



RADIOWORLD

JANUARY 14, 2015

The News Source for Radio Managers and Engineers

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INSIDE

COMMUNITY RADIO COMPLEX

• Mike Starling updates us on WHCP(LP). — Page 3



MULTIPURPOSE BOARDS

• This will help get wrinkles out of your transmitter. — Page 14



WHAT'S NEXT

• James Careless goes over streaming services. — Page 22

Jelli: Programmatic Is Radio's Future

Dougherty bets on computer software to simplify, automate buying and selling ad inventory

NEWSMAKER

SAN MATEO, CALIF. — If you listen to advertisers or their agency reps, programmatic ad buying is a big trend for categories such as digital display, events, online video and mobile. In those categories, "programmatic" has surged over the last three to five years.

Think of programmatic as an electronic methodology for accessing inventory and then pricing, selling and buying it.

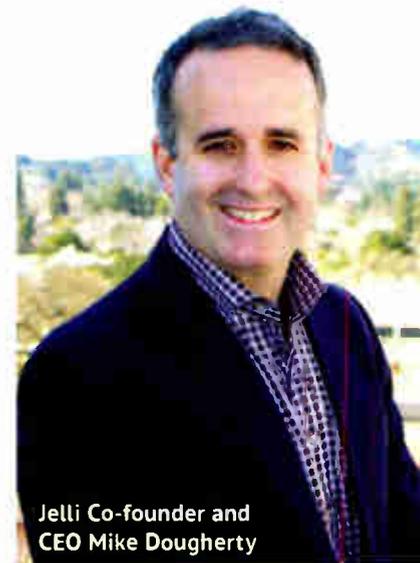
Automatic ad buying and selling has made big inroads in the digital display market that serves laptops, mobile phones, tablets and desktops. There, programmatic ad spending was expected to grow 137 percent to more than \$10 billion in 2014, according to eMarketer, which would mean automated ads would account for nearly half of the U.S. digital display market. That dollar amount was expected to double by 2016.

Advertisers and their agencies have said they would like to enable programmatic trading across their entire media buys, representing as much as 50 per-

cent of all media spending. Few of these dollars have come to radio yet, but supporters say automated buying and selling can return money to radio that has migrated to mobile advertising, which advertisers find easier to transact. U.S. commercial radio revenue in 2013 was \$17.6 billion, according to the Radio Advertising Bureau.

One of the promoters of programmatic ad spending is San Mateo, Calif.-based Jelli, founded in 2008. It has raised some \$16 million in venture funding from investors including Relay Ventures, Intel Capital and First Round Capital as

(continued on page 10)



Jelli Co-founder and CEO Mike Dougherty

Super Bowl Requires Frequency Coordination

Adoption of wireless devices adds challenges for remotes

SUPERBOWL

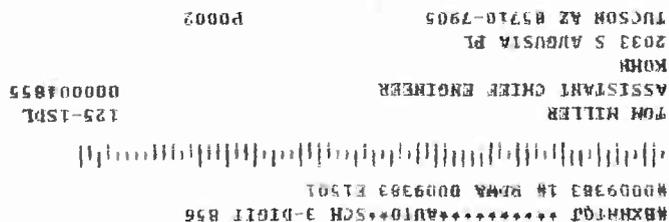
BY TOM VERNON

The logistics of managing live broadcasts at sports events can be staggering. As radio adopts more wireless devices for remote coverage, frequency coordination becomes a challenge. When the other participants are factored in — television, security, event management and the occasional rogue signals — coordination takes on

(continued on page 18)



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Next Issue of RADIO WORLD February 1, 2015
Next Issue of ENGINEERING EXTRA February 18, 2015

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For address changes and subscription renewal, please visit radioworld.com and click on the "Subscription" button. To submit letters or story proposals, to request writer's guidelines, or for other editorial matters, email the editor at radioworld@nbmedia.com.

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Radio World Founded by Stevan B. Dana

Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by NewBay Media, LLC, 28 East 28th Street, 12th Floor, New York, NY 10016. Phone: (703) 852-4600; Fax: (703) 852-4582. Periodicals postage rates are paid at New York, NY 10079 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

For custom reprints & eprints please contact our reprints coordinator at Wright's Media: 877-652-5295 or NewBay@wrightsmedia.com

Globe graphic ©iStockphoto.com / Edward Grajeda

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WHCP(LP) on Target for Sign-On

Fun(d)-raising, studios, towers and a public debut on the Eastern Shore

FIRSTPERSON

BY MIKE STARLING

The author is general manager and chief engineer of WHCP(LP), Cambridge, Md., and former executive director of NPR Labs. This is the second part in this case-study series about this low-power radio station, here covering funding, equipment and studio space. Part 1 appeared in the Aug. 13, 2014 issue; see radioworld.com/whcpl.

CAMBRIDGE, Md. — The all-volunteer staff at WHCP Radio has reached more than 80 percent of our construction budget goal, largely thanks to generous donations from engineers and stations around the country.

From a QEI Mod Monitor to an on-air skimmer, from a half-dozen recent vintage computers to almost new CD recorders, a gently used audio switcher to venerable Pacific Recording consoles, vintage microphones to loudspeakers, we are excited by the outpouring of support received to date. It appears that instead of building a modest, bare bones low-power FM, we are on the brink of commissioning a multi-studio, near state-of-the-art community radio complex.

ORGANIZATIONAL STRUCTURE

In rapid order, we grew our fledgling organization to a half-dozen accomplished board members, with half of us having prior radio experience. We've now got journalists, lawyers, fund-raisers, technical and programming pros steering the good ship WHCP.

Additionally, thanks to the IRS's new streamlined 1023EZ form, Cambridge Community Radio Inc. was formally



Remnants of an osprey nest are visible on the Cambridge municipal tower. WHCP would like to locate its antenna on the 160-foot Rohn tower.

Photo by Mike Starling

recognized as a 501(c)3 nonprofit, retroactive to our date of incorporation within weeks of our 2014 application. That means all of the equipment and cash donations we've received can be recognized with a tax donation letter for the donors.

THE CASE OF THE MISSING TOWER

It has been said that plans of battle never survive first contact with the enemy. In the case of our preferred antenna location, we have been negotiating for use of the centrally located

city municipal tower right in the heart of Cambridge.

It is a 160-foot Rohn tower that was built and commissioned in 1978. The tower was constructed to host the city police department repeater, but that moved years ago to the new public safety tower a couple of miles away. The only active use of the tower at present is the very large osprey nest at about 80 feet up the structure.

Although none of the antennas that remain on the tower is in use, there is generator power for the building since it was the original police headquarters. That's a real plus for city government operations, and should be the same for WHCP in case of any widespread power outages. A little uninterrupted power supply should mean no discernible downtime in the few seconds required for the generator to come online.

The only problem was there did not appear to be an Antenna Structure Registration for this tower on the FCC's website. On further investigation, we believe we found it — a mere 800 meters to the southwest. Apparently, due to an error in filing the tower application back in 1978, the coordinates were garbled. We're pretty confident that is what happened because the overall height and type of tower are identical; even the street address is where the tower

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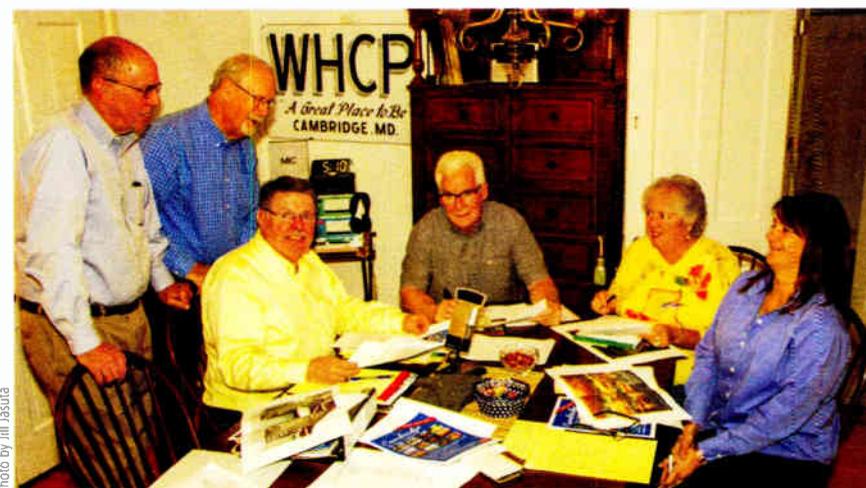


Photo by Jill Jasura

WHCP board members gather to review the Cambridge Community Calendar printer proofs. From left, Steve Rideout, Chuck McFadden, Mike Starling, Paul Clipper, Nancy Barger, Karen Fishell (attending by phone: Paul Littleton).

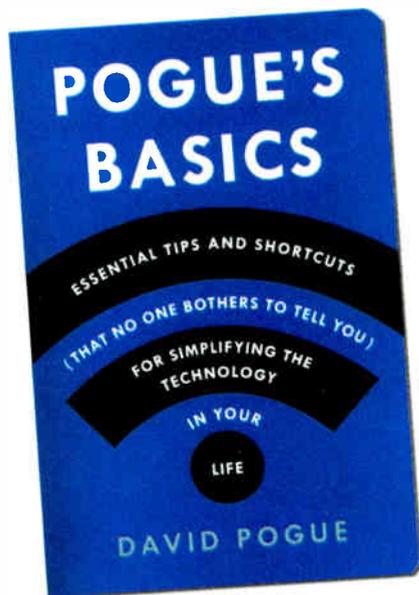
Radio Reading for Your Winter Blues

About smartphone shortcuts, activism and radio in the Finger Lakes region

Got those mid-winter blues? Here's some engaging reading to precede your long winter naps.

"How can I magnify a Mac screen?"
"Where did my lost image file go?"
"How can I avoid shutter lag when taking a picture with my smartphone?"
"Can I see the contents of a file without opening it?"

David Pogue tries to help with his book **"Pogue's Basics: Essential Tips and Shortcuts (That No One Bothers to Tell You) for Simplifying the Technology in Your Life."** Pogue, a popular technology journalist and veteran entertainer, recently launched Yahoo Tech, a consumer technology site for non-techies.



