audio, or a wholly separate "artistic

stereo" mix, and still recreate an acceptable multichannel presentation at the receiver. (This implies that the audio signal seen by the decoder may be different than the one used by the encoder in generating the spatial data signal.)

So to sort this all out, let's dig in a bit to the system's interesting design.

Do it with frequency

Like most perceptual audio coding systems, MPEG Spatial Coding does most of its work in the frequency

domain. This means that multichannel source audio is first converted from the time domain to the frequency domain, and analysis of each audio channel is then done in so-called *critical bands*, which are based on how the human hearing sense perceives sound. (The bandwidths of critical bands are set to the minimum frequency resolutions of human hearing a various frequencies — some bands are wider than others — and they are the basis for spectral masking algorithms used by all perceptual audio coding systems.)

Instead of using this analysis to reduce digital audio coding bit rates, however, See PIZZI, page 24 ▶

The Big Picture



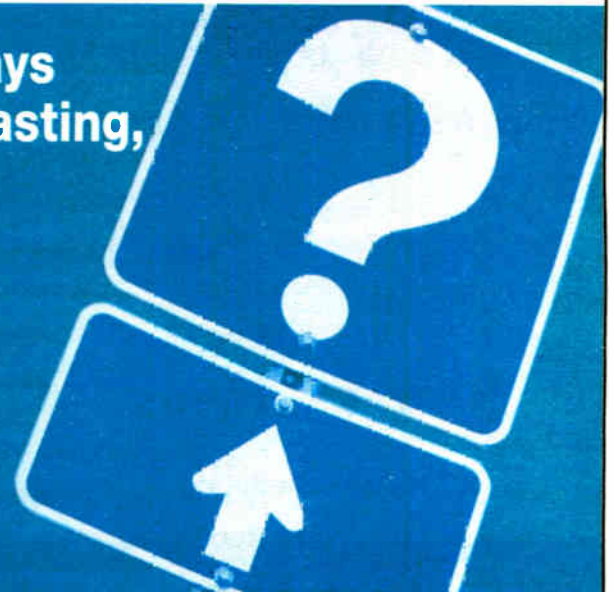
Photo: Garry Hayes, BBC

by Skip Pizzi

How to outwit, out-maneuver and out-perform your competition.

Every Automation Company says they do Voice Tracking, WANcasting, Satellite Feeds, the basics. But, does everyone support:

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- ✓ SPS (Secondary Program Service)
- ✓ PAD (Program Associated Data)
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Sure we know automation, but our expertise just starts there.

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"Our radio program is syndicated nationally and we're on seven days a week, which means we needed a system that was not only stable but also flexible. I feel like I've seen everything in the world of music and radio but I've never worked with a system that's more creative than Prophet's NexGen. The only mistake you can make with this system is not using it."

John Tesh
The TeshMedia Group

When you ask the right questions, do you get the right answers?

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Technology doesn't have to be complicated.*

Pizzi

► Continued from page 23

Spatial Coding uses it to extract *spatial cues* from each band. Such cues are derived by comparing the channels against one another for level and phase differences within each spectral band. These deltas between pairs of channels can then be robustly encoded using a relatively small amount of data, which is sent to the receiver via a data side-chain transmission. (This technique is adapted in part from the older joint-stereo coding technique used by some perceptual coders.)

Also included in this data signal are prediction signals that help the system manage how audio elements spread over

groups of channels are mapped, which is conceptually similar to the steering signals used in advanced matrix systems to aid in image stability. A final component of the data describes the actual audio signal's dynamic deviations from those fixed prediction models — a kind of steering "servo" signal.

Manual or automatic transmission

As this spatial data signal is sent to an aux data output, the multichannel audio signal is meanwhile downmixed to stereo (or mono, if necessary), then reconverted to the time domain for presentation to the transmission or storage system's coding and modulation components.

Alternatively, a wholly separate "artistic" mix (or "handmade downmix") can be substituted at this point, such that the

content transmitted or stored will be this alternate signal rather than an automatic downmix of the multichannel audio. In either case, legacy decoders will encounter only the stereo (or mono) signal, while new systems will apply the data channel's spatial coding to the same audio signal and derive a multichannel output.

As noted earlier, the spatial data is adequately robust for it to extract a multichannel mix even when an artistic audio input is transmitted instead of the original multichannel audio's downmix. Nevertheless, a relatively new feature of the system allows the SC encoder to compare its input and output audio signals, and if it detects a substantial difference — as it might in some cases where the artistic mix option is selected — it can adjust its spatial coding data's para-

meters so they are optimized for the decoder to reconstruct the multichannel audio signal from the artistic stereo mix instead of the encoder's own automatic downmix.

Tweaks

There are several other clever techniques used in the MPEG-SC system that improve its performance and efficiency. The system also offers quite a bit of encoding adjustment and scalability, along with the ability to remain transport-agnostic, allowing it to be used across a variety of applications besides digital radio broadcasting. (The spatial data channel includes a metadata block that communicates these settings to the decoder for optimum performance and extensibility.)

To learn more about this system's inner workings, see AES Convention Paper 6447, "The Reference Model Architecture for MPEG Spatial Audio Coding," presented at the 118th Convention, May 2005, Barcelona, Spain.

Skip Pizzi is contributing editor of Radio World.

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World Radio History

Network

► Continued from page 22

Los Angeles to San Francisco. From there it was routed east to Denver to serve the Mountain Time Zone stations.

If the line failure were west of Denver, San Francisco was responsible for restoring service. If the problem had happened east of Denver, it was given to the AT&T office in Chicago.

The first place San Francisco toll would call when the line failed was Denver. San Francisco was always happy to let someone else solve the problem. The ring-down telephone at the station would ring and the voice at the other end would say gleefully, "The problem's east of Denver."

This led to a lot of friendly teasing between the station and toll. If we had problems with one of our local remote lines, say from Oakland across the bay to San Francisco, the problem always kept getting described as east of Denver.

The telephone company employees kept a log of telephone calls involving trouble. At the end of the call they would ask, "How do you sign?" Your signature was your initials. Everyone used phonetics; I would reply "Fox King" for my initials, FK.

Imagination ran rampant. One telephone company employee with initials SJ would sign Stump Jumper. Calls between telephone company employees were logged in the same way. If any question ever arose about who said what and when, the log would tell.

Today we get our network programs from satellites. The sound is nearly identical with a local origination. Toll as we knew it is long gone.

Too bad that when Galaxy 4 failed several years ago, NPR stations couldn't pick up the ring-down telephone and let their friends at toll take care of the problem.

Fred Krock says he couldn't make up his mind whether he wanted to be an engineer or announcer, so he has major-market experience on both sides of the glass, mostly in San Francisco. His first professional job was at a predecessor to KKHI(AM) in 1953 while he was in college. He was chief engineer there for 15 years and at NPR affiliate KQED(FM) for 22 years; he retired in 2001 and still does occasional voice work.

A Long-Distance House Call

When a guy signs up to be customer service manager for a manufacturing company in Illinois, he probably doesn't expect to end up in Iraq, even briefly; but that's what happened to Broadcast Electronics' Stuart Peters, who visited the country to reestablish a U.S. Marine AM station at a site in Ramadi, about 30 miles west of Fallujah.

The AM is the first in a network of stations expected to broadcast on 864 kHz. It was commissioned by the Marines, BE said, "to counter insurgent propaganda with Arabic broadcasts of local government news and updates to the Iraqi community."

An AM 10A 10 kW transmitter had been sent ahead and partially installed before local engineers abandoned the site under threat of the insurgency, BE said. The station then was off the air for several months due to voltage spikes; Peters helped solve a problem caused by an unfinished power grid and transmitter grounding that led to an imbalance in the generator. Peters is shown at the U.S. Blue Diamond military base, set up at Uday Saddam's



former retreat and compound in Ramadi. The compound was damaged during the "Shock and Awe" campaign



early in the war. The second photo shows the semi trailer that houses the transmitter.

Peters is BE's RF customer service manager; he volunteered for the April trip to the military base.

MARKET PLACE

Fluke Has DMM/Software Combo Pack

Fluke Corp. has created a "combo pack" that includes a logging digital multimeter and new FlukeView Forms 3.0 software.

The package is called the Fluke 189 Data Logging Multimeter and Software Combo Pack.



Fluke considers the DMM its top handheld unit. The new PC display software is compatible with Microsoft Windows. It can display and overlay data from six DMMs on a chart to show cause and effect relationships or for predictive maintenance applications.

"Users can modify charts for clarity, print them out and save them for future reference," it states. "By downloading the free FlukeView Forms Reader, users can share data and reports electronically with other experts throughout their organization."

The kit includes a USB cable adapter, test leads and alligator clips, a temperature thermocouple, battery pack, soft carrying case and magnetic hanger strap. It retails for \$499.

For information, visit www.fluke.com or call the company in Washington state at (888) 308-5277.

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TECH TIPS

A Radio Streaming 'Need List'

Been Asked to Start Streaming Your Station? Here Are Some Hard-Earned Tips

by Art Reis

The author is chief engineer of Crawford Broadcasting Co./Chicago.

With a major project recently out of the way, it seemed a perfect time for our crew, undermanned thanks to illness, to deal with smaller issues that had been left on hold. So what happens? We get a major-league surprise. Unbeknownst to us, top station management has been cooking up a plot to put one of our stations onto Internet streaming. And we had less than four weeks to go from nothing to online.

Understand: I like the idea of streaming. It allows sales to sell more inventory without adding clutter to the radio station airwaves. That's good for listenership and the bottom line.

But, four weeks?

Overview

Stations don't stream directly to the massive hordes of Internet listeners, not if they know what's good for them. The proper method of streaming involves getting your station's digitized audio onto a Virtual Private Network connection to a streaming service, and let *them* deal with the huge, highly variable bandwidth issues involved.

As such, your job is supposed to be to get the VPN set up, with all the right software configurations, so that your relatively small stream can get to said streaming service with decent quality (64 kilobits per second minimum; 128 kbps ideally) with almost no audio delay, or "latency."

That doesn't mean you're going to be using all that bandwidth, at least not at the outset. Imagine my surprise in discovering that our VPN bandwidth was limited by contract to just 32 kbps. Go over that digital rate and the costs go up.

Until your station's streaming service is making money — and remember, that's what this is all about — that's about all you're going to get. Make serious money with streaming, and maybe you can discuss upping the bandwidth. Remember that bandwidth equals audio quality; so in that sense, the more bandwidth the merrier, and the more listeners you'll attract.

Case in point: The local classical station here in Chicago charges subscription fees to "non-members" of something around \$100 per year to listen to their station online. Now I know why: They're running their bit rate at least around 48 kbps. Hey, why not? They have listeners who can afford it, and those listeners are some of the most sonically picky people in the galaxy. I know; I'm one of them.

Here is a Need List to help you get started.

A good encoder computer. In the world of streaming, the workstation that starts the process is called an encoder. Don't ask me why. In any event, this computer should be new, and setup special for this purpose, with the proper software, etc.

You may not have very much to say about what you get; but if you can, make sure of one thing: It must have the best, most cost-effective audio card you can acquire, and preferably one with an AES/EBU audio interface. We got all that

with ours; the card itself was especially good, capable of both analog and AES/EBU digital inputs and outputs. We started out using the analog feed. We will switch to the Digital input later.

The biggest issue with the digital input: Levels not quite high enough and inability to use an analog-domain signal processor. When the new digital domain audio proc arrives, we'll deal with it.