Many of these questions will seem simplistic for Radio World readers whose lives revolve around technology, computers and devices. Yet even corporate DOEs and IT managers at times can feel that they'd missed the memo about this little shortcut or that handy trick.

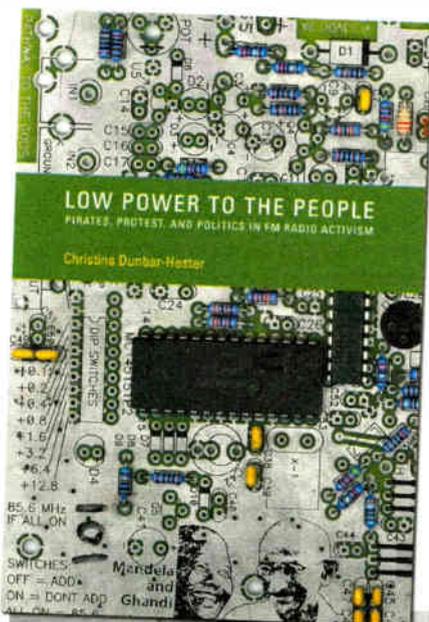
Did you know you can use your keyboard's space bar to scroll your browser down by one full screen? No need to use a mouse and scroll bar.

His book retails for \$19.99 and is published by Flatiron Books. General topic areas include phones, the computer, the Internet and social networks. You might buy this as a gift for a tech-challenged loved one; still don't be surprised to find yourself sneaking a peek.

My favorite tip from Pogue is how to bypass annoying, repetitive, long voice-mail instructions. ("At the tone, please record your message. When you are finished recording...") Yes, I know what to do! Stop wasting my time to tell me how to leave a message!)

The creation and subsequent expansion of the low-power FM service were notable wins for activists who'd been dismissed by many radio people as loud, annoying, piratical and quixotic.

Christina Dunbar-Hester, who teaches journalism and media studies at Rutgers University, offers us **"Low Power to the People: Pirates, Protest and Politics in FM Radio Activism."**



Women solder a transmitter board in Nepal in a photo from "Low Power to the People." Volunteer photo/Prometheus Radio Project, reprinted courtesy of The MIT Press.

Her aim is to examine the practices of the activist organization Prometheus Radio Project in the early period of the LPFM rollout, roughly 2003 to 2007. "This book traces their activities with an eye to the intersection of technical practice and political engagement," she writes. "It specifically investigates

how the radio activists imputed emancipatory politics to radio technology — notably, an 'old' medium — against a shifting technical and political landscape that included increasing attention to Internet-based technologies."

Very evident throughout is the intense symbolism many participants place on their role in the low-power movement. For them, the challenges of building or launching a low-power station go far beyond raising money or a studio roof. LPFM for them was about democracy, autonomy, social change and community self-determination.

The book is a work of ethnography, which is a scientific study of human social phenomena and communities often done through fieldwork. This is not intended as a light beach read. The text is academic in style and counter-culture in sympathy. Her style may grate for readers not patient with scholarly musings about such things as "social identity," "cultural mediation of technology" and "utopian/dystopian rhetorics."

For example, though I was intrigued by an essay about gender roles in building LPFM stations and a discussion of "the quietly competitive dynamic

forged by the men in the group," I was impatient with some of the conclusions, which could be boiled down to the fact that women and men learn differently. It's hardly surprising to me that "even among feminist men, their culture of hardware tinkering did not succeed in the abolition of 'masculine' identity

FROM THE
EDITOR



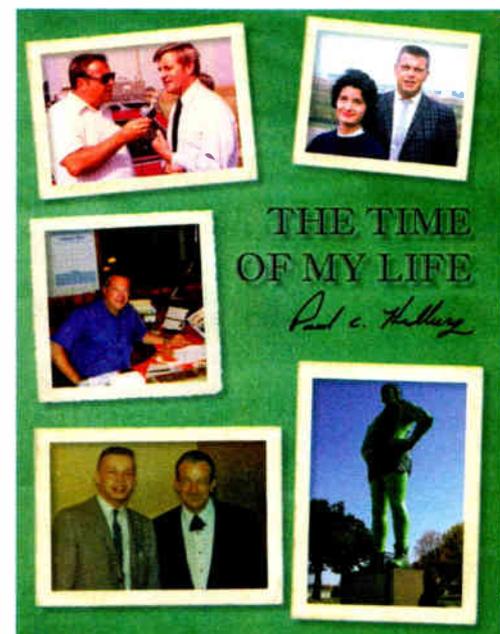
Paul McLane

displays." But I commend the author for exploring questions about the linkage of masculinity and technology. To paraphrase an organizer cited in the book: Why is it so hard to find non-dude engineers?

Gender is but one angle of the text. You will enjoy this work if you like discussing technology's role in activist politics or if you are interested in how the Prometheus vision for media differs from that of, say, NPR.

The hardback book retails for \$36. It is part of the Inside Technology Series from MIT Press Books.

Former DJ and group owner Paul C. Hedberg spent 45 years in the biz and now has compiled a memory book, **"Time of My Life,"** sales of which support the Pavek Museum of Broadcasting.



Hedberg began his life in broadcast at age 17 when he and his father built KMRS(AM) in Morris, Minn., in 1956. After working as a Twin Cities DJ during college, he built an AM/FM combo, KBEW, in the community of Blue Earth. He went on to build a successful broadcasting group as well as a company that made pioneering use of FM subcarriers to send grain market information to rural elevators. In 1978, he was the first broadcaster in the country to transmit data via FM subcarriers, according to an official bio.

He would serve as president of the Minnesota Broadcasters Association and be named an Iowa Broadcaster of the Year; he co-founded the Pavek

(continued on page 5)

THIS ISSUE

JANUARY 14, 2015

NEWS

- Jelli: Programmatic Is Radio's Future ... 1
- WHCP(LP) on Target for Sign-On ... 3
- Radio Reading for Your Winter
Blues ... 4
- News Roundup ... 8, 12



FEATURES

- Super Bowl Requires Frequency
Coordination ... 1
- Use an Ironing Board to Access
a Transmitter ... 14
- Location, Location, Location ... 20
- Streaming Diversifies ... 22



BUYER'S GUIDE

- STAC VIP Provides Scalable SIP-Based
Call Management ... 23
- Tech Updates ... 23-26
- Top Radio Selects AEQ System ... 24
- NeoWinners Takes Winners to
a Higher Level ... 25
- Backbone Provides Support for
"The Bottom Line" ... 26

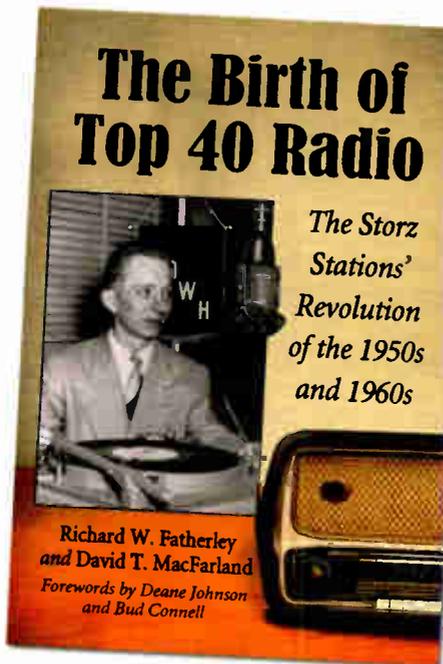
OPINION

- Reader's Forum ... 29-30

(continued from page 4)

Museum and was on the radio board of the NAB.

Hedberg sold his radio holdings in 1999. As happy as he is in retirement, my sense is that the radio bug never left him. In a cover note to me, Hedberg wrote that reading Radio World often "makes me want to buy a station and get back in the biz." And on his book's last page he writes about tears swelling in his eyes sometimes when he thinks about his time in broadcasting.



You gotta like a guy like that.

(An interesting juxtaposition: The LPFM rollout I mentioned earlier was one of the factors that Hedberg, a lifelong broadcaster, mentions for selling when he did.)

This is not a slick production, it's a brief, personal book about a radio life and family. The cost is \$19.95 plus tax and shipping; all of the proceeds benefit the museum. Visit www.pavekmuseum.org/HedbergBook.html.

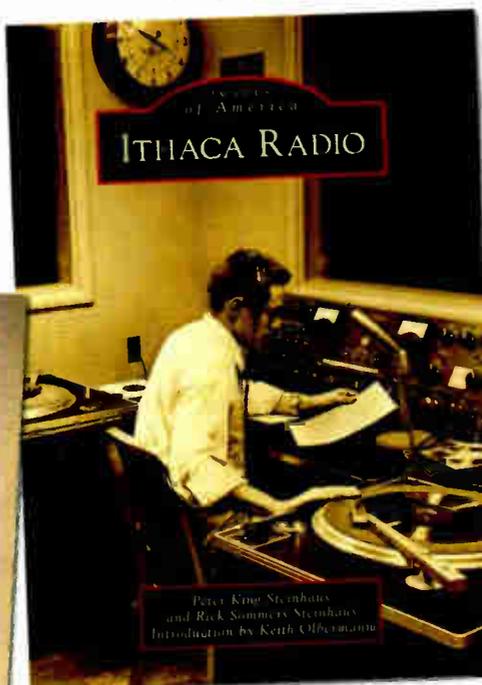
McFarland & Co. publishes academic and non-fiction books like 2014's "The Birth of Top 40 Radio." It periodically mails a brochure featuring nothing *but* books about music and radio; and Editor David Alfi writes there that he welcomes ideas for manuscripts about these topics.

Among recent radio books offered by McFarland are "Radio Journalism in America" and "Musicians of Network Radio," both written by Jim Cox; "Broadcasting Baseball" by Eldon H. Ham; "George Burns: An American Life" by Lawrence J. Epstein; and "The Early Shortwave Stations" by Jerome S. Berg, a book I've mentioned before.

The most recent mailing from McFarland featured more than 80 radio titles. Many are about golden age radio programs, but the topics also include

modern radio, Cold War radio, sound effects, Christian radio, payola and amateur radio.

Visit www.mcfarlandpub.com and



search keyword radio.

And I can't write a book column without mentioning Arcadia Publishing's "Images of America" series, including its radio-themed photo books.