At least one ISP that knows what it's

doing with regards to public ISP addresses and the like. We were somewhat blessed here. We have *two* ISPs; but only one of them knows what it's doing, is hungry enough to want to help us and has adequate digital throughput to meet our needs. That's a surprise, because we thought the *other* one, the mega-name wired ISP company, had the moxie. Nope. Pity. It was the little upstart outfit that really did well for us.

A new Internet router, a wired one, not wireless; nothing fancy. Three or four ports is fine. Best bet: Get a Link-Sys. It has to be a recent one because it seems that only the

newest ones will handle streaming service. And don't be a bit surprised if you end up having to blow out the little fellow's programming and re-flash it. We did. That was the nice thing about the Link-Sys. The sweet little East Indian lady in customer service was a great help despite her broken English.

An additional Network Interface Card. As soon as you get the word that your station is going with Internet audio streaming, find a convenient time and install the NIC card in the Audio Server of the station that is going to be streamed. This card will supply the Song Title and Artist (for RBDS) information to the encoder via the router, for use by both the audio replacement software and by the Internet directly, for listing song title and artist name there.

See STREAMING, page 28 ►

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Streaming

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Don't forget the *CAT-5 interconnection cables*. You'll need three: One for the streaming workstation to the router, one from the selected automation audio server to the router, and one from the router to the Internet connection.

Invest in a local dude who has streaming experience. Our contract engineer, Don, did indeed have such experience from a previous job and, of course, was eager to help. (It was an eagerness I think he would regret. This job drove him buggy, as I'll explain.)

Are you blessed enough, is your company big enough, to have a *real IT guru* out there at headquarters or somewhere? Don't neglect him as a resource for this project. He may even be able to double as the local IT dude mentioned — if he has the time, which is doubtful.

In any event: his worth cannot be overestimated. This may be the best man to give the encoder its initial setup before you get it. In that initial checkout, special audio replacement software is added so that the on-air spot breaks are replaced. This is to prevent problems with AFTRA/SAG fees on commercials. Running those ads on the Internet stream is an expensive proposition, and thus is a policy no-no.

Even more important: Don't be surprised if you run into a lot of finger-pointing between the various entities who are "trying to help you" get the streaming service on the air. This is where your company IT person earns his or her money.

In our case, we had to go back and forth between the streaming service, the automation company and the ISP to make this thing work; and more than once we ran into an impasse, in which one vendor was blaming another for a particular problem, or insisting that dealing with whatever issue wasn't *their* responsibility, but someone else's.

The only way to solve the situation is to bring in an independent IT person who has the experience to know what needs to be done, and the moxie to tell the parties involved what gives, who fixes it or, in the worst-case scenario, who has to cooperate with whom to get the issue resolved. Don't be surprised if contracts are threatened and all sorts of drama promised by one vendor or another. Part of the job of spearheading such a project is to learn how to be a traffic cop, and the best way to handle that is to have an advocate to back you up.

Another big question is whether network

spots from a satellite supplier are exempt from AFTRA/SAG fees. Remember, these spots don't come out of your automation system; they come off a live source. We have that situation at our operation, and the



Don Kerouac, left, and James Kelly admire their handiwork. Author Art Reis says the streaming system is looking for a more permanent physical home, as the station is out of rack space.

jury is out on how to handle that. It may be that AFTRA/SAG fees are met with dissemination on the network; but we'll check that out and get back to the readers later.

Your automation supplier. Immediately notify the Customer Service Department, or CSD, at your automation manufacturer that you're going to be streaming. They will generally know what you're talking about, and have probably worked with your streaming service before. They'll know what to do about port numbers and baud rates; and once the project is done, they'd better be able to tell you what the information is, because that is a necessary part of your system documentation.

And oh, yes, the reason for all this: *the audio connection*, all too easy to forget in the rush of other work. For all of the digital we're touting, don't be shocked if the stream generally begins with a stereo analog audio feed, tied to the output of the audio source switch feeding your transmitter or STL. Whether it is D or A depends on the type of audio card installed in the streaming computer.

As expected, any audio pickup after the station audio processor is not recommended. However, it is best to go with a *separate processor*, properly set up for streaming. You may not be contracted for as high a baud rate as you want, so you'll want a way to sweeten the audio going in — a lot, as it turned out in our case.

On the software side, you will need:

A *public IP address* for the streaming computer. You get those from your ISP, of course. Make sure you inform those who need to know, whether it be the automation manufacturer CSD that remotely configures

all of your office LAN users over to the "other" ISP. We couldn't, but you might. Which brings us to ...

Rule No. 2: If at all possible, try *not* to use your existing ISP line, the one your office uses, for the streaming service.

Bandwidth issues are not the problem here; time to bring the project online and lost productivity are. If you are given less than a month to put the system together, and that deadline is contractual, start screaming for a *separate* line for your streaming service, or that the deadline be extended by at least two weeks. You can't have both.

Understand that, in developing any streaming service, the process of bringing new equipment and software services to your existing LAN is bound to cause instant growing pains (read "disruptions") to all staff that use that ISP.

In our case, when installing the new router, or adding or changing IP addresses, or no matter what we did, something would happen that would crash the system, so that we had to stop and re-boot the affected workstations before we could continue. E-mails might have been lost, commercial downloads disrupted — in short, any Internet usage became problematic while the project was coming together.



The menu and running window for the streaming program from Liquid Compass.

A *copy of PC Anywhere or VNC*, whichever your system uses to communicate with your automation system's CSD. You'll find yourself re-installing that a few times.

All other software is included with the encoder. However, a lot of configuration must be done.

Groundwork

This brings us to The Rules.

Rule No. 1: Now, while you have the time, get to know every available ISP in your neighborhood, besides those you're already using. Determine which, if any, can best meet your needs. And find out their cost structure. If your operation is already on DSL you should already have some handle on this part of it.

Having more than one DSL source in-house also gives you some answers to the following: Which is easier to work with? Are their CSDs competent and personable? If you haven't done so, pick the best two and go with them. And prepare to be disappointed.

Another advantage to having two ISPs in-house: You may be able to move some or

This meant that work on the streaming project had to be halted numerous times, either to plan a move to provide for the least amount of disruption, or to bring back online the office workstations that were attached to the ISP with which we were working.

It didn't help that many of the disrupted workstations could not be moved over to our other ISP because their E-mail accounts were tied to the ISP with the streaming service on it. For that reason, it's much better to have a separate, clean line with which to deal.

And that didn't count the issues with PC Anywhere, with which our automation supplier's customer service keeps in touch with our equipment. We had to keep them constantly updated with developments so they could access us during the project. And for this project, we needed them to be involved a lot.

Service is all

Continuing with your do-list:

Turn your IT expert loose with the streaming "encoder" computer, the ISP, the automation CSD and the streaming service; let them work together. The primary con-

See STREAMING, page 29 ►

WE GIVE YOU BISSET

Name: John Bisset


Occupation: Northeast regional sales manager for Dielectric Communications

Experience: 34 years in the industry. SBE Certification; presenter of NAB Transmitter Workshop; speaker at numerous conventions; contributor to NAB Radio Handbook

Mentors: Lamar Newcomb, Ray Gill, Steve Dana, John Cunningham, Charlie Wright, John Mullaney Sr. and Jr., Mitch Montgomery, Morgan Burrow, Jim Weitzman, Alan Pendleton, Morris Blum, Milford Smith, Tom Giglio, Scott Beeler.

Favorite memories: Early days of AM improvement; demonstrating the Splatter Monitor to the FCC with fellow Delta employee Tom Wright; development of *Workbench* into RW's most popular feature.

Quote to live by: "Few things are more persistent and intimidating than our fears and our worries ... especially when we face them in our own strength." — Swindoll



Radio World's pages are home to the finest writers and columnists in the industry. Like John Bisset. Just one more reason we're the newspaper for radio managers and engineers.

Streaming

► Continued from page 28

cerns during this phase are documenting all software settings and handling all the office disruptions.

You can run a speed test with both ISPs, just for comparison's sake. However, while speed is important, *select the one with the better customer service department.* Even if speed is less than ideal, the better Customer Service Department will win the day because they can better deal with the problem, simply because they'll listen to you. And, as I said, the smaller companies are usually the better ones to work with.

Get information from the ISP regarding public IP address. A public IP address is always a fixed IP address, but never necessarily the other way around. Fixed IP addresses are found hidden inside of LANs all the time, of course. A public IP address is one where you can go anywhere in the world and access it. It is thus by definition a fixed IP. I'm embarrassed to say that I had not dealt with that distinction until this project.

Make sure you're streaming the Song Title and Artist information from the automation system to the encoder, and that the streaming service is getting that information. It is this information stream (along with commercial titles) that operates the replacement software that takes the "over-the-air" spots off-line and replaces them with separate, locally produced spots and bumper music.

Note also that the connection for the Song Title and Artist info from the automation server to the encoder computer is by NIC card, CAT-5 cable and IP through the router. This in effect puts your automation audio server directly onto the Internet through that router.

You *must* take appropriate precautions to prevent hackers from getting into your system through that port. One clue: That NIC card, bought for the purpose, is only communicating one way: out. It has no business receiving anything off the Internet. Talk to the automation manufacturer CSD. There should be a way to mute the incoming side of that NIC card; or if possible, do it yourself.

I know that routers have firewall protection built in. But you must ask, "Is that enough?" Maybe you can tell me. I'd appreciate hearing from you.

Planning pays off

Note to the Production Department: Please arrange for bumper music to end each online spot break. We know of at least one local station's streaming service that inserts open-length, spoken-word fill as the last entry into spot breaks, then interrupts the speaker abruptly when "time's up." To say the least, that's tacky.

Remember, if you have the luxury of time in which to use your existing ISP's LAN system for your streaming, you may have enough bandwidth to satisfy the needs of both audio stream and the local office users. That will save the money you may spend on a fresh new LAN devoted just for streaming.

The tradeoff is in disruption of the existing users of the system during development and the extra time it will take to keep that disruption to a minimum and to create workarounds. And it *will* take additional time to deal with those issues.

One final note has to do with troubleshooting.

We ran into a situation where the spot breaks were only partly covered. The first

was equally late getting back to the main part of the program.

All of that is a function of your encoder and your automation interface;

case, another glitch in the system provided us with a major clue: The song title and artist info got goofed up, and instead, artist and intro time got onto the stream. Solving that one put the system back to right.

To sum up: When the subject of a streaming project comes sneaking up at you from the station manager's office, you will have to move quickly to line up IT people, services and that special encoding computer, and then spend the next month getting them all to work together.

Better to plan the project and line up the resources now. Simple, right?

Good luck.

How did your station's streaming or podcasting project go? Got an experience that might help other readers? Tell us at radioworld@imaspub.com.


60-90 seconds of each break was left on the stream, before the replacement audio kicked in. Then the replacement audio

don't bother the streaming service or ISP with this one. Start with the automation manufacturer and go from there. In our

You will have to move quickly to line up IT people, services and that special encoding computer, and then spend the next month getting them all to work together.

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Style

► Continued from page 1
and Tivoli Audio are making radios that put new emphasis on visual appeal.

What's behind the renaissance in radio style?

"I think everyone's trying to make a fashion statement, in order to catch the consumer's attention," said Bob Crane, proprietor and president of C. Crane Company, a high-end electronics retailer. Its custom-designed CCRadio Plus has helped raise the bar for quality AM/FM portables.

"Each one has their own approach," Crane said. "For example, Tivoli Audio makes clean-lined, functionally simple radios with astounding sound, while Etón makes some consumer/shortwave hobbyist receivers that are arrestingly beautiful."

However, Passport to World Band Radio Editor-in-Chief Larry Magne worries that the current revival in radio style doesn't just help products stand out from the pack, it also masks a lack of progress in new radio R&D.

"It's like what has happened with new cars," Magne said. "Basically, the fundamentals of car technology were figured out decades ago. This has prompted car manufacturers to increase emphasis on style and looks while future technologies are being developed."

Still, many manufacturers that are making stylish-looking radios are incorporating new technologies in them too. For instance, Etón's new e31XM push-button digital semi-portable radio receives AM, FM, shortwave/world band and XM Satellite Radio. Meanwhile, Tivoli Audio's Model Satellite Radio handles AM, FM and Sirius Satellite Radio in an aesthetically simple, easy-to-use tabletop.

Over at Boston Acoustics, the company is adding the small yet powerful tabletop Receptor Radio HD (AM/FM/HD Radio) to its lineup. It will continue to sell the original AM/FM version, said Stephen Shenefield, director of product development.

"The reasons are price point and features," he said. "The Receptor sells for \$149, but the Receptor Radio HD will sell for \$499, and adds HD Radio, input and headphone output, and an included second speaker for stereo."

Style revival

So again we ask: What's behind the renaissance in radio style?

The answer is renewed awareness among manufacturers that appearance matter, especially when it comes to



Clockwise from upper left: Bose Wave; Etón e1XM; Etón Porsche Design P7132; Cambridge SoundWorks' SoundWorks Radio CD 740.

consumer electronics. If radio makers are to cash in on the public's craze for jazzy-looking technology, their products must match the colors and pizzazz of the latest iPods.

Along with consumers' desire for customization is a backlash against high-tech, hard-to-navigate home electronics. A case in point: Bose's elegant WAVE radio has been designed "for people who want high-quality audio, but who really don't want to play around with electronics," said Santiago Carvejal, senior product manager. "This is why we made the WAVE's user interface as simple as possible."

Size also matters in today's stylish radios — small size, that is. For instance, Cambridge SoundWorks offers the SoundWorks Radio 730 tabletop that squeezes high-performance AM/FM audio into a very small package.

"We produce radios that are sleek, compact, appealing and extremely high quality," said Fred Pinkerton, product manager. "We've always wanted to make the nicest small FM-based music systems as possible."

Sometimes the push to create radios that are different results in innovative new products, such as Sangean's U-1 utility radio. In contrast to its other consumer radios, which are styled "to fit with people's decor," said Selwyn Wynstock, Sangean America's vice president of sales and marketing, the U-1 is a yellow plastic-shelled AM/FM radio "of super durable construction" designed to be used outdoors. Suited to camping and construction sites, it can also accept a microphone and serve as an impromptu PA system.

What's next

Does style help sell radios?

"Tivoli Audio is a small company, yet we've sold 1,000,000 radios," said Tom Devesto, founder and CEO. "The demand for quality radios that are visually appealing is definitely out there."

Meanwhile, Etón's Grundig FR-200 a windup portable that fulfills the public's hunger for an alternative-powered emergency radio — has sold over 1 million units to date, Giordano said. Etón's willingness to promote the FR-

200 in large ads in the Wall Street Journal has definitely helped drive sales.



Sangean U-1

So what's next?

Etón previewed two Porsche Design radios at the 2005 CES show; they are due for commercial release this year. Tivoli Audio has designed a new minimalist travel portable called the SongBook, available in six colors. Bose has rebuilt the WAVE to incorporate a flat CD player without expanding the radio's form factor, a feat that has been matched by Boston Acoustics' MicroSystem CD and Cambridge SoundWorks' "SoundWorks" Radio CD 740.

As mentioned, Boston Acoustics has its Receptor Radio HD, and Sangean has come up with a wooden-cased tabletop radio called the WR-1.

What's happening in the consumer radio space is summed up by Etón's slogan "Reinventing Radio." Having taken a back seat in design to other home electronics categories for decades, radio style is back with a vengeance.

"Radio isn't going away," said Ryan Giordano. "We wouldn't be able to sustain the growth we have as a radio-only manufacturer if radio wasn't alive and kicking." 🌐



Tivoli Audio SongBook;
Tivoli Audio Model Satellite Radio

This is not lost on Ryan Giordano, Etón's sales manager.

"When it comes to personal technology, consumers want to customize the products they buy, be it iPods, cell-phones or radios," he said. This is why Etón is selling radios that are yellow, blue, pearl and even cranberry red, in addition to traditional electronics' silver.

This change couldn't come fast enough for Bob Crane. "Please give me anything but silver radios," he said. "I'm so sick of silver."

This AM Tells You Where to Go

*You Wouldn't Want to Listen All Day;
But 'Visitor Information' Works in N.H.*

by Ken R.

When you have an AM in a very small market, you can: a) pick up a satellite format and cut costs; b) simulcast your FM; or c) broker it out and try not to listen.

Ron Frizzell, general manager and partner in a company called Mt. Washington Radio & Gramophone, chose Plan D.

"I had a friend who owned this group of three stations in Conway, N.H., for 50 years, and I convinced him he deserved retirement," said Frizzell. The owners were Skip and Joan Sherman. Frizzell bought the stations in October of 2001 for \$1 million. He was not new to radio; he and a partner previously owned stations in Maine, Massachusetts and New York.

"WMWV(FM) was doing well, so we left it alone," he said of the full-service AAA format. "We switched the other FM, WVMJ, from satellite oldies to a local adult contemporary format.

"Then we were faced with this AM, which had about 62 watts after sunset; and we didn't know what to do with it." The AM had been simulcasting WVMJ.

Frizzell's son and group sales manager Greg, who owns the other 50 percent of the company, had an idea for a community-format. He approached the Chamber of Commerce and asked it to contribute content in exchange for a 10 percent discount on spots for Chamber member merchants. It was a good match.

In April of this year, the Frizzells took WBNC(AM), a 1000-watt daytimer on 1050 kHz. in a market with a population of 34,000, and turned it into Mt. Washington Valley Visitor Information Radio.

"This is a huge tourist area about 130 miles from Boston, and we also get a lot of visitors from New York and Connecticut," said Ron Frizzell. "We're in the heart of the White Mountains."

"We offer hiking tips provided by the Appalachian Mountain Club, we talk about the beautiful 100-year-old covered bridges, air reports from the Mt. Washington Observatory every 10 minutes with the latest wind and snow conditions, and even tell drivers where to find — and how to avoid hitting — the moose," he said. "Every half hour we



From left: Will Abbott, executive of the Mt. Washington Observatory; Janice Crawford, executive director of the Mt. Washington Valley Chamber of Commerce; and Michelle O'Dell, coordinator and salesperson for Mt. Washington Valley Visitor Information Radio

The Frizzells were determined that WBNC programming would go beyond the audio heard on many roadside Travelers Information System operations, on which one might hear a phoned-in, three-month-old recording that repeats every 30 seconds.

have the same features, but with updated scripts."

The station is profitable, he said, because it didn't add any staff.

"We have one lady who sells for us, Michelle O'Dell, who is our morning air talent on WVMJ," he said. "We only sell

quarterly or annual contracts, and we are almost sold out for the year, adding about \$100,000 to our bottom line."

Frizzell says that 85 percent of commercial schedules are annual. Because "time spent listening" is so short, the station usually doesn't think in terms of the number of spots provided within a time period. He said a typical client spends \$200-\$500 a month, which results in a minimum of one spot every three hours.

Certain advertisers do well with the format; others are discouraged from buying. "It doesn't work so well for car dealers. But restaurants, small inns and shopping areas do great," Frizzell said.

The Chamber of Commerce airs a message every hour, as does the Forest Service. Frizzell is delighted to point out that WBNC pays no licensing fees to ASCAP, BMI or Associated Press. The station snags new listeners intrigued by its billboards.

"We'll never show up in Arbitron and you wouldn't want to listen all day in your office," Frizzell said. "But we get results for our sponsors and we serve the tourists very well."

Getting people involved

Laurie Savoy is owner/operator of a local business called Smart Move Cleaning. She had never advertised on radio but now runs frequent spots on the station.

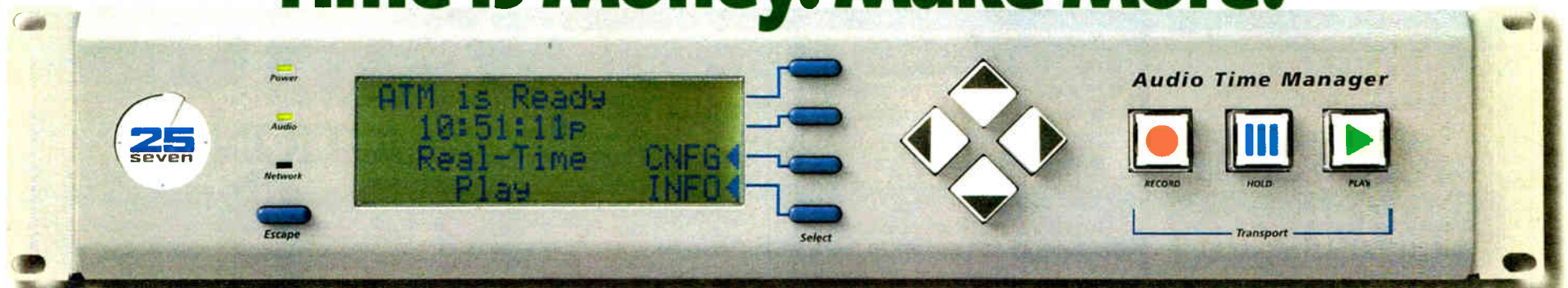
"We got three calls this month and I'm pleased with that," she said. "I think it will be an amazing vehicle for our cleaning business and a distinctive way for people to get information."

Janice Crawford, executive director of the Chamber of Commerce, has plans for expanding the role of the organization in Mt. Washington Valley Visitor Information Radio.

"In the future we're going to try to include additional wildlife viewing tips, holiday shopping opportunities and talk about skiing events on the schedule," she said. "We'd also like to add more histori-

See VISITOR INFO, page 32 ▶

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Top of the Hour: The Real Deal

by Ken R.

Any station can call itself "Kiss," "Magic," "Mix" or "Jack." You probably can hear one of each if you live in a big city.

Across our land, stations are allowed to play the same music, feature the same voice-tracked jocks and syndicated talk shows. They can even use the same jingles.