Once again, a writer with a connection to Radio World is involved; this time it's Peter King Steinhaus. He and his brother Rick Sommers Steinhaus have written "Ithaca Radio," telling stories through vintage photos and anecdotes — about WHCU(AM), WTKO(AM), WVBR(AM/FM) and WICB (AM/FM), and about people with connections to Ithaca radio like Dave Ross, Pam Coulter, Keith Olbermann, Doug "Grease" Tracht, Stacey Cahn, Bettina Gregory, Bob Kur and Bill Diehl. Olbermann wrote the introduction.

As always, plenty of superb pix of old studios and gear. The softcover lists for \$21.99.

Send me your own book suggestions. Email radioworld@nbmedia.com.

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WHCP

(continued from page 3)

actually is and the stipulated height above average terrain is also identical.

But since there's not a valid ASR on file with the commission, there's no way to request that tower as our new antenna location. It gets better — since we are within the specified distance to the Cambridge Municipal Airport, an FAA notification on FAA Form 7460 is now required to correct the tower's location, after a mere 36 years of administrative misplacement.

The good news is once it has been cleared by the FAA, a corrected Antenna Structure Registration can be filed, and then our request for the move of less than 1 kilometer to that location at 100-foot HAAT. The FCC's LPFM expert Gary Loehrs and FAA antenna expert Diegenes Ramos could not have been more helpful in explaining how to efficiently take care of the issue. If anyone has anything unkind to say about the caliber and dedication of federal workers today, they can meet me in the alley.

Seriously, the cable companies and wireless providers should contract with the FCC and FAA on how to properly handle customer service and technical



Pacific Research & Engineering recording consoles are ready to ship at Wyoming Public Radio, where Chief Engineer Reid Fletcher packed the crates.

This should mean less of the classic "try moving your radio closer to the window" technical support calls. The folks at V-Soft modeled the coverage tradeoffs for us, vividly documenting the antenna height recommendation from consulting engineer Gray Haertig, owner

If anyone has anything unkind to say about the caliber and dedication of federal workers today, they can meet me in the alley.

support. As always, good communication, solid knowledge and caring about the inquiry are the keys to happy customer service.

One decision that was under study was electing not to go for the maximum height on the tower because of the power de-rating considerations once an LPFM goes above 100 feet Height Above Average Terrain. Normally, any engineer would go for maximum height and distance. As we all know, FM is basically a line-of-sight proposition.

However, for us, going to the top of the tower would have reduced our ERP to a mere 35 watts. But in our case, the town of Cambridge itself is where 75 to 80 percent of our potential audience lives, no matter how high we get up on the tower.

Nearby areas are simply very sparsely populated until you reach the next communities of size, which are well beyond the 60 dBu contour. Thus, we are sacrificing some theoretical "fringe" service in favor of another 5 dB of signal flux density in town for maximum building penetration.

and principal engineer of Gray Frierson Haertig & Associates.

As we've been telling potential listeners in outlying areas, we'll be available online worldwide — even at their house — and will consider applying for a community translator or two if nearby smaller communities are clamoring for a better signal.

RADIO CALENDAR

The WHCP board pointed out our good fortune with equipment donations needs to be matched with a cash buffer in the bank to consider the serious commitment of leasing prime studio space downtown. We all agree that's the kind of visibility, access and stake in the community we would prefer to have.

So, we considered the usual fund-raising activities — silent auction, gala, community flea market, music festival, etc. In the end, we talked about what a great community we have here that in recent years has exploded with a different "destination event" seemingly every weekend throughout the summer. In fact, there are now so many events

ing of various hunting seasons.

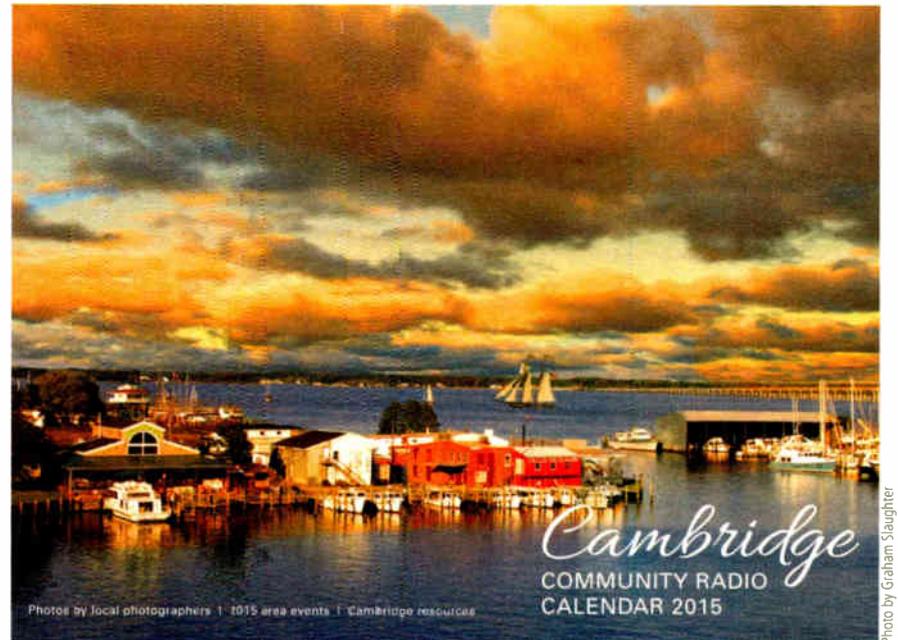
Thanks to Jill Jasuta, our ace layout editor, more than a thousand calendars arrived on Dec. 3, just in time for placement in over a dozen local merchants. Naturally we put the word out on Facebook and our website (www.whcpradio.org), and at \$12 per calendar the sales have been brisk so far.

For a \$25 station membership, a calendar is included. Regardless of final net income, this initiative embodies the kind of positive spirit we strive for in our slogan "Cambridge, MD — A Great Place to Be!"

STUDIO LOCATION, PROGRAM PLANNING

Like many other LPFMs we've found some excellent studio space at affordable rates on the second floor of a couple of prime downtown buildings. The only issues are lack of street level visibility and more importantly, accessibility.

As a federally licensed station, of course, we would need to have alternate



This calendar is included with a \$25 membership.

hosted in Cambridge, we agreed none of us could possibly name them all — let alone the dates on which they occur.

For the many locals hosting friends and family all summer long it's a challenge finding which event to match with which visitors. Another factor entered our thinking — this is such a scenic area, and home to so many accomplished photographers, what if we combined the best of local postcard quality photography with consolidated documentation of events coming in 2015 via a first-ever Cambridge Community Calendar?

So in October we sent out the call for well-known photographers to submit their best works for editorial consideration. And we fanned out to consolidate the best various partial lists of event dates, and added in the local public school calendar days off and even the dates for the open-

first floor space for guest interviews with anyone with limited mobility. That's likely doable, but all things being equal, first floor space with constant street visibility would be preferable.

Two great little buildings were initially in the running — the kind of quaint "Northern Exposure/Talkeetna Community Radio" cozy studio venues many of us fancy in community radio. The water pumping station by the Cambridge Marina is vacant, but the grounds frequently flood at high ebb tides and during tropical storms. Also, the Wallace Office building, a Civil War office used by Col. James W. Wallace for enlisting local troops and militia, has significant historical renovations underway that will extend long beyond our spring on-air date.

(continued on page 8)



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World Radio History

WHCP

(continued from page 6)

Each building was borderline in terms of space at roughly 450 square feet. Ideally, we need at least 500 square feet for a decent master control room, production room and shared office space. Volunteer carpenters and cabinet makers are standing by!

Another excellent, nearly free downtown building in a "transitional" block has been offered, but also will not be available for many months past our deadline. So, we were still looking as of mid-December.

WHCP made a public debut during the Cambridge Showcase for non-profits along High Street in October. We had the station on-air for equipment testing and recorded station breaks by more than three dozen citizens who stopped by the booth.

The best ones are the little kids who couldn't read the script yet but were great at memorizing it. The mayor and commissioners recorded breaks for us, and some of the best cuts are actually the hilarious out-takes of folks stumbling a bit and then nailing it with the recorder rolling. These will be great to



The vacant water pumping station by the Cambridge Marina frequently floods.

gram schedule. Our first big community meeting is coming up, tentatively slated for Saturday, Jan. 24, complete with a skills inventory of potential volunteers.

The Programming Committee is scrutinizing the dozens of free weekly program offerings from the Public Radio Satellite System and Public

We're thinking a "claim your 15 seconds of fame" campaign will be a great way to get people involved as we go on-air.

Radio Exchange. The PRSS has a special incentive for new LPFMs of only \$250 to join during the first year and take feeds as an Internet-only station. That provides access to a wealth of free programming from around the country to match niche programming interests

NEWSROUNDUP

NOTAM: The Federal Aviation Administration is streamlining the process by which tower owners notify it when tower lights go out. Right now, owners must notify the FAA within 30 minutes (using an FAA-maintained Web-based system) when a tower light fails. The FAA then issues a Notice to Airmen to notify pilots, and the tower owner must have the outage repaired as soon as possible. Currently NOTAMs expire after 15 days. The FAA plans to eliminate the automatic deadline this month and allow tower owners to select their own deadline to eliminate the burden of repeat paperwork. FCC staff will continue to monitor the NOTAM notices they receive from the FAA and may investigate cases where a tower owner selects an unusually long time to make a repair.



KENNARD: Former FCC Chairman Bill Kennard has joined Ford Motor Co.'s board of directors. Executive Chairman Bill Ford said the automaker values Kennard's communications' technology perspective as the company accelerates its work centering on in-car connectivity and mobility. Kennard, 57, is chairman and co-founder of asset management firm Velocitas Partners LLC and a member of the operating executive board of Staple Street Capital, a private equity firm.

Prior to his appointment as chairman of the FCC in 1997, he was the commission's general counsel, beginning in 1993. He left the agency in 2001.

O'RIELLY: The Senate in December confirmed Michael O'Rielly to a full five-year term as an FCC commissioner. O'Rielly, a Republican, had been filling out the term of Robert McDowell, which ended June 30. O'Rielly was nominated for a full term in October. In congratulating O'Rielly, NAB President/CEO Gordon Smith said: "We deeply appreciate his commitment to public service, his grasp of difficult public policy issues, and his acknowledgement of the enduring value of broadcast localism."