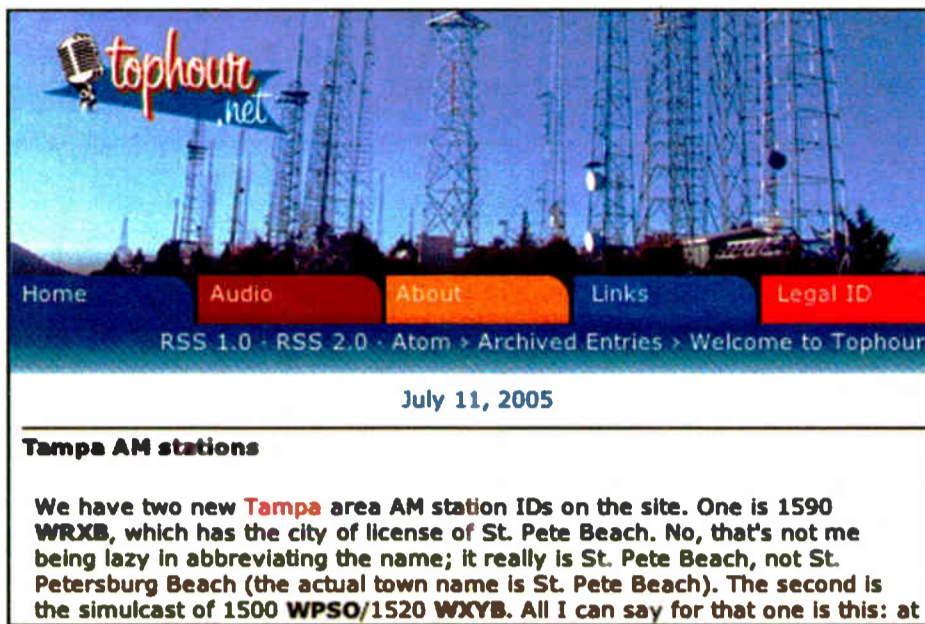
But somewhere near the top of the hour, you'll hear the one element that is unique to each terrestrial radio station in the United States: its legal ID.

According to FCC Title 47 Volume 4 Parts 70-79 as revised Oct. 1, 2000, the rules are quite clear: A station must provide its actual call letters immediately followed by the community or communities specified in its license. This must be done as close to the top of the hour as possible.

Today many "move-in" stations bury this information between spots and get on with the hits. Others trumpet their hometown proudly. But the legal ID is a radio tradition going back to the earliest days when transmissions were sometimes hard to hear through the static.

Brian Davis is a young man who realizes the importance of this rule and celebrates the legal ID on his non-profit Web site, www.tophour.net.

"I'm not the traditional radio geek," said Davis. "I'm a music guy and decided that I wanted to be on the radio just to play the music. The genesis of my site goes back to when I was at Brown Institute Broadcast School in



Minneapolis in 1995. I read a lot about radio to supplement my education and I became interested in the Internet.

"Then I took a road trip and realized that stations were similar all over, but then I grasped the concept that the one thing that's always different is the legal ID. I thought the Web site would be a cool way to highlight that one difference."

Tophour.net signed on in July 2001 and when you visit Davis' site, you can hear clips of this phenomenon going back to the early 1960s. Just click on your favorite city and station and take a listen. He features big markets and small, 50,000-watt blowtorches and 250-watt mom n' pops.

which raised my costs quite a bit this year. However I'm hoping the increased Google ad hits and ID contributions from new visitors will help justify the expense."

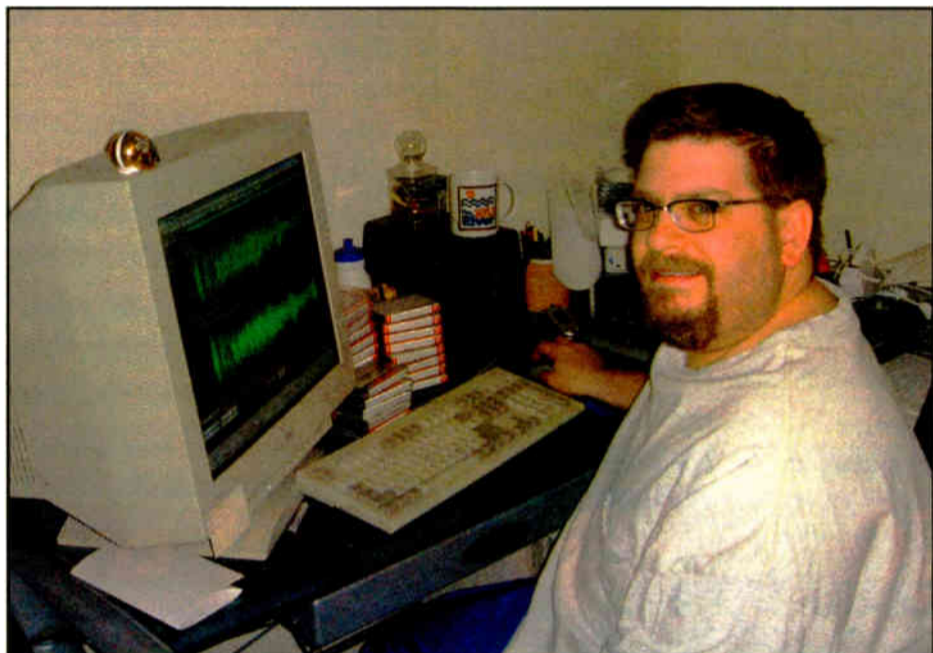
The site gets a boost from co-editor Lou Pickney, who also runs the Tampa-based site www.radiohottalk.com.

Davis will accept monetary donations via PayPal but doesn't really press the issue.

"I would much rather people send me audio contributions of their favorite top of the hour IDs," he said. "There are a lot of other sites like www.reelradio.com and www.fybush.com that could benefit more from your financial help."

Davis is 30 years old and his "day gig" is assistant program director/music director and afternoon on-air personality at WKSZ(FM), Appleton/Green Bay, Wis. Even at his tender age, he is able to contrast radio in the year 2005 to radio as it existed 40 years ago.

"There are fewer differences from



Brian Davis runs a site that was conceived as 'an ode to the legal ID.'

Google's AdSense service supplies a small income stream to keep the site going, but Davis says his costs are low.

"It really only costs me about \$150 per year," he said. "But I did have Christina Miraglia from Moxie Design Studios help me out with a redesign,

market to market today," he said. "But people have so many other alternate choices including iPods, satellite radio, LPFM and more. It's so niched that a 'one format fits all' radio station probably won't work today. That's why the legal ID is so cool."

Visitor Info

► Continued from page 31
cal and cultural features."

To Frizzell's knowledge, WBNC is the

only traditional AM station in the country devoted to tourist information. And he's probably saving the lives of a few moose every year, too.

Ken R. is a former broadcaster who has devoted his life since 1977 to staying off the air as a public service.



Ron and Greg Frizzell

STATION/STUDIO SERVICES

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That's what some radio sales managers and salespeople call the :30- and :60-second radio features we produce for seasonal events, such as Back-to-School, and holidays throughout the year. We prefer to think of them as more of a TOOL than a weapon. In any case, *they get the job done!* They sound great on the air, are easy to sell, and make you money! Why not find out for yourself right now? Just write down the names of 3 prospects you'd like to have spending (some/more) money with you. Visit gracebroadcast.com and download any demos that might appeal to them. Then go pitch them! It's completely risk free...and they might just say Yes!

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'Added Value': Who Needs It?

I heard this story many times in the early years of my career. Even if it isn't true, I feel it should be.

Once upon a time in a small market far, far away, there lived an ambitious general sales manager who couldn't ever convince the local beer distributor to advertise on his station.

Promo Power



by Mark Lapidus

It wasn't that the beer distributor didn't believe in the power of radio. He did; he saw action every time he ran commercials on radio.

This distributor was a wealthy man, and he purchased only the best. He drove new, expensive cars; he had his suits custom-tailored. And he only purchased radio advertising from the top-rated station in town.

This presented a major stumbling block for the general sales manager, who knew his station also drove results but could never seem to beat his competitor.

One night over a beer — you were expecting a glass of milk? — the GSM was shooting the breeze with a bartender/owner. One of the distributor's drivers came in to fill the taps. The owner told the driver not to bother; he had decided to try another brand of beer.

Dejectedly, the driver was about to leave when the GSM told the bar owner his station would be happy to do a free promotion for the bar to promote the beer if the owner would leave it on tap. The driver called the distributor immediately, who then called the general sales manager to place his first advertising order.

Without knowing what had occurred, the GSM had set the stage for an issue that plagues us today. We call it added value.

Call a summit

Most newspapers and TV stations won't even discuss "added value," but there are few radio stations in the United States that have the courage to just say no. Radio is so competitive that we'll do just about anything to get a leg up on the competition. Trouble is, as the leg goes up, we often get wet in the process.

"Added value" too often is just a free ad or, worse, a bad promotion using the station's brand name for support. What can we do about it?

Too many stations have no added-value boundaries. It's become so commonplace that many new people in our business, especially account executives, think of added value as an entitlement.

Get a grip by holding an added-value summit involving the general sales man-

ager, program director and marketing director. If the three of you are new as a team, include the GM.

At this summit, agree on how much "added value" can live on your radio station in any given week.

This means:

- how many announcements you allocate;
- how many appearances you plan;
- how many contests you execute;
- how many Web promotions you open;
- anything else your station does for no charge.

Then decide on spending levels that will determine the share of added-value

voice for the client. Routinely, I've witnessed stations discussing added value in exchange for advertising schedules of less than \$2,000. This is ridiculous. Not only does this waste everyone's time; it devalues the station's advertising rates.

Discuss placing annual added-value limits on clients who spend a lot of money but never cease demanding free added-value promotions. When annual ad schedules are negotiated, you should talk about how much (if any) added value will be granted the specific client.

You should also make clear that if the advertising schedule is sliced or renegotiated at a later date, the added value disappears.

Once this discussion is agreed upon by all parties, create a written document that summarizes the details. You will need it for later review. Trust me on this one.

After your added-value summit meeting, draw up an agreement that the attending station managers sign. Bring it to every weekly promotion meeting to keep you on track and prevent over-committing added value to clients.

Another solution: Stop doing "added value." Is this possible? You bet. What do you need? Guts and great ratings.

Top-rated stations do not need added value to get on advertising buys. Ratings cure a lot of ills. Just make sure "added value" at your station is one of them.

Mark Lapidus is president of Lapidus Media. Contact him at marklapidus@yahoo.com.



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Bill Gould 978 373 6303
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PROMO PROFILE

Music for Pets (And Their People)

by Paul J. McLane

WRR(FM) in Dallas caught our eye a while back when it released a CD featuring a cover photo of an angry motorist and the title "Road Rage Remedy." Now the commercial classical station that also once created a "Smart Babies" CD is out with a collection of recordings that takes advantage of people's affection for their pets.

"Roll Over Beethoven" is offered in stores for \$12.99; part of the proceeds helps animal welfare groups Operation Kindness and the SPCA of Texas.

WRR, the oldest station in Texas and owned by the city of Dallas, arranged a CD release party at two local retail outlets. It did this up right, too, with liner notes by the editor of BARK magazine, photos by a local pet photographer, custom T-shirts and a press kit. The station promoted the CD on the air, including promotional spots that feature talking dogs and cats.

News,' which generated numerous newspaper articles in the Midwest, as well as a TV segment with a Springfield, Mo., station."

'Calming'

Officials for the 100 kW station describe the music selections as suitable for calming pets — it says dogs in particular respond favorably to classical music — as well as pieces inspired by a composer's love for a pet, including Erik Satie's "Preludes flasques (Flabby Preludes)," Alan Hovhaness' "Fred the Cat" and Christopher Tucker's "Whiskers, a Kitty Walk." Tucker is the station music director. Haydn, Beethoven, Gershwin and others also are featured.

Anecdotes support the research about the benefits of music, General Manager Greg Davis says.

"One listener said that her tortoise stands in front of the stereo speaker as long as WRR is on," he told readers in

Eiker said. "Over two years, we sold about 8,000 copies of 'Road Rage Remedy,' generating non-traditional revenue for the station. Now, some listeners are asking for RRR, Vol. II."



Roll Over Beethoven

101.1 FM WRR

Benefits Operation Kindness and SPCA of Texas

"In between 'Road Rage' and 'Roll Over Beethoven,' we produced two 'March of the Day' CDs for a long-time advertiser that sponsors WRR's weekday feature 'March of the Day.' Each of those volumes sold approximately 3,500 copies. The advertiser was Elliott's Hardware, and its three store locations were the only places you could purchase the CD. In this instance, WRR generated revenue through the on-air schedules and CD parties with call-ins that Elliott's purchased."

Sales bonus

Producing the CD was more expensive than past projects because the station had to secure numerous mechanical licenses

The CD is available through advertisers that sponsored the launch as well as North Texas-area retailers including Best Buy stores, Borders Books and Music, Tower Records, Virgin Megastores and Barnes and Noble. Several WRR advertisers stock the CD; and Eiker said the station sales staff has used it to close "numerous buys that include giving the CD away if you test drive a Saturn, or receiving a free copy if you buy a case of wine."

Several years ago, WRR produced a holiday CD with proceeds benefiting Children's Medical Center of Dallas. That donation totaled \$10,000.

RW welcomes news of your station's successful promotions. E-mail to radioworld@imaspub.com.



"It's been an opportunity to provide a great-sounding classical CD for our PIs, as well as introduce classical music to new listeners," said Marketing and Promotions Manager Victoria Eiker.

"It's also garnered media coverage in some new places, including the Christian Science Monitor and 'CBS Evening

the station program guide.

Eiker said WRR released the CD on May 10 with an initial run of 2,500 copies. By July the distributor had sold all but 150 of them. She said reaction to the animal-themed CD has been "extremely positive."

"The number of CDs we sell varies,"

MARKET PLACE

Service Aims to Make Radio Sites More Interactive

AdSertion Technologies is offering a broadcast streaming package for radio.

The company is bundling its Multi Media player with bandwidth, equipment, sales support and service into a fixed monthly fee, determined by market size. The starting price is \$250



per month. Ad inventory within each online broadcast hour is split between the station and the AdSertion network.

"The packaged service is meant to directly mirror current radio station operations and eliminates the uncertainty of bandwidth costs and overhead related to purchasing or upgrading equipment, cumbersome revenue share models, entering orders online, and internet

inventory management," the supplier states.

It said local sales are inserted by AdSertion using an Internet broadcast order form that is faxed or e-mailed to its sales support centers in Washington, Dallas or Seattle. Stations can also use the company's digital production department and receive monthly reporting and reconciliation of sales activity.

WWCD(FM)'s site is shown.

AdSertion Technologies is represented by Carr Knowledge. For information call (877) 361-6925 or visit www.adsertion.com.

Online Show Aims At Speech Disorders

A new online radio show is devoted to speech, language and communication development and disorders.

The VOICES Association this spring

launched "1 2 3 Talk!", a cable access show, hoping to raise awareness and assist children and families. At the same time it debuted a weekly radio program on the Live365.com network that also features children's music.

The TV show airs on Comcast cable access stations in southern California and is sent nationally in DVD format.

VOICES, which stands for Victory Over Impairments of Communication, Expression and Speech, is a nonprofit that aims to help children with severe speech-language/communication disorders and their families. It was founded by Tamara Hill and Byron Jackson, parents of a child with severe apraxia, sensory integration dysfunction and an autistic spectrum disorder.

The organization says communication disorders affect 46 million Americans and that speech disorders are the leading developmental disability in children under six.

For information visit www.4voices.org.



Tell us about your job change or new hire. We're particularly interested in hearing about broadcast engineers and managers. Send news and photos to radioworld@imaspub.com or Radio World People News, P.O. Box 1214, Falls Church, VA 22041.

Daniel Slentz was named chief engineer of WHIZ (AM-FM-TV). He has worked at the Longaberger Company as its audio/visual manager, Industrial Video as its service manager and Cox Communications as Ohio region technical manager/cable rep.



Daniel Slentz

Premiere Radio Networks promoted **Bill Hickey** to VP of engineering; he had held the title of director. Based in Los Angeles, he will report to Lark Hadley, who is executive VP of operations.

At **Crawford Broadcasting**, **Bill MacCormick** was promoted to corporate Web site and digital media coordinator in the New Technology department, which is part of Corporate Engineering. He has been with the company for 29 years. ... **Kenny Hewitt** certified as a Certified Broadcast Technologist. He is a staff engineer in Crawford's Birmingham cluster.

Harris Corp. promoted **Cheng Fan** to director of international channel development for the Broadcast Communications Division. He had served as regional sales manager for automation in the Asia-Pacific region since 1999. ... At the Harris Radio Broadcast Systems business unit, **Tom Jones** was promoted to director,



Tom Jones

radio engineering, in charge of radio RF engineering resources and new product development. He had been director, radio transmission products. He oversees a staff that includes **David Sparano**, who held positions such as principal design engineer with Harris BCD from 1995-2003 and has rejoined as project engineer, product optimization. ... **J.T. Barclay** was promoted to product line director, radio systems and consoles. He had been the finance director of the Radio Broadcast Systems business unit.

Paul Villa was appointed field technical services manager of **Prophet Systems Innovations**. He had installed the company's products and systems at U.S. radio stations for the last seven years. Prior to joining the company, he served as operations manager of

a three-station cluster for the Gleason Radio Group in Norway, M.E.

Kathryn Kercher joined **Infinity Broadcasting** as VP, Infinity Solutions and Beyond, its in-house marketing and sales group. She had been director of marketing and strategic alliances for Rodale Press. ... **Bill Shea** was appointed VP, automotive marketing director. He joined the company from cXc Services, where he was executive vice president, communications director.

NRG Media named **Ben Rosenthal** general manager of its Wausau/Stevens Point stations in Iowa. He joined the company in 2003 as general manager of the Fort Atkinson stations.

Leadership New Hampshire chose **Mark Handley** as the 2005 Cotton Mather Cleveland Leadership Award recipient. He is executive director of New Hampshire Public Radio. The award honors a graduate of the Leadership

New Hampshire program who has demonstrated a commitment to public service.

Several new hires were elected to the **NAB Radio Board**. Two-year terms began in June for Greater Media Boston VP/GM **Matthew Mills**; WBEB(FM), Philadelphia President **Jerry Lee**; WPTQ/WOVO(FM), Glasgow, Ky., President/CEO **Steve Newberry**; Cox Radio, Orlando, Fla. VP/GM **Bill Hendrich**; Clear Channel Radio SVP **Alene Grevey**; WVNO(FM)/WRGM(AM), Mansfield, Ohio, President **Gunther Meisse**; Jackson Radio Works, Jackson, Mich. President/GM **Bruce Goldsen**; KWYN (AM), Wynne, Ark. Owner/CEO **Bobby Caldwell**; WMIX(AM-FM), Mt. Vernon, Ill. President **Russell Withers**; KGAT(AM-FM), Carthage, Texas Owner/GM **Jerry Hanszen**; KLKS(FM), Breezy Point, Minn. President **Bob Bundgaard**; Sierra Broadcasting Group, Susanville, Calif. President **Rodney**

Chambers; and New Northwest Broadcasters, Seattle President/CEO **Peter Benedetti**.

Dr. Margot Stock was named director of RF environmental support for **Lawrence Behr Associates**. She has worked as an associate professor of nursing at East Carolina University and as a neurology nurse practitioner at East Carolina Neurology Inc.

David Johnson joined **Wohler Technologies** as chief operating officer. He has held senior management positions with companies such as Maxtor, Iomega and Amdahl

Audible Inc. named **Glenn M. Rogers** chief operating officer. He had recently founded and served as managing director for Silverback Group, a management consulting firm for small businesses.

Westwood One appointed four executive VPs in Metro Networks' Broadcast See PEOPLE, page 36 ▶



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Big Pipe is not just another studio-transmitter link. With scalable, bidirectional capabilities up to a whopping 45 Mb/s, you can interchange analog and digital audio, HD Radio data, Ethernet, serial data, video, and telephony via a wireless or wireline path. Scalable, flexible, and reliable, Big Pipe works just as well for studio facility interconnects and many other media transport needs. Because it comes from BE, you know that Big Pipe is designed for the realities of radio, including tight budgets and rock solid performance. CONTACT BE for details.



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BOOK REVIEW

Book Celebrates the Voices of Summer

by Peter King

The man who wrote the book on baseball broadcasting is at it again.

Curt Smith, author of 1987's comprehensive history of baseball broadcasting, "Voices of the Game," has taken on the daunting job of ranking the top 101 baseball announcers of all time in his book, "Voices of Summer."

Smith teaches at the University of Rochester in New York and hosts local radio and TV talk shows in that town. He's also an authority on the history of broadcasting and baseball.

Smith estimates that more than 1,000 "voices" have broadcast Major League Baseball, dating to Harold Arlin on Pittsburgh's KDKA(AM) in 1921.

What makes them great?

"For better or for worse," Smith said, "there are my rankings. I tried to make them fair, comprehensive, exhaustive and objective."

He wanted announcers who were as memorable as the games they broadcast, so he came up with 10 categories to guide him, "so that anyone who disagreed with a point here and there could understand the rationale behind the choices."

His criteria:

Longevity — "Wearability," Smith said. "If you broadcast a long time, it means you've been accepted."

Continuity — "For how many teams have you broadcast? It's better to have fewer than more, because it means you've not been fired."

Network — The big events like World Series and All-Star games.

Kudos — Awards like Emmys and "Sportscaster of the Year."

Language — How much command does the announcer have of the English language?

Popularity — Is the announcer "tolerated" or "embraced"?

Persona — Low-key? High-strung? Down to earth or pompous?

Voice — Quality, accents and regionalisms.

Knowledge — Smith said Bob Costas once told him that the baseball fan knows his

VIN SCULLY	
LONGEVITY:	10 55 years
CONTINUITY:	10 Brooklyn N.L. 1950-57; Los Angeles N.L. 1958- : NBC TV "Game of the Week" 1983-89.
NETWORK:	10 "Game" 1983-89 (NBC TV); All-Star Game second 1959 and 1962, 1963, 1983, 1985, 1987, and 1989 (NBC TV) and 1990-91 and 1995-97 (CBS Radio); L.C.S. 1973 (Robert Wold Radio) and 1983, 1985, 1987, and 1989 (NBC TV); World Series 1953, 1955, 1956, 1959, 1963, 1965, 1966, 1974, 1984, 1986, and 1988 (NBC TV) and 1977-83, 1990-93, and 1995-97 (CBS Radio)
KUDOS:	10 "Most memorable [L.A. Dodgers] personality" 1976 Cooperstown 1982 Star, Hollywood Walk of Fame 1982, NSSA 1959, 1966, 1978, and 1982 Sportscaster of the Year and Hall of Fame 1991, ASA Sportscaster of the Year 1985 and Hall 1992. Named top 20th century sportscaster 2000. Ronald Reagan Media Award 1987. Twenty-five-time California Sportscaster of the Year. Sports Lifetime Achievement Emmy Award 1996. "Vin Scully Way" at Vero Beach training site. Press box at Dodger Stadium named in honor.
LANGUAGE:	10 Nonpareil.
POPULARITY:	10 Owns Southern California.
PERSONA:	10 Baseball's Olivier.
VOICE:	10 "The Fordham Thrush," said Murray, "with the .400 larynx."
KNOWLEDGE:	10 LA Times "Dodgers fans say they'd rather have Scully managing the club than Walter Alston."
MISCELLANY:	10 Dodgers radio/TV print ads place his name above team's.
TOTAL:	100 (first place).

Vin Scully was the only announcer to achieve a perfect score in Smith's rankings.