The Wallace Office building, a Civil War office used by Col. James W. Wallace for enlisting local troops and militia, is under restoration and will not be available for use in time for WHCP sign-on. Note the Cambridge Courthouse in the rear.

drop in among the programming once we go live.

In fact, we're thinking a "claim your 15 seconds of fame" campaign will be a great way to get anyone interested involved as we go on-air. Nothing beats folks saying they heard you on the radio today to get everyone tuning in.

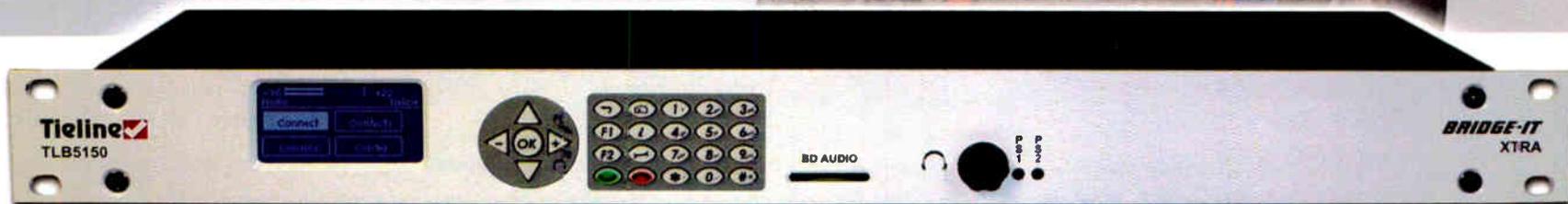
As is supposedly attributed to Edward Murrow, "in the final analysis, all that matters is what comes out of the loudspeaker," it's time to shift to the real work of assembling a great pro-

gram in the community.

It's exciting to drive around town during equipment testing with the Nautel VS-300 lit up at our original temporary studio and transmitter location on 101.7 FM. It'll be even more so in our permanent home, which will keep us busy nailing down in the coming weeks. We can't wait to circle the actual WHCP Radio sign-on date on our 2015 Community Radio Calendars.

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PROGRAMMATIC

(continued from page 1)

well as several angel investors.

The company's original focus was crowd-sourced radio; however for the past couple of years, Jelli has shifted its resources to programmatic and its RadioSpot platform.

Jelli co-founder/CEO Mike Dougherty worked in the '90s as an investment banker before becoming senior vice president of business development and strategy for digital music and video platform Loudeye in 2000, later acquired by Nokia. He then held a similar position at the telephone-based application company Tellme, which was acquired by Microsoft in 2007.

Dougherty spoke with Radio World News Editor/Washington Bureau Chief Leslie Stimson about Jelli and the programmatic trend.

RW: What is programmatic buying? I keep hearing that television is doing it, so radio should also.

Dougherty: Programmatic is a methodology of buying and selling advertising. You automate more steps in the process of selling and buying the ad. ...

One of the core technologies that was put in place about 15–20 years ago in digital was an ad server, DoubleClick, which was acquired by Google. It allows ads to be tracked, delivered, reported on and even targeted in a way that's more precise. ... The second part of programmatic is the idea of targeting. So you're now thinking about new, sophisticated ways to use data to target audiences.

An example may be that Nielsen provides new service to the market that gives you better insight on household income or whether you have a propensity to buy a Lexus or drink Budweiser. It's third-party data — information that's beyond the traditional demographic [and] about your propensity to do something.

You can use [programmatic] data to get a better insight as to which properties you should buy, because those are the properties that skew more closely to what you want. In the case of a website — a digital sale — you can target an individual with a cookie, so you don't have to even think about the website; you can just go after the person using that data.

In the case of a radio or TV station, obviously there's a blended group of people that are listening. So you're going to have people who aren't just interested in Lexuses or people who are male and female. But the data allows you to reduce the waste so you find the media properties that have the closest alignment to the list of things you're looking for from the audience. The



JelliSM

third-party data sources get applied in almost a big data overlay across these stations, and you can essentially pick them better. You don't have to just use format as one tool of targeting. ...

There's also a new category called first-party data, where brands that advertise have their own data about the audience. This is where it gets kind of cool and fascinating — where Wal-Mart knows, based on things like weather, whether people want to buy raspberries. They use that big data to say: "I want to trigger campaigns now on TV, radio and digital using my own data that's proprietary, about my consumer base."

Now you can target what you buy in a way that is more sophisticated than the old RFP or insertion order sale.

The last part, prevalent in digital display advertising, is starting to come more to online video but *not* in radio; and that's real-time bidding. Sometimes people associate programmatic with a real-time auction, almost like a stock market where you're trying to out-bid somebody to buy the spot.

RW: You're bidding to get it at a certain price?

Dougherty: Correct. Once you've gone through your analysis — I really want these stations and I want these dayparts because of my big data analysis I've done and these are the right stations for me to target a Lexus buyer. Then I can put in a price to outbid everybody else to buy that inventory.

Real-time bidding, which is essentially an auction format for advertising, is happening in a big way in digital display advertising in something like half the market. But it's a very small percent of the market for TV. It's a controversial concept as well because the traditional broadcasters are concerned that real-time bidding could lead to price erosion

where the bidding dynamic actually drives down the value. Sometimes people call it RTB; the nickname is Race to the Bottom.

RW: A fire sale.

Dougherty: It's like an eBay auction where people are using that to their advantage, on the buy side, as well as the sell side.

It's a really complex world because there are so many people doing it, but it's not radio. Jelli has some services that are enabling radio groups and radio networks to sell their inventory in the same way these digital display companies are selling and buying their inventory. We have a platform that's similar to some of those companies.

RW: That's your SpotPlan?

Dougherty: RadioSpot is our ad server. SpotPlan is the tool to use to identify what you want to buy and try to figure out what the best plan for you is to buy, using real-time inventory and price. It takes price and inventory and places those in the cloud. It says here's what's available. Here's the price. Do you want to buy it? And if you say yes, then it will essentially buy that inventory. You'll upload your radio spot into the cloud and that spot will be automatically

“Programmatic is a methodology of buying and selling advertising. You automate more steps in the process of selling and buying the ad.”

RW: Are they bidding online?

Dougherty: There's a tool used by the buyer and the seller to participate in those exchanges. The ad inventory is published into the exchange ... a pool of available inventory. That publishing step typically comes with price controls, where if you're selling the inventory you own, you would say, okay, I'm interested in someone buying this. They can bid on it if they want. But I don't want to sell it for beneath a minimum price. So, you can't bid lower than X. But you can bid it up, if you want. [You] put that into the exchange.

Buyers are using these big data techniques to say I really want to buy these things right now. What's available? What's the price? If there's not a lot of people buying it I can just get it for the price I want, but I may have to bid it up to get what I want. That's the exchange. Many big exchanges exist for digital advertising, for something like \$10 billion in the U.S. this year.

RW: What's an example?

Dougherty: Google's DoubleClick has one. On the digital side there's also companies that power those exchanges. One example is AppNexus, rumored to be big enough to go public. Another is Rubicon Project, which is public. There's also a company called PubMatic. They're powering selling on the digital display side. AOL bought Adap.tv — an automated exchange for video advertising.

cached or delivered down to all the different RadioSpot servers out there and gets scheduled to run on the air.

When your ad ... airs, SpotPlan will create a real-time log that's published back to a Web tool called RadioDash, which is your dashboard. You'll see your ad running in real-time on all the stations that you bought. You can have dashboard analytics to show you, here's your campaign, you're about 46 percent done running the campaign. It's going for another week or two. Here are the spots that have run so far. You can listen to them. ...

It brings the concept of analytics to radio ads so that a buyer can now do more with the information. "I'm running ads in Boston. Are my sales going up this week in Boston?" It also puts radio on the same page or on par with digital analytics so that we don't look out of place — so that we have the same ability to provide real-time reporting, so that the client doesn't feel like radio is harder to work with or more delayed or feels more "legacy."

RW: And the real-time log is a way of proving that the ad really ran.

Dougherty: Yes, if you think about it from a metaphor perspective, it replaces the affidavit. In the traditional world the station would create an affidavit using your system to say "I ran the ad," and you would send that affidavit either to

(continued on page 12)



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PROGRAMMATIC

(continued from page 10)

your ad network or to the advertiser to prove that the ads ran.

What [Jelli's] log does is it gives access to the advertiser directly so that they can see the time-stamp and the ad running in real-time. They can look at their campaign themselves and see all the different reports.

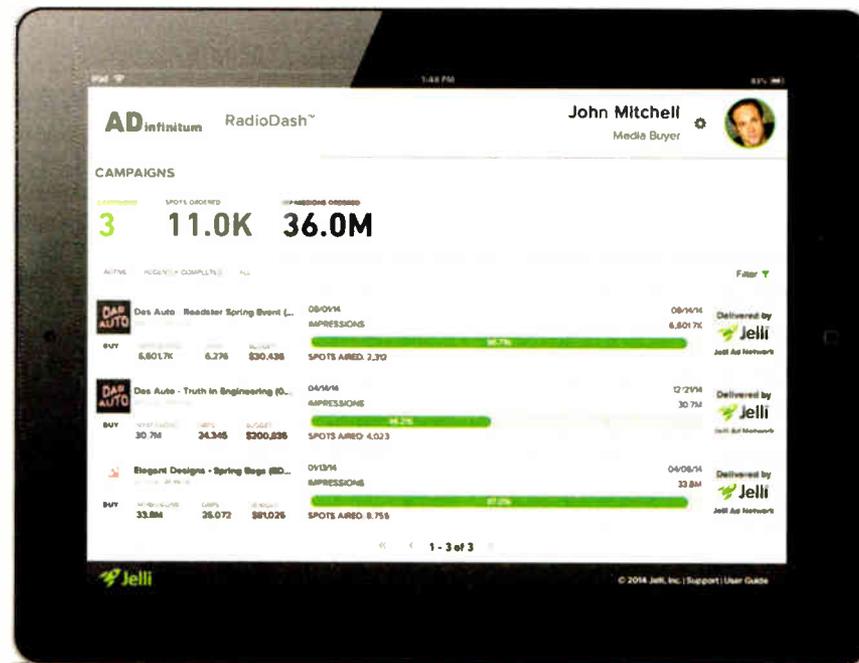
RW: *Having been on the air, I can say sometimes we weren't as focused on the ads as we should have been.*

Dougherty: Running a radio station these days is harder every day. You've got a smaller staff than you did 10 years ago ... The irony is the complexity is increasing ... That complexity is hard because radio has not been able to keep pace. ... When the agency puts in a request to the radio station for more information, they don't get anything back quickly; it's hard for [radio] to react to their clients' needs.

RW: *So if I'm understanding what you're saying about programmatic, it's more automated than the current system, more targeted and it's becoming more prevalent in other media, and radio needs to catch up?*

Dougherty: That's fair. The more prevalent part is important because I think there's a lot of people in radio who are thinking, this is a buzzword or I never heard about it so it can't be big. ... And I think it's because local advertising hasn't gone as much to programmatic as national advertising has. So if your world consists primarily with dealing with local advertisers on a local station, your clients aren't telling you about programmatic; but if you deal with national advertising, you've already heard this term. This is a big deal in the national advertising world.

RW: *Is this for on-air, websites, streams,*



With Jelli's Radio DashPad analytics, buyers see their ad running in real time on all the stations on which they bought time.

analog, HD Radio — every distribution platform a station has?

Dougherty: It is; however right now it's provided by different participants for each of those channels. So Jelli provides [programmatic] for the on-air broadcasts. There are a few companies that provide it for streaming audio that aren't Jelli, and they don't do broadcast. Examples are Triton Digital, Abacast [acquired by WideOrbit in 2014] and AdsWizz. ... For a website, you're probably going to work with DoubleClick or somebody who you're working with on display advertising. Right now, programmatic vendors don't have a unified platform. ... I think that will happen at some point.

RW: *Marketron and Jelli say they are trying to make programmatic buying easier.*

Dougherty: On the broadcast side,

Marketron has a large footprint of providing ad traffic software for thousands of radio stations. They have partnered with us to allow that core software used at stations to unlock new functionalities so that you can use your Marketron software called Mediascape to sell programmatically. You don't have to learn a new platform and it allows you to put some of that inventory in front of buyers who are buying programmatically. So it allows you to sell more inventory.

RW: *How many stations is Jelli doing this for?*

Dougherty: We have more than 400 stations on our platform. We also have partners who are using our platform as the infrastructure to do this for their clients. [Radio clients include Townsquare Media, Entercom, Emmis-owned WQHT(FM) in New York, and several Beasley Broadcast Group stations.]

RW: *So the advertisers and their agencies are pushing this?*

Dougherty: Correct. That's the part where you say it's coming to the table because of a bigger trend. Programmatic is surging in these other media types and everyone thinks radio is very attractive. So they're asking radio to hook up to platforms that will enable the advertiser to buy radio in the same way they buy these other media types because they want to add radio to the media mix.

If you think about it, if I'm spending a lot of money on Facebook and a display ad campaign, that's pretty effective, but boy, wouldn't it be nice to reach someone in the car because I'm an advertiser who perhaps is a retailer, and they can drive to my store. The core value of radio remains very powerful, but if they're buying all their campaigns

with these programmatic platforms, it's simply not an option for them to add radio. What they're excited about is the fact that radio's coming online with these programmatic platforms like Jelli's RadioSpot; now they can start adding radio into their buying mix.

Our goal here is to have advertisers who like buying radio to have more tools at their disposal. And advertisers who have not bought radio to look at us again or look at us for the first time as a medium to buy; and folks who have moved away from radio, to bring them back.

RW: *Over the summer you shut down your crowd-sourced radio product where listeners rocket up or down the songs. Did that just run its course?*

Dougherty: That's right. It never really took hold the same way we saw with programmatic platform. Probably at our peak we were at 30 to 40 stations. Two years ago we got some feedback saying, "Your platform is pretty awesome and I love getting feedback from the audience, but could you use your platform for serving radio ads?" That was really the original pivot, which was we serve music files up every couple seconds all day with our platform; we can certainly handle a radio ad. That's where it started to evolve where we started to work more with advertising agencies and radio groups around making Jelli an alternative to an ad server for a radio spot. ...

At some point we had to make a decision because of resources. ... Programmatic grew so much it was tough for us to continue to divert our attention between two different things, and so that was part of the reason we said that was a great run we had with the social radio platform but we want to put all of our effort behind programmatic advertising and that's why we made that move.

RW: *How many employees do you have?*

Dougherty: We have about 25, mostly technology people. We have a team based in San Mateo—a city located in the Silicon Valley. We have employees from Google, Yahoo and Amazon [with] pretty deep technology backgrounds. They're the ones building the platform.

RW: *People with computer software coding skills?*

Dougherty: Correct. We've also hired some people from the ad tech programmatic space. One of our product people we hired from Adapt.tv is trying to build the ability from the spaces that are already doing programmatic at-scale to radio. Programmatic is radio's future, and Jelli is helping to change the trajectory of broadcast radio.

Check out the Feb. 1 issue of Radio World for more information on the programmatic trend.

NEWSROUNDUP

SCRIPPS-JOURNAL: The FCC approved the merger of Journal Communications Inc. and The E.W. Scripps Co. Journal. Scripps plan to merge their broadcast operations and then spin-off and combine the newspaper group. The result would be two separately-traded public companies, which they believe will net about \$35 million in "synergies" for their shareholders. The deal, expected to close in 2015, was conditioned upon spinning off TV stations in two markets. Scripps doesn't have radio properties but would gain Journal's radio assets in eight markets. Journal owns close to 40 radio stations (31 FM, six AM) and 12 TVs. Scripps owns 16 TV stations. The Scripps entity would keep its name and become a merged broadcast and digital media company with radio and TV stations in 27 markets.

GROOVESHARK: Internet music service Grooveshark said it would launch a digital radio service; it will cost 99 cents per month with no commercials. Using the new service, called "Broadcasts," listeners can text chat with each other via the app while accessing radio stations they create. The service will be offered as a separate app from the company's \$9/per month unlimited service.

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World Radio History

Use an Ironing Board to Access a Transmitter

Also, tin your copper to protect your assets

WORKBENCH

by John Bisset

Read more Workbench articles online at radioworld.com

Anyone who's been in this business for a while will find themselves scratching his or her head at the way some equipment is designed. It's as if the designer never expected the equipment to fail.

Mark Goff handles contract engineering in Kansas and sent in a picture that's both funny and practical.

One of his clients had a Harris FM 20-H transmitter. Fig. 1 shows Mark's high-tech approach to working on the driver tube sockets under the shelf in the 20H. The drivers in this transmitter require a contortionist to get underneath in order to get a good view. However, the ironing board works great.

Yes, Mark found that lying on an ironing board positioned his head and arms perfectly for troubleshooting and repair of this section of the transmitter.

I must admit, I have tried lying on wooden boards and long strips of packing foam, but never thought of the ironing board.

If the uncomfortable position isn't bad enough, engineers that have tackled this transmitter have more than likely been burned by falling solder, too. When you're upside-down, it's hard to get out



Fig. 1: An ironing board offers back support while working on the Harris 20H Series.

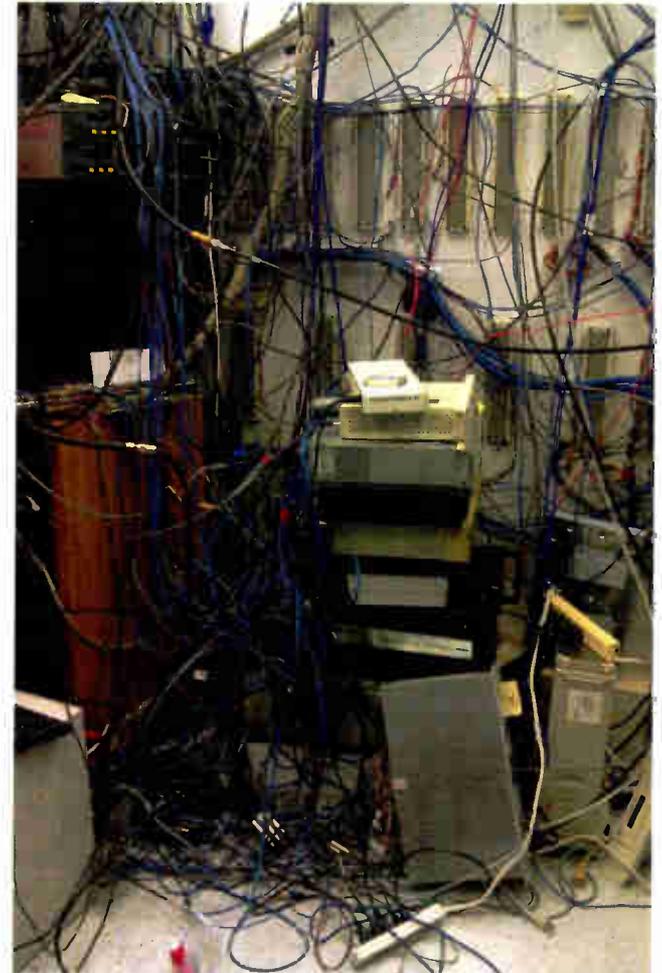


Fig. 2: Unracked and stacked TOC equipment awaits completion of the new Technical Operations Center.

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of the way when solder splashes. I found that a wearing an inexpensive plastic swimming mask protected my eyes, and most of my face, from any falling solder.

Happily, Mark says the last "H" model in his stable of stations is gone, replaced by a new GatesAir FAX-20.

Mark also sent in a picture of an entire radio station on the floor. Shown in Fig. 2, it's amazing what engineers sometimes have to do.

Mark was building a new technical operations center, which required all the equipment to be removed from the racks — without taking the station off the air. His solution was to unrack the gear and stack it on the floor until the construction was completed.

The station lost no appreciable air-time, and the opportunity gave Mark the ability to label and wire all the equipment properly.