Vin Scully



Red Barber

sport better than any other fan in any game. Does the announcer reflect this knowledge?

Miscellany — Achievements beyond the game? Other sports or broadcasting outlets such as talk shows, game shows, sitcoms or public service or charity work outside of broadcasting?

Each announcer was graded on a scale of 1 to 10 in each category. An announcer could score a maximum of 100 points. Only one had a perfect 100.

Names you'd expect to be on this list are. Mel Allen, Ernie Harwell, Harry Caray, Jack Buck and Lindsey Nelson are all in the top

Year Awards 2005 in Maryland.

ABC News Radio's National Correspondent **Ann Compton** was elected president of the White House Correspondent's Association. She will begin serving in 2007.

Dana Honor was named director of media relations and events for dMarc Broadcasting. She had been the director of meetings and events for the Radio Advertising Bureau.



Ann Compton

People

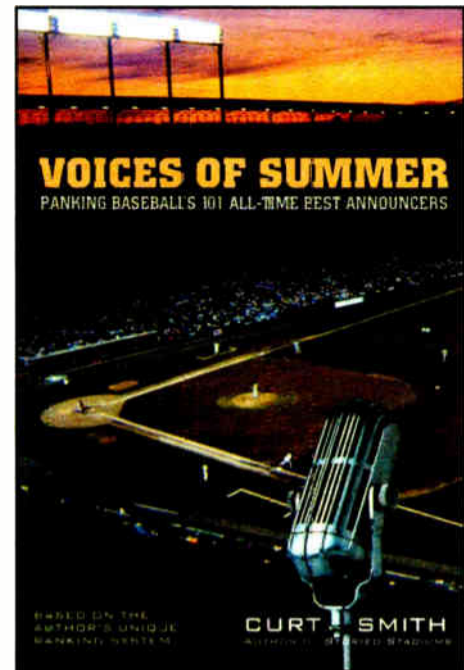
Continued from page 35

Operations Division: **John Frawley, Jeff Brown, Mike Haake and Bill Yeager.**

I b i q u i t y President/CEO **Robert Struble** was one of several winners of the Ernst & Young Entrepreneur Of The



Robert Struble



few minutes of a three-hour baseball game. That gives an announcer lots of airtime to fill. In basketball, hockey and football, "the action carries the announcer. In baseball, the announcer carries the action."

Because of the game's tempo, he says, the announcer gets a chance to invest a sense of himself, the personality at his core, which Smith says is not true in other sports.

More than rankings

While there is some repetition in the book from his earlier work, "Voices of Summer" would succeed even without the rankings. Smith has written 101 magazine-article length profiles of the best in the business, past and present. He tells their stories without being preachy about their attributes, and he includes some of their negatives.

Each announcer's profile is accompanied by an informative chart. And while we've likely heard stories of Allen, Harwell and Harry Caray many times, "Voices" is a refreshing look at these greats and it gives the pioneers and many lesser-known announcers their due.

"Voices of Summer" by Curt Smith is published by Carroll and Graf, New York (paperback, \$15.95) and is available at major book stores and online retailers.

Peter King is a CBS News Radio staff correspondent based in Orlando. He has sequestered himself in his office to follow the New York Mets on satellite TV and Internet radio; his wife expects to see him again in November. Contact him at pkingnews@aol.com.

Smith's Top 10 Summer Voices

1. Vin Scully
2. Mel Allen
3. Ernie Harwell
4. Jack Buck
5. Red Barber
6. Harry Caray
7. Bob Prince
8. Jack Brickhouse
9. Dizzy Dean
10. Lindsey Nelson

Selected other names on the list: Bob Uecker (12); Tim McCarver (17); Bob Costas (18); Milo Hamilton (24); Graham McNamee (33); Tony Kubek (36); Joe Buck (39); Denny Matthews (47); Russ Hodges (51); Joe Morgan (60); Ross Porter (61); Bill King (72); Gordon McLendon (83); Pee Wee Reese (86); Joe Nuxhall (95); Harold Arlin (101).

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— Mike Oberg, WGMO-FM

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— Allen Osborne Maldonado, Cocatel, Honduras

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— Keith Shipman, KQAK-FM

The new Omnia-3fm Turbo has a US MSRP of \$3,995.00. But for a limited time, you can get it for **only \$2,995.00**. Call your Omnia dealer for details.

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GUEST COMMENTARY

'In-Game Radio' Could Be a New Market

by Kevin Glennon

You're "driving" to work in your newly acquired Patriot SUV. Traffic is light, but you've got the gas pedal floored because there are three police cruisers in pursuit, and you're trying to shake them.

You squeal around a corner using a hand-brake maneuver, when you realize your favorite talk show is on and you're missing it. Without missing a beat, you switch stations to catch the latest morning banter moments before you hit a ramp and jump over a few cars of traffic.

Is this a scene from the morning commute in Los Angeles? Actually no — you're playing Grand Theft Auto one Wednesday morning during your vacation week. While playing the video game, you're really listening to a real radio talk show through your television.

There's no reason why video games can't include downloadable new content, and better yet, live radio broadcasts.

It seems that every other week, reports emerge showing how traditional broadcast media — radio and television — are losing market share to interactivity and new media such as Internet surfing and video gaming. Commuters are buying Apple's iPod by the truckload, and unfortunately, even the newest iPod doesn't have an FM tuner. Add to that the increasing sales of satellite radio receivers, and it doesn't take long to figure out that traditional radio is looking at increasing hits in market share over the next few years.

As more people switch from listening to their radios to steadily more user-controlled stations, what will be the fate of radio stations and productions serving a decreasing audience?

Very simply, the audience isn't decreasing. In actuality, it's *increasing*, but it's moving.

Adult consumers

Interest in video gaming has exploded across all demographics over the last 10 years. The inception of online gaming has created a huge marketplace that hasn't been filled with teenage boys, but with adults. Most surprising, many of these gamers are women.

These adults that 10 years ago listened to the car radio on the way to high school and watched television at night are now listening to their iPods and other mp3 players by day, and playing online games

and surfing the Internet at night. They're still out there, only they've been attracted to content which they can choose, and more important, when they choose.

One way to reach these adults is through inclusion of live radio and podcasting in video games, called In-Game Radio.

Currently, most video games have soundtracks that are simply songs or produced shows that play in a loop mode. More advanced games allow users to change "stations," which is technically just the user choosing a different playlist from the same limited number of recordings.

Now that video game consoles come with Internet connections and hard drives, there's no reason why video games can't include, at the least, downloadable new content, and better yet, *live* radio broadcasts.

With the first option, station producers would record live shows and save them as podcasts, the term for recorded shows shared on the Internet, and named for the iPod device upon which they were originally intended to be listened. Producers would then wrap the podcast in a file that contains searchable information about the show (such as the host name, date of broadcast, length, topics, etc.), and make

it available on the Internet.

Not only does this expand the market for the show — as all podcast users, not just video gamers, can download and listen — but it would allow video gamers to download the show onto their game console to listen while they play video games.

The improved version of that idea is to allow gamers to download a live broadcast in real time. Any program producer can activate live feeds for their broadcast programs that can be shared on the Internet. Agreements with gaming console companies such as Sony and Microsoft would allow stations to then share their broadcasts with video gamers.

Call it ROIP (Radio Over IP), or some kind of improved packet radio; but in essence, video gamers would be able to

See IN-GAME RADIO, page 40 ►

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Study Says In-Store Audio Works

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Now perhaps you'll also be fighting with the grocery store on the corner.

Arbitron says consumers are receptive to in-store audio advertising. It released a study that indicated more than half of shoppers recall commercials heard while shopping.

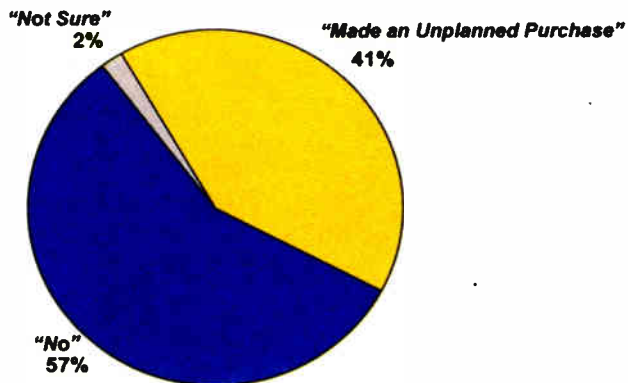
buy they had not been planning, and more than a third purchased a brand other than they one they intended.

Arbitron research analyst Diane Williams said, "With the consolidation of supermarket chains and advances in technology, retail audio broadcasts in stores can function like a broadcast network."

The study recommended that advertisers "think of retail audio networks as place-based radio. Retail audio networks are similar to traditional radio networks and offer a new source of advertising inventory. There are local

More Than 40% of Shoppers Made an Unplanned Purchase After Hearing Retail Audio Ad

"Have you ever purchased a product that you hadn't planned to buy after hearing an announcement about it in the store?"



Base: U.S. primary household shoppers 18+ who heard commercials or product announcements in the stores.



Arbitron found that, once exposed to retail audio ads, 40% of 'smart shoppers' — those who collect coupons and consult circulars and mailers — made an unplanned purchase after hearing retail audio ads.

"The Arbitron Retail Media Study: The Impact of Retail Audio Broadcasting" found that nearly half of adult U.S. primary household shoppers recalled hearing retail audio or in-store audio broadcasting during their most recent grocery store visit and more than half think ad-supported retail audio is an acceptable form of advertising (57 percent found it acceptable, compared to radio's 70 percent and newspapers' 86 percent).

Among these who recalled hearing such ads, more than 40 percent made a

purchase. The study also found that affiliates in each market that carry the network's syndicated programming and the commercial inventory associated with that network. Local advertisers can buy time in affiliate grocery store or drugstores in their market, or national advertisers can purchase the entire network to achieve full U.S. coverage.

It said the reach of retail audio networks "rivals that of traditional broadcasting" and that retail audio allows advertisers "to reach consumers when they are ready to buy."

having small audiences, video game-focused shows could potentially reach one of the largest audiences possible: video gamers during their peak playing time.

Sure, traditional radio is losing market share, but that's only because like all traditional ways of doing things, they fade over time. New ideas and innovations change not just the way we do business, but also the ways in which we communicate, interact and even think. Throwing more money at the problem is not going to get people to listen to their FM receivers more. In an age where there is steadily increasing demand for user-controlled media, the smart thing to do is not to fight the change, but to adapt delivery methods and content to go to where the people are.

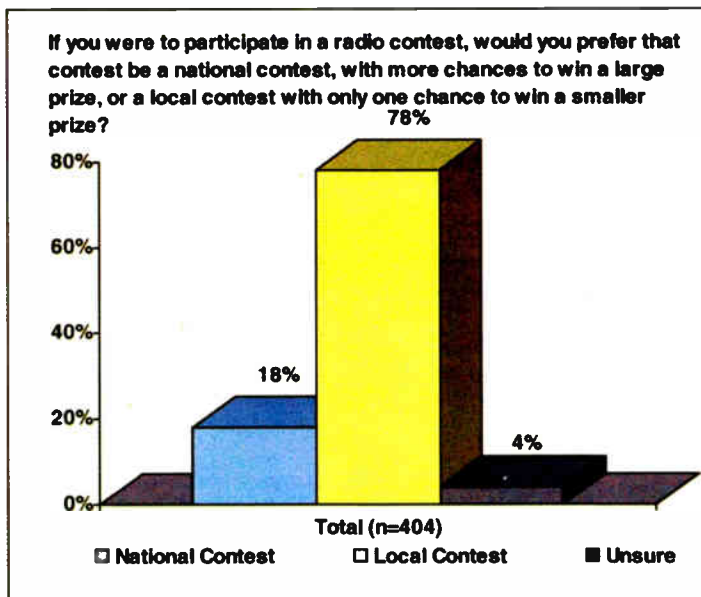
The author is a business consultant. He discusses In-Game Radio and other user-controlled possibilities in a paper, "Radio Reborn: Embracing Broadcast in an Interactive Way," at www.kevinglennon.com.