New Hampshire Public Radio's Steven Donnell offers an interesting means

(continued on page 20)

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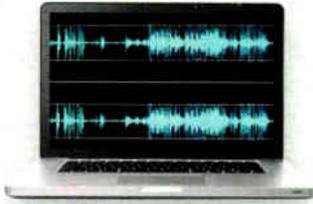
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"We just LOVE our Audioarts AIR-1 - perfect starter board for our new LPFM, WXOX 97.1 FM Louisville!!!"



Congratulations to Sharon Scott, Sean Selby, Tim Barnes and all the others at ARTxFM, on their new non-profit LPFM after three years of hard work and involvement in the Louisville, Kentucky music community. We love your experimental music format, your shows, and the fact that you're out there in the community covering the music scene. We're listening.

Learn more about how Audioarts and Wheatstone can help make your LPFM the best it can be.

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Hand it Over, Internet

With satellite delivery no longer widely available, broadcasters are turning to Teline's Genie with WheatNet-IP inside for distributing programming over the public Internet.

If you're thinking about handing over program distribution to the public Internet, Brian Kerkan of Crawford Broadcasting in Detroit has some advice for you.

Brian suggests oversubscribing on bandwidth, using SNMP to get in front of any packet problems you might have, and to use a good codec. Oh and to grow a backbone - you're going to need it.

"Was a I nervous about using the Internet? Oh, yes," relates Brian, who is the engineer for Crawford's WMUZ-FM, WEXL-AM and WRDT-AM in Detroit where the Bob Dutko show is syndicated. But, he adds, the Internet has become so much more reliable in recent years.

His group was able to successfully switch over to internet program distribution for its Bob Dutko nationally syndicated show using the Teline Genie, now available with WheatNet-IP inside. Crawford Broadcasting's Detroit location is a Wheatstone facility.

Here's some more advice for anyone wanting to do the same:

Go to: INN18.wheatstone.com



Oh, The Voices - Part II Adjusting for Taste

by Steve Dove, Minister of Algorithms

Here's what else you need to know about getting the most out of talent voice, starting with what frequencies to tweak.

The most basic, and arguably the most powerful, tool for getting vocals to sound good is equalization.

A low-frequency shelving equalization section can do a good job of correcting for proximity effect. A wrong-headed approach is to try to use the high-pass filter to do this - generally they are too steep (too rapid a rolloff) to be a good match for the more gentle tilting response. A shelving section is far more suited.

A high-frequency shelving section is excellent for establishing an overall tonal balance for the presenter/microphone combination, particularly once any sibilance issues have been dealt with by the de-esser, and proximity effect is dialed out with LF shelving. Particularly bright microphones (budget condensers in particular named and shamed) can benefit mightily from de-brightening with this section!

A parametric, or sweepable bell-shaped equalization section, can be of use in minimizing unfortunate characteristics of the microphone. (Or indeed of the presenter...) in particular some dynamics and certainly some lower end condensers have a high-mid boosting peak, in the name of "articulation" but which in today's better and more controlled air-chain environment can just plain sound harsh. Dialed in to, say, between 2kHz and 5kHz with a fairly low Q (broad bandwidth) and just a touch of cut can make a world of difference.

More tips from Steve for adjusting the voice can be found here:

Go to: INN18.wheatstone.com



COORDINATION

(continued from page 1)

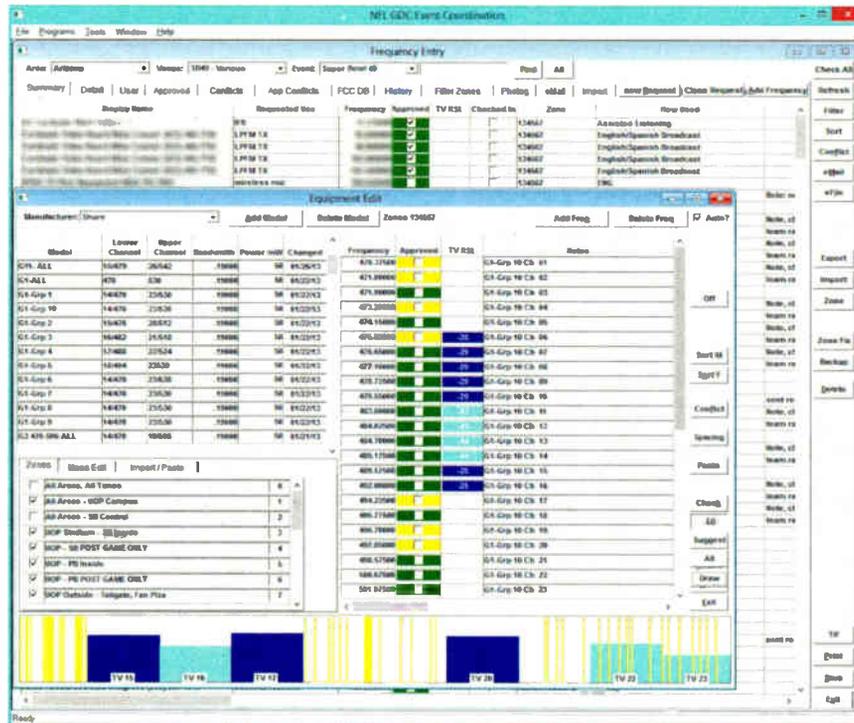
Herculean proportions.

The NFL has been managing frequency coordination at the Super Bowl since 1996. Radio World spoke with the coordinator, and an NFL executive producer, to get the deep background on what it takes to ensure a smooth and trouble-free utilization of frequencies.

Howard Deneroff is the NFL Executive Producer for Westwood One, and has covered the Super Bowl since 1988. He said that the first time that broadcasters used wireless microphones was at Super Bowl XXIII in 1989.

"It was wide open before Super Bowl XXX in 1996, occasionally there was interference, and things were broadcast that shouldn't have been. Then the NFL stepped in to coordinate frequencies."

Over the years, as more wireless devices were introduced and media coverage of sports increased, the NFL expanded its role as frequency coordinator to include the regular NFL games,



Karl Voss shares this "sanitized" screenshot of the GDC software.

We need to assure them that we're not there to interfere in local affairs or micromanage, but just to make sure things run smoothly.

— Karl Voss

and finally, NFL events. "It was a huge help for us when they stepped in," said Deneroff. "After that, road trips got much easier."

The SBE has no official role in the Game Day Coordinators program. However, some of the NFL GDC's are also SBE Frequency Coordinators. At one time, the NFL and SBE were working together on this program, but the NFL took it in house several years ago.

SHARE THE AIRWAVES

The NFL's go-to guy for Super Bowl frequency coordination is Karl Voss, who explains that he actually wears several hats. "I am the lead Game Day Coordinator for the Super Bowl, one of the NFL GDCs that handle the AZ Cardinals home games, a consultant/troubleshooter for the NFL regarding

RF issues."

The logistics of frequency coordination for the Super Bowl are impressive. According to Voss, about 3,500 frequencies are used by about 10,000 radios. In order to accommodate all users, frequencies are often shared both in time and space.

"Users may have access to a frequency only for the pre-game show, first quarter or post-game show," said Voss. "Or they may be short-spaced, and only allowed to broadcast from one side of the field."

On Super Bowl Sunday, the site is staffed from 6 a.m. until midnight. There are 10-15 frequency coordinators on site during the game, and 50 support staff work shifts throughout the day. Super Bowl Staff are paid by the NFL. Frequency coordinators are paid their normal game rate and the local support folks are paid a nominal rate for their help.

The NFL has developed its own database and software to manage frequency coordination at the Super Bowl. It contains both permanent frequency assignments, such as the referees' intercom, and temporary assignments, such as radio and TV wireless mic and IFB frequencies. Requests for frequencies are

submitted by email. A coordinator searches the database for an available frequency. Once a frequency has been assigned, a confirmation email is generated and sent.

The same software that the NFL uses for Super Bowl is also available to GDCs, although they are not required to use it. There is, however, the expectation that things will go off without a hitch, and that game communications will not interfere with local users use of the frequencies.

"It's important for the NFL to have a good relationship with local media," said Voss. He adds that one of the challenges is letting local folks know that they are there to help. "It's a bit of public relations. We need to assure them that we're not there to interfere in local affairs or micromanage, but just to make sure things run smoothly."

This software is a work in progress, and has many features to prevent mistakes and aid with field emergencies, according to Voss: "The database has a list of frequencies in use by television stations in major cities for broadcast and ENG. If we try and assign a frequency already in use, the software will warn us."

OTHER GAME-DAY CHALLENGES

Other problems can arise on game day with channel designations on wireless microphones. Channel 5 on one brand of wireless mic, for example, will be different than channel 5 on another brand — there is no standardization.

"The software contains a database of wireless mic manufacturers, model numbers, and channel frequencies. If a user shows up with a wireless and doesn't know the frequency, we can determine that from the database, and try to give them a frequency that will be interference-free," said Voss.

Even with frequency scheduling software and other advanced technology, human error can creep in to cause havoc.

"A television network requested, and were assigned frequencies for IFB at the Super Bowl," said Voss. "During the game they experienced a lot of interference. Afterwards, they complained. I sent them a list of the frequencies that they requested. It turned out there were some typos on their request form. We had assigned them the frequencies they asked for, but those weren't the frequencies they were using."

The moral of the story?

"Users should always check their email confirmation and make sure the frequencies they've been assigned are



Karl Voss trains GDCs to prepare them for game day broadcasts.

the ones they've asked for. Errors can sneak into the process on both ends," said Voss.

Another point he emphasizes is the need for strictest confidentiality of the NFL's frequency database.

"In some cases, confidential information is being transmitted, as in the case of coaches talking to spotters and team officials, or conversations between the game's referees. In many cases, competing media organizations are at the game. Users would be reluctant to participate in the frequency coordination process if they knew that their names and frequencies might be given out to the public, or to other users."

Many of the challenges of the job are the result of unauthorized use of frequencies.

"Ninety-five percent of the people follow the process once they understand it," said Voss. "Many of the problems are the result of communications breakdowns within media organizations." He

Activity at an RF checkpoint. These checkpoints are the first line of defense.



adds that those who request credentials for NFL events are often not the ones who show up to cover the game.

“News reporters and stringers will often show up with wireless microphones, and have no idea what frequency they operate on. Usually this is picked up at the checkpoints into secure areas, where they are issued a tag. Anyone without a tag is stopped and brought to the frequency coordination trailer. We try to find a frequency they can use, but if none is available, they are asked to use only wired microphones.”

International broadcasters add additional challenges to frequency coordination at the Super Bowl. There is a separate division of the NFL that works with them, although all media goes through the same credentialing process.

“Many international broadcasters bring their own equipment, which can raise lots of issues. Much of their wireless gear operates in the 700–800 MHz band, which, in this country, is used for cell phones,” said Voss.

PROTOCOL

In the few cases where there are willful violations, there is a protocol to follow.

“We’re not the FCC, and we can’t tell them not to broadcast, or arrest them, but we can tell them it is

When all else fails, there’s the tried-and-true method of triangulation.

illegal. If that doesn’t work, we can pull their press credentials and escort them out of the stadium.” He adds that he has never had to remove anyone from a game, “although a couple times I’ve come pretty close.” Voss says that the NFL does cooperate closely with the FCC, and that their officials are sometimes on-site for the Super Bowl.

There are several ways that rogue signals are identified at the Super Bowl. The simplest is to simply listen and track them down based on what they are talking about. “It’s usually apparent who is using the channel when the rogue is saying, ‘hot dogs to Section 214,’ or ‘Camera 15 tighten up on the talent,’” said Voss.

If they are on two-way radios, it is a simple matter to program a radio on that frequency and simply talk to them. “Usually, the ‘rogue two-way magically goes away when the voice of the frequency coordinator comes out of their’ channel,” said Voss. “If they are supposed to be on that channel, then we work out the problem.”

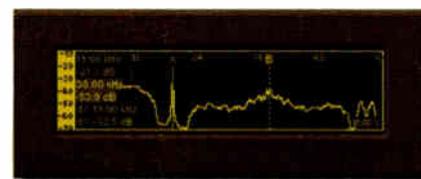
When all else fails, there’s the tried-and-true method of triangulation. That involves several teams walking around with directional antennae, scanner/spectrum analyzers and two-ways to coordinate the search, although he adds, it is also the most difficult.

The role of the NFL frequency coordinator extends beyond U.S. borders. Voss recently traveled to London for an NFL International Series game at Wembley Stadium. “The location is different, but the duties are basically the same,” said Voss. In 2015, London will be the site for three regular season NFL games for a second consecutive season, meaning more overseas trips for the NFL Frequency Coordinator.

In conclusion, Voss notes that the NFL has been at the vanguard of frequency coordination for sporting events. “We’ve been doing this for 20 years, and just recently, some of the larger college games are beginning to see the need. So far, there is no frequency coordination for baseball, except for the All-star games.”



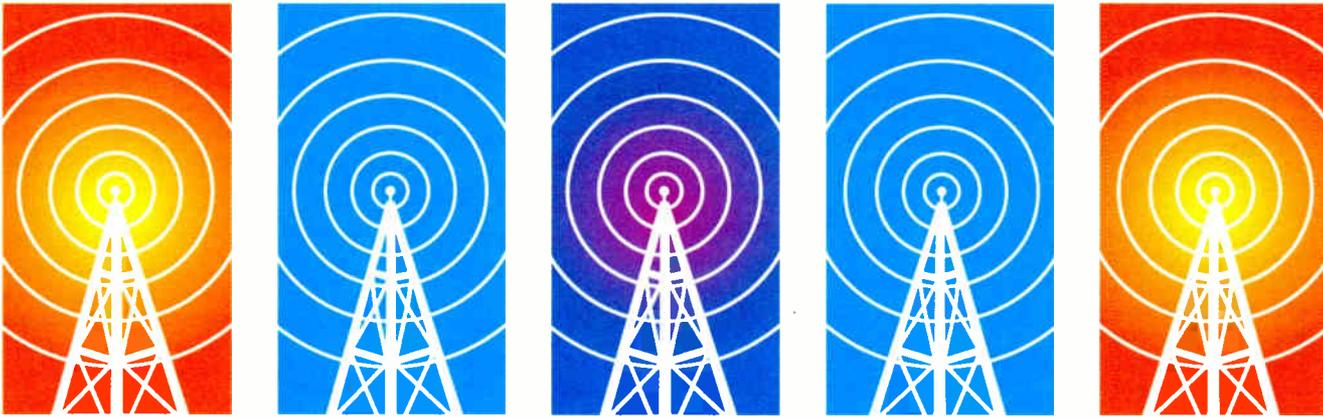
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iStockphoto/Robin Ollimb

Location, Location, Location

Here are some tips to find the sweet spot on the dial for FM translators

TRANSLATORS

BY JOHN GARZIGLIA

This is the second in a series about FM translators. In the Dec. 17 issue, we looked at the basic regulatory aspects. In this second part, we approach translators from the perspective of the FM licensee, in particular the licensee of an in-contour fill-in FM translator carrying the content of an AM station or HD sub-channel. Part one can be found online: <http://bit.ly/1HGGuNA>.

For the FM translator licensee, there is uncertainty and risk in owning an FM translator station under the FCC's secondary facility interference-based FM translator rules.

Ideally, an FM translator is on a channel that has little chance for a proximate full-service station to move or upgrade in a manner that might displace the translator. At the same time, the FM translator should be on a channel that is as clean as possible of other co-channel and adjacent channel FM signals, which will achieve maximum coverage and reduce the chances of interference to other stations.

DO THE LEGWORK

If a prospective FM translator licensee has a choice of a dial location either in applying for a new FM translator or a prospective move or channel change of an existing facility, the physical "driving" of an FM frequency in the anticipated coverage area is a valuable exercise. If any other FM station can be heard on the channel, the choice of that channel should be evaluated both for the potential of the received station curtailing the coverage of the translator (FM translators do not easily prevail over higher power signals) and for the potential of creating interference to bona-fide listeners of an existing full-service, LPFM or other translator station.

Longley-Rice coverage maps are

highly useful in assessing potential FM translator coverage and the chances for interference to and interfering with another station.

STUDY PATTERNS

Another important indication of the potential for interference complaints is a study of the audience patterns and programming of any co-channel or first adjacent channel station that has listeners within the reach of the FM translator's signal.

Assess whether any co-channel or adjacent channel station has a programming format that might attract listeners in weak signal areas. Is the subject station carrying a religious or ethnic programming format that is otherwise unavailable in the area? Is the subject station an NCE station on the commercial band that is the only source for public radio

programming? Is the subject station carrying an esoteric format with unique air personalities? If any of these questions are answered "yes," then a potential for interference complaints increases.

An FM translator can be displaced not only because of interference complaints from listeners to existing stations but also as a result of FM full-service station moves or upgrades. Under the current FCC rules, it is safe to observe that most potential FM station moves or upgrades have already occurred.

If the FCC moves forward with the proposed Class C4 classification for FM stations or dropping mileage protections for under-powered or under-height class facilities, or allowing FM stations to expand coverage areas anywhere they will fit, that could decimate many existing FM translators.

WORKBENCH

(continued from page 14)

of protecting copper ground bus bars, such as that in Fig. 3.

The solution? Tin them. Steven had an instance where a site was vandalized for copper. The copper thief did *not* take the tinned copper bus bar used to ground all the coax grounds.

A cell site that was hit at the same time as one of Steven's sites had three of five ground bars taken. The two that were *not* taken, were tinned — go figure. Steven writes that the tinned bus bars are still solid copper underneath, but if the process deters theft, consider it.

Tinned ground bus bars are available from Hagar (www.hagar.cn) for nearly the same price as the bare copper bars.

A related New Year's resolution is to stamp some kind of ID on the face of existing copper bus bars, as well as along the edge of the bar. Harbor Freight (www.harborfreight.com) has three alphanumeric metal stamping kits starting at under \$10. Search for "metal stamp kit" on the home page.

Ed Dulaney, regional engineering manager for Townsquare Media in Texas and Oklahoma, saw our column on good



Fig. 3: Tinned copper bus bars are avoided by copper thieves because scrap facilities don't want them.

textbooks for entry-level engineers. He says his absolute favorite is "Electronic Communication" by Robert Shrader. This was the book 30 years ago that gave Ed a lot of the theory that he still uses to this day. Ed puts it at the top of his list for anyone just starting out, and I agree. There are several editions available online.

The book includes questions and answers at the end of each chapter, to prepare for the typical FCC second- and first-class radiotelephone license tests, as well as the radar endorsement — boy, am I dating myself!

Bu the volume also offers a thorough discussion of tube technology, in an easy-to-understand format with plenty of drawings. I've loaned my copy to engineers taking the SBE certification tests, as the book is so thorough.

This was *the* textbook used by REI (Radio Engineering Inc.), a national FCC license prep school. Anyone remember Ray Gill?

Ed adds that any edition of the "NAB Engineering Handbook" would also be a great asset as well.

The popular Workbench column is built around your ideas. Help fellow engineers — and qualify for SBE recertification credit while you're at it. Send tips to johnpbisset@gmail.com. Fax to (603) 472-4944.

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Streaming Diversifies

Niche services jockey to win over digital listeners

WHAT'S NEXT

by James Careless

In this edition of "What's Next," Radio World's watch on everything new in audio content and distribution:

Streaming audio has caught again our attention again, with four items that spotlight where this growing market is headed.

BEATS MUSIC

Time to pay the piper: In the case of the Beats Music streaming service, which Apple bought for \$3 billion along with the Beats audio hardware division

music portfolio.

Meanwhile, Techcrunch.com is reporting that Apple will discontinue Beats Music's brand and online presence, "according to five sources, including several prominent employees at Apple and Beats."

STREEMA

When RW learned about Streema (<http://streema.com>), our initial reaction was, "Oh great: yet another streaming media service to fit in alongside all the others."

However, after a look over the Streema site — which also offers access to TV feeds — we were impressed. Streema's website claims it is "the easiest way to listen to your favorite radio stations on the Web."

in May 2014, this money may spell the end of Beats Music as an independent music entity.

The Wall Street Journal has reported that Apple intends to integrate Beats' content and human-curated playlists into its iTunes music store, helping to fill a serious gap in Apple's online

Navigating Streema is easy: Feeds are classified under radio or TV, with sections organized by region, country, city and genre. Also, the additional genres available for the U.S. are extensive — including Old-Time Radio (a personal favorite) — and everything is mouse-clickable. Add Streema's just-

launched iOS app, and this service may find a place, despite a crowded market.