RW welcomes other points of view.

When It Comes to Contests, Local Is Preferred

Local contests are clear favorites over national ones, according to research by Paragon Media Strategies. It said it surveyed 404 radio listeners and that the findings track those it found in several previous studies.

National Contests vs. Local Contests



Paragon Media Strategies looked at perceptions of national vs. local contests.

Respondents were broken into three categories: "Players," who sometimes actively participate in radio contests by calling in or registering to play and who were 16 percent of respondents; "Listeners," those who listen to the contest and sometimes mentally play along, but never call in or register (59 percent); and "Avoiders," those who tune out radio contests when they come (23 percent).

To the question "Have you ever listened to a radio station you would not listen to because of a contest the station was running," 92 percent said no.

Asked, "When a station you normally listen to is running a contest, do you find yourself listening to that station more, less or about the same," 14 percent said more, while 77 percent said about the same and 7 percent said less.

15 'Giants' Named by Library

The Library of American Broadcasting named 15 radio and television people to honor at its third "Celebration of Giants" in New York.

The luncheon event is Sept. 15 at the Grand Hyatt Hotel. Library Foundation President/CEO Lucille Luongo announced the honorees. Hosting will be Charles Osgood.

The library's list of "giants" include Ron Davenport Sr., founder and chairman of Sheridan Broadcasting Corp. and co-chairman of American Urban Radio Networks; Lester Smith, former co-owner with Danny Kaye of Pacific NW radio group Kaye-Smith Broadcasting; Mac Tichenor Jr., former president of Univision Radio and President/CEO of Hispanic Broadcasting System; baseball announcing greats Mel Allen and Red Barber; radio comedians Bob Elliott and Ray Goulding; and Gabriel Heatter, radio newscaster/commentator and host of programs like "We, the People" on CBS and "A Brighter Tomorrow" on Mutual.

Also honored will be TV's Johnny Carson and Fred Rogers; Bob Bennett, former president of Metro Media Broadcasting; producers Marcy Carsey and Tom Werner; CBS newsmen and anchor Dan Rather; and video/film executive Lucie Salhany.

Tickets are \$500. For information e-mail broadcastlibrary@aol.com.



Ron Davenport Sr.



Lester Smith



Gabriel Heatter



Bob Elliott and Ray Goulding

In-Game

Continued from page 39

listen to their favorite shows in real time, or, if they missed the original broadcast, could then download the podcast of that day's show and listen at their leisure.

The advantage to both of these ideas is that they eliminate the limitations of air-carried radio. Radio listeners on the other side of the world would then be able to listen to the programs they like, even from small-town stations.

Not only that, they'd be able to download these programs onto their iPods and other mp3 players, and listen to them as they commute or simply relax to enjoy the music and programs they want, when they want.

Last, these listeners would open up a whole new video gaming radio market, in that smart station producers would put together shows specifically geared for people playing video games. Instead of late-night shows during the weekdays

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◆ READER'S FORUM ◆

Surrendering Over-The-Air Frequencies

The following e-mails were exchanged by members of a listserv run by the New Jersey Radio Museum. They are printed here with permission.

I have been reading about the FCC — government — trying to get TV stations to give up their over-the-air frequencies so they can be turned over to emergency units. This is a result of the 9/11 confusion, vis-à-vis the walkie-talkies and other communications equipment that didn't function correctly.

Does this mean all TV broadcast stations surrender their over-the-air frequencies and replace them with cable channels?

Aren't the airwaves owned by the public? With the government not owning them, only regulating them?

Giving up the public airwaves means surrendering them to the government so the government can redistribute them to other organizations within the government?

If the FCC does this with TV frequencies, will they eventually go after radio frequencies, forcing all radio broadcast stations to broadcast by satellite or Internet?

I may be pushing the panic button, but this really concerns me. Do I understand this correctly or can someone explain to me what is happening with the public airwaves?

*George Laurie
Dover, N.J.*

Regarding the FCC taking back the analog TV channels to use the frequencies for emergency and other two-way services:

The plan has been in place for a number of years and has to do with the desire to move all over-the-air TV channels to digital high definition formats.

Briefly: in return for getting new frequency allocations that can accommodate high-definition pictures and digital feeds, the TV stations will have to give up their old lower-frequency analog channels, and all TV sets sold in this country will have to be able to receive the new digital higher-frequency channels. For bigger sets, that standard goes into effect soon.

Most Americans now get their TV signals from cable or satellite and old TV sets will still work with those services the same way they do now, but folks who use an antenna to get over-the-air signals will need a new digital TV or a converter box once the switch is made.

The original date for turning off the analog TV signal was next year, but last week I heard the deadline was being moved back to 2008.

Once the switch is made, the government will auction the old TV frequencies for other uses and will use the money to help reduce the federal deficit.

The TV license holders really made a score on this, because the new digital

channels will be able to broadcast one high-definition program or several different programs using the same picture quality we have now. In other words: more TV channels and advertising opportunities. They do have the extra expense of adding new digital transmitters and equipment, most of which is already installed and on the air now.

It really boils down to progress, better TV pictures and a trade of frequencies for the TV stations. Hopefully, the public will appreciate the clearer pictures or the extra channels, and will be better served by the emergency and other uses of the current TV frequencies.

That's my quick understanding of this situation. Others in the museum group possibly have followed the details more closely and can add something to what I said, or correct it.

*Bill Scheffler
Hillsborough, N.J.*

It sounds like George got some misinformation about the reassignment of some of the UHF TV frequencies for law and public safety. Let me paste some comments from my March 2005 column, "Balanced Lines," which I write for the Delaware Valley Radio Association Inc. monthly newsletter. I hope it is helpful. Excerpt follows:

New Law and Public Safety Spectrum — A Followup

If you were at last month's club meeting you heard Motorola sales engineer Marcial Mojena give an informative presentation on emergency communication. One of the things Marcial mentioned was the FCC's reallocation of the 700 MHz band. Let me fill in some of the facts that Marcial didn't have time to mention.


Over the years I've attended a number of wireless communications and public safety seminars. When the subject of interoperability comes up, everyone seems to tout the acquisition of the 700 MHz band as the solution to end frequency congestion and expand agency interoperability. How well this part of the spectrum gets managed by APCO and other special interest groups remains to be seen. But what you don't hear at these seminars is, "who occupies these frequencies right now?"

Due to the ubiquity of cable television, a lot of people have forgotten about the UHF television broadcast spectrum, the TV channels that lie beyond Channel 13. In the 1950s, this was as high as TV receivers would go, back in the days when there was a dial that clicked between Channels 2 and 13. Because Channel 14 is at 470 to 476 MHz, it and the ones above it are considered UHF because UHF is defined as anything above 300 MHz.

At the top of the band lies Channel 83, which is 884 to 890 MHz. In between Channels 14 and 83 lie these magical frequencies that everybody wants to grab on to. Specifically, Channels 52 through 68 occupy the 700 MHz region. In several markets across the U.S., these TV stations are still on the air. Thus, these frequencies can't become available until the UHF TV stations relinquish them. Enter the digital TV debacle.

In order to expedite the migration of analog TV broadcasting over to digital, the FCC has stated that 85 percent of television broadcasting must be converted by the end

See FREQUENCIES, page 45 ►




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Garrett Wood
WJCT(FM/TV) Engineering
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Radio World, August 17, 2005

Connecting Ham Radio, Broadcasting

The Hobby of Amateur Radio Is Pivotal to the Development of the Radio Broadcast Engineer

by Steve Minshall

For many of us involved in broadcast engineering, the hobby of amateur radio has played a role in the development of who we are and what we do. I present here some of my personal experiences in the hobby as well as the relationship between broadcast engineering and amateur radio.

My interest in amateur radio can be traced back to when I was in the sixth grade. A friend in my class had a novice license and he was my first contact with anyone in the hobby. At that time, a novice license was good for one year and gave the operator the privilege of operating CW on a small portion of the 80-, 40- and 15-meter bands with the limitation of 75 watts DC input power with a crystal-controlled transmitter.

I wanted one of those novice licenses! To get a novice license you had to pass a five-words-per-minute code test and a fairly simple written test. I tried to learn the code for quite a while but it was slow going. I had no one that was interested in practicing code with me and I didn't have a receiver capable of receiving the ham bands. My parents were not technically oriented and they didn't know how to help me.

A few years later, my grandfather gave me a Heathkit HR-10B receiver kit. For the first time, I was able to listen to the amateur bands and get in some real code practice.

I could probably write an entire article on Heathkits and what they have meant to me and so many others. Building these kits provided experience in soldering and construction, taught some theory and gave the satisfaction of building quality equipment with one's own hands.

I believe what the "Tool Man Taylor" said: "If you didn't build it, it's not

Frequencies

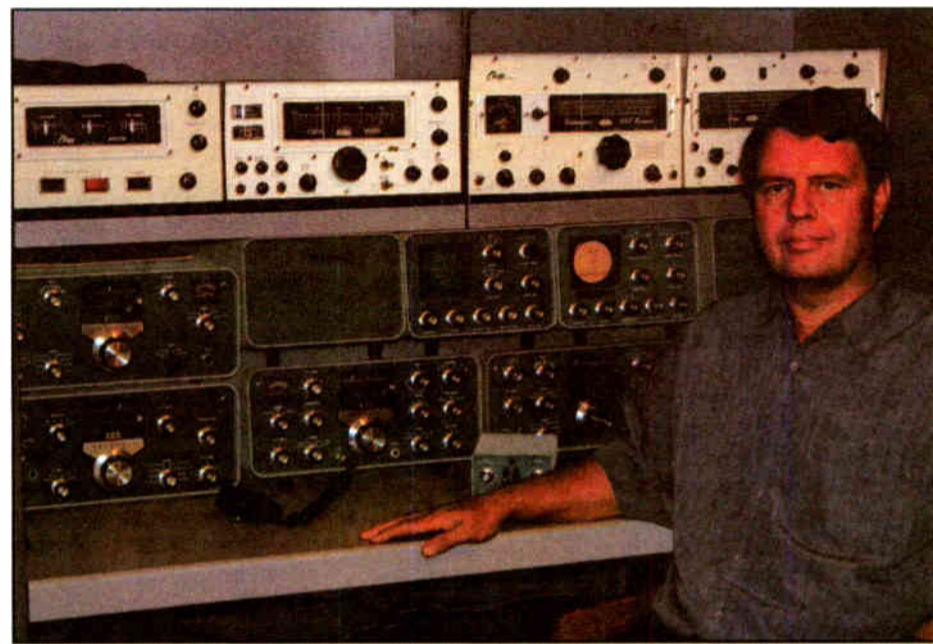
► Continued from page 44 of 2006. This includes the UHF broadcasters.