MAD GENIUS RADIO

Mad Genius Radio (www.madgeniusradio.com) is a personalized audio streaming service with a creative twist. The user gets to program five preset buttons on their screen — like an old car dashboard — each of which can draw from up to seven different music genres (with songs being updated on an ongoing basis).

Mad Genius Radio also lets users rate how often they want to hear specific artists using a one-to-five scale (or skip them entirely), and add "Time Machine" genres that were popular in the past," says the Mad Genius Radio website. The service costs \$5/month, but is offering an "extended free trial" to attract new listeners.

Mad Genius Radio is available on iOS, Android and online.

DEEZER + STITCHER

Finally, France-based music streamer

service Deezer (www.deezer.com) has purchased U.S.-based talk-and-podcast streamer Stitcher (www.stitcher.com), creating a service that covers all aspects of the audio service spectrum.

The purchase sees Deezer getting access to 35,000 Stitcher radio shows and podcasts, with content coming from the BBC, CBS Radio News and Fox News.

The deal signals yet another innovative attempt to carve out a distinct space in the increasingly packed streaming media spectrum.

THE WHAT'SNEXT TAKE

The streaming audio market has entered into its diversification phase, with all kinds of companies trying out innovative approaches to stake out turf online and on mobile.

What remains to be seen is who can make a living in this space, perhaps either by selling subscriptions or ads — or maybe a combination of both.

James Careless is a longtime contributor. Send ideas for What'sNext to radioworld@nbmedia.com.

STAC VIP Provides Scalable SIP-Based Call Management

Comrex's VOIP call management system is easy solution for Christian radio station

USERREPORT

BY RANDY WOODS
Director of Engineering
WPOZ/Z88.3

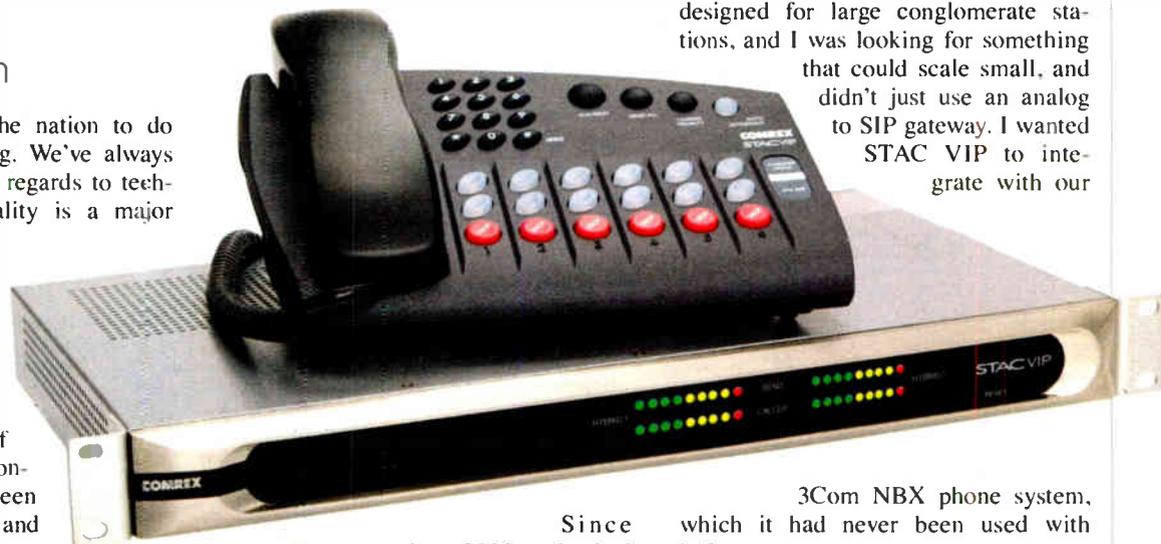
ALTAMONTE SPRINGS, Fla. — WPOZ/Z88.3 — Positive Hits — is a small independent Christian broadcaster formed in 1995, operating out of Altamonte Springs, Fla. and serving the Orlando market of Central Florida. From our studios, we originate four stations: our main station, 88.3 MHz, which provides contemporary Christian programming, and three other stations, which play Christian hip-hop, Christian rock and gospel. We believe in doing one thing and doing it well, so we put our emphasis on our radio personalities and our live music programming.

When it comes to technology, we've been innovators in our market for a while. We currently have HD2, HD3 and HD4 stations. We were the first station to have HD multicast online in Central Florida, and we were the first

Christian station in the nation to do HD Radio multicasting. We've always pushed ourselves with regards to technology — sound quality is a major priority for us.

LOOKING FORWARD

Along with pushing technological developments, we've also made sure to keep our on-air staff strong. While other conglomerates have been cutting back on staff and shifting to syndicated programming, we've kept live programming a priority. Additionally, we've been the LPI weather station for most of the past decade in our area, and we've worked to serve our community with regards to weather alerts. We believe that if anybody should serve the community, it should be the Christian station — so we've taken that mantra and run with it. Easy and quick live-calls that sound great are crucial for our programming.



Since about 2000, we've had an IP-based phone system. For call management, I had been working with a 3Com soft phone system, connected to a PC, with a professional sound card, for approximately eight years. It was never designed to be a call management system, but I was able to program it to work like a studio console, and it provided the best available call quality for us at the time.

Unfortunately, support for the software ran out after Windows XP, which

triggered my search for a SIP-based phone system.

Comrex's STAC VIP had the features I was looking for. I was looking for a solution that was a small SIP-based system — the other solutions I found were designed for large conglomerate stations, and I was looking for something that could scale small, and didn't just use an analog to SIP gateway. I wanted STAC VIP to integrate with our

3Com NBX phone system, which it had never been used with before.

Comrex was excellent in working with us, and getting it to work with our phone system. We teamed up with a few of their software developers to develop some specific adjustments to the code to get the system integrated.

The STAC VIP is HD Voice-capable, and can accept HD Voice calls from smartphones and codecs, so that callers can sound like in-studio guests if necessary with no additional set-up on our end. While we had eliminated our POTS lines completely, the STAC VIP can accommodate the use of those phone lines for stations in transition. Additionally, VOIP lines are now significantly less expensive than traditional POTS/ISDN lines.

My staff is much more comfortable with the STAC VIP call interface than what they were using before. It's much more usable for them, and they love that part. General operation is simple — our producers use the Web interface and find that helpful. We've found it to be an easy system to use, which has made the live programming vital to our station much simpler.

For information, contact Chris Crump at Comrex in Massachusetts at (978) 784-1776 or visit www.comrex.com.

TECHUPDATE

JK AUDIO ADDS HD VOICE TO BLUETOOTH PRODUCTS

JK Audio's BlueDriver F3 and M3, Daptor Three and BlueSet series Bluetooth wireless audio interfaces now offer improved sound quality using Bluetooth HD Voice wireless technology.

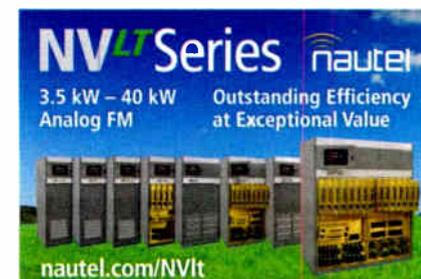
The company notes that HD Voice is available on many wireless phones, promising improved speech quality. While standard network phone calls (G.711, AMR-NB) are limited to 300 Hz–3.4 kHz bandwidth, this technology supports (G.722, AMR-WB) 50 Hz–7 kHz bandwidth. The company says that the extra 1.5 octaves of low-frequency energy provide a richer, more natural sound, while the extra octave of high-frequency information improves clarity and intelligibility. Voices sound more natural and less raspy or mechanical, while background noise is reduced or eliminated, the company says.

To take advantage of the extended voice bandwidth during a wireless network call, both phones on the call must support HD Voice and must be on the same carrier, in coverage areas that support HD Voice. Unfortunately, wireless carriers use highly compressed speech-based codecs to squeeze more calls through the network. The result is a limited improvement in speech quality.

The Bluetooth wireless HD connection uses a higher data-rate waveform codec. A waveform codec allows music and nonspeech sounds to pass through unharmed, according to the company. This offers improvement in quality that can be best appreciated when using VoIP apps or third-party codecs that take full advantage of the added bandwidth.

VoIP SIP apps on smartphones allow HD Voice calls using Wi-Fi or the phone data network, typically offering much better fidelity than an "HD" wireless phone call.

For information, contact JK Audio in Illinois at (815) 786-2929 or visit www.jkaudio.com.



Top Radio Selects AEQ System

A single IP telephone system services three studios and a meeting room in Madrid studios

USERREPORT

BY JUAN RAMÓN ALBARRACÍN
Technical Director
Top Radio

MADRID — Top Radio Spain is one of the stations belonging to the Mexican media group, Multimedios Radio. Our programming is mainly based on unforgettable music of all times; we also generate special Spanish programming that can be used by other Multimedios stations in Mexico. In Madrid, we mix news and current affairs with music and an in-depth coverage of the city's traffic situation.

Any radio station depending on communications with outside parties, notably listeners, must have a reliable communication system offering maximum flexibility, yet trying to minimize the operational costs. Our needs are complicated in that some of our listeners/callers are in Mexico.

VOIP

I had been shopping for a cost-effective telephone and talk show solution for our studios in Madrid for some time when I came across the Systal IP 12 from AEQ. I asked their sales team if they had some kind of hybrid system that would allow for VoIP telephony. Not only did I receive an affirmative reply but all the technical support that I required.

The solution from AEQ is a rela-

tively simple one and is helping us to reduce the costs for our telephone service. What we eventually acquired is a Systal IP 12 that spreads its system resources between three studios using analog inputs and outputs. We are in-



the process of changing our legacy analog telephone system for VoIP. Our station's external lines consists of two PSTN or POTS lines, a mobile phone line adapter, two B channels of an ISDN line and an ADSL. AEQ installed the necessary devices to adapt the different types of telephone lines that we have to VoIP. These devices or "Gateways" con-

vert the PSTN/POTS and ISDN lines to VoIP