The dilemma arises because consumers are reluctant to buy DTV sets, especially at their four-digit price tag, because there aren't that many digital channels to watch. The networks don't feel the impetus to establish DTV transmitters because consumers aren't buying the DTV receivers at a very high rate. Thus we have the "chicken and the egg" syndrome. Each side is waiting for the other shoe to drop and the net result is that the FCC's mandate will not likely be in place by 2006. Until then, the 700 MHz band won't be available to the land-mobile radio market any time soon.

Bob Schroeder, N2HX
Communications and Warning Officer,
NJOEM
West Trenton, N.J.

really yours."

I was about 14 years old when I discovered the local amateur radio club.



The author sits with his collection of Clegg VHF gear, top shelf, and Heathkit SB series of HF and VHF equipment, below.

The club had a class to prepare for the novice test and I signed up for it. The class had the structured code practice I needed and it had a great teacher who taught radio theory.

so special is the immense knowledge base that it provides. In one book we have electronic and radio theory, propagation theory, antenna theory; and it is all written in an easy-to-understand manner that is not intimidating to the newcomer.

Theory is just the beginning, though. The book contains practical construction techniques, projects to build, tables and more. We are fortunate to have such a publication. The handbook

A amateur radio has been the initiation into ... electronic theory, construction techniques, troubleshooting ... We learned these things from each other (and) the outstanding publications devoted to the hobby.

This is one example where I can make a distinct connection between amateur radio and radio broadcasting. What I learned in that class, at age 14, opened the door to the whole world of RF theory. The principles that I learned serve me well to this day.

Amateur radio has been the initiation into the world of radio communications for many of us. We learned about electronic theory, construction techniques, troubleshooting, antennas, propagation and many other things. We learned from each other, from formal instruction, but most of all by the outstanding publications devoted to the hobby.

The American Radio Relay League has produced quality publications for radio amateurs for almost a century. As a radio enthusiast I am extremely grateful for the ARRL publication "The Radio Amateurs Handbook" (now called "The ARRL Handbook for Radio Communications").

The handbook has been published every year since 1925. What makes it

is widely regarded as one of the essential books for everyone involved in any radio discipline. I have learned a great deal from this book over the years and I often refer to it both for hobby and professional use. I know of no other hobby that comes close to having anything like "The Radio Amateurs Handbook."

Amateur radio has been a vast training ground for many of us involved in radio broadcasting. But what about the future? Things have changed over the years. Technically inclined young people are less inclined to get the radio bug because of the many other endeavors they can pursue. Those youngsters who do get into amateur radio are less likely to delve into theory and construction projects for a number of reasons.

Pressing forward

In recent times, amateur radio has suffered a number of potential setbacks. Broadband over power lines, or BPL, has the potential to severely limit the ability of many radio amateurs to operate a station.

The FCC has inexplicably reasoned that it is okay for power lines to radiate interfering signals with little limitations.

Computers and the Internet now provide a diversion for many of the technically inclined who may have found amateur radio to be an exciting hobby in the past. The Internet provides easy and instant communication throughout the world, a capability once unique to the radio amateur.

On the positive side, amateur radio is pressing forward with new technologies that were mere science fiction a few decades ago. I recently copied meteor scatter communication on the six-meter band using only a halo antenna with the aid of a computer equipped with a weak-signal detection program. These emerging technologies are creating a fresh new landscape for those interested in leading-edge communication.

Even though the world is changing, there always will be some young people who get interested in the hobby and become licensed amateur radio operators; and some of them will learn radio theory and gain valuable experience. The broadcast engineering profession will continue to grow and to change, as will amateur radio. Many of our future radio engineers may get their start in the ranks of amateur radio, as did many of us.

Now it's time to finish my personal story. I never did get that novice license. I did, however, get my technician license, which was one step higher than the novice level — or was it? At that time, the FCC, in its unique wisdom, did not allow the technicians to operate on the novice frequencies. The technician license only had privileges on 50 MHz and up.

I spent a lot of time learning about and building antennas, frequency multipliers, power supplies, receiving converters and such, which gave me a great deal of practical knowledge. I always have felt a bit cheated by not being able to operate on the HF bands in those years, but I probably learned quite a bit more by having the technician class license instead of the novice license.

Amateur radio has been a big part of my life, not just from a hobby standpoint, but also as a stepping-stone to what I do now. For most amateurs it is just a hobby, and there is nothing wrong with that. It is from the vast pool of hobbyists that some emerge professionals. I once knew a mechanic who, after becoming an amateur radio operator, joined the ranks of television broadcast engineers.

Amateur radio also provides a public service for times when emergency communications must be set up. In the aftermath of last year's Florida hurricanes, amateur radio operators provided emergency communications, some of which was conducted using CW because that was the only mode that could get through at times.

Amateur radio has earned the right to continue to exist and it is a resource that should be respected, cherished and protected.

Steve Minshall is a contract engineer with KCBC, Crawford Broadcasting and director of engineering for the Modesto/Stockton Clear Channel stations. This commentary appeared in the Local Oscillator newsletter of Crawford Broadcasting. 🌐

◆ READER'S FORUM ◆

Long-Distance Unit

The "Forum Decorum" letter caught my attention (July 6). We still use our Marti units for church services and radio remotes including sports coverage. But I wanted to tell you a great "distance story" about our station's Marti.

KDKD(FM) 95.3 agreed to prepare and broadcast the music soundtrack for the Truman Lake Dam Experience Fireworks Show on the 4th of July weekend. For that, we would have to do a live remote broadcast from the Truman Lake Visitors Center at the dam, 24 miles from the studio and some 30 miles from our FM tower, where we have a Marti repeater set up.



Barry Wilson, Marti Man

What makes this even more interesting is that our studio receiver is 24 miles from the site — but our Marti hit our repeater at the FM tower, six miles farther away, and then sent the signal back to the studio.

On the night of the broadcast, our 36-mile shot, with relay, was crystal-clear and strong. Our studio board operator called us on the cell phone to say we "sounded like we were in Clinton, not out at the lake."

Thanks to Engineer Barry Wilson for setting this up and making it work this well. We couldn't have done it without you.

Our Marti is an RPU-30.

Bob May, CRMC, CRME
General Manager
KDKD(AM-FM)
Clinton, Mo.

Advertisement Ado

We at Tieline feel it has now become necessary to bring Radio World's readers' attention to what we consider to be a misleading advertisement being presented by Telos comparing their Xport to our original Tieline Commander G1.

Respectfully we have requested on several occasions in writing that this ad be discontinued based on the fact that the ad presents an incorrect comparison under today's market conditions. Unfortunately the ad has run a number of times despite our requests.

What is misleading about this ad is the fact that Telos is comparing their product against our "legacy" Commander, a product that we have not manufactured for over nine months. It is a shame that a company like Telos will stoop to such questionable marketing practices and we would hope they will discontinue this deception. So far they have not.

You be the judge: Telos is comparing their current product against a discontinued competing product that is widely known in the industry to be no longer available. Since October of 2004 Commander G1 has been replaced with a fully featured G3 product that is much more competitive and is priced lower. We feel that this is clearly misleading to you, the consumer, and is a disservice to anyone needing to evaluate the latest state-of-the-art equipment.

You deserve the truth.

Here are the facts: Our new Commander G3 is vastly improved in many ways over the original Commander and is state-of-the-art (stereo/dual mono POTS, GSM, wired and wireless IP capabilities already built in, etc.). In fact we have introduced a new completely modular design never before seen in the industry that is at a lower cost than the original Commander, yet is equipped with even more features and is cost-effective as one expands.

In fact if Telos were to compare our Commander G3 point by point now, not only would the Commander G3 stand out, readers would see that it costs less than the Telos pair. To bring out the hidden costs not mentioned in the ad, one must have an Xport, an Xstream and an ISDN line.

Current retail cost of an Xport/Xstream is \$6,850. Average monthly cost of an ISDN line is \$125-200 a month. That's a continuing cost of \$1,500 to \$2,400 per year. By compar-

Why We Loved Scotty

When actor James Doohan died on July 20, he took with him one of TV's more memorable character creations: Montgomery Scott, chief engineer of the starship Enterprise.

We miss Jimmy Doohan — several RW editors and writers had met him over the years — because he was a professional, a man who had started in radio, a wounded D-Day veteran and a genuinely nice man. But it's safe to say he'll be remembered most for Scotty.

Here are just a few reasons we loved Scotty of "Star Trek," compiled by the editor and broadcast engineers Rockwell Smith, Clay Freinwald and Tom Ray:

The character was right there showing the trials of being an engineer, an image that has lasted 30+ years in the public's eyes — Scotty, the guy who could always be counted on no matter what to pull the proverbial rabbit out of his hat and get the job done.

Scotty was quick with a comeback; he called a Romulan a Romulan, went about his work and never asked for a spotlight — as a matter of fact, he shunned it, just like many broadcast engineers we know. He didn't think twice about getting down and dirty in one of the access tubes in the Enterprise, especially when the chips were down.

"Many years ago I had an automation system with several carousels, and one had a power supply fail," Rockwell Smith related on the Radio-Tech listserv. "Not having any spares on hand, I had to order a replacement, which then took several days to arrive. On 'Star Trek' that night, Scotty saved the mission by 'paralleling the lithium crystals' or some such thing to keep the ship running. The idea light went on in my head; and the next morning I jumped power from a working carousel to the dead one and had all systems running until the parts arrived. Scotty saved the day!"

We also loved Scotty because:

"As a 'fellow engineer I could relate to his 'work' and his matter-of-fact approach."

He wasn't afraid to try something to get systems back even if it proved dangerous.

He was a teacher and mentor to engineers under him who were trying to learn.

Spock took care of the science, Bones took care of the people; but Scotty made the machine work when it was needed the most.

When the captain and other high-ranking officers went to the strange planet to deal with the unknowns, who'd they leave in charge of the big machine up there? The chief engineer. Who'd they call for help? Scotty.

Radios no longer rely on crystals; but he kept a spaceship running on them.

He was the person who could keep your atoms together in a magnetic storm or allow you to call home via interstellar frequencies with heavy interference.

He didn't wear a pocket protector or glasses with white tape.

He constantly was called upon to violate the laws of physics by those who neither understood them nor cared to learn.

How many times did he "broadcast" a person's atoms across space in the transporter?

No one was critical of his language skills.

"He could fire the phasers — something I'd like to hook up at my desk."

He described a computer from the 20th century as "quaint."

He had an affinity for Romulan Ale, much like many broadcast engineers we know.

Name another TV program where the engineer had such value.

— RW

son, two Commander G3s equipped with one POTS module each retails for \$5,780, or \$1,100 less than the Telos pair. Average cost of a POTS line is \$35-\$45 a month. Yearly that's \$420 to \$540, up to \$1,860 less per year to operate.

In addition, we disagree with several points that Telos makes in their ad against the original Commander. An example is the "Standards-based POTS" comparison point: It is in fact Tieline that pioneered POTS interoperability in early 2002 before anyone else in the industry. We made it possible to connect a Tieline to other brands of POTS codecs and we were the first to do so. This one feature has helped broadcasters all over the world.

To see a true comparison we invite

readers to look for our recent full-page ad in Radio World that compares the important features of the Commander G3 against the Telos Xport, including true costs. They can then make a more informed decision. Please contact me for a copy, if necessary.

We now ask Telos publicly to please stop running their incorrect and misleading advertisement. If they wish to continue the advertisement, at least be honest enough to compare the export with the Commander G3. I am sure Radio World readers would be interested to see that advertisement.

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General Manager
Tieline America
Indianapolis

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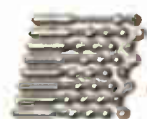
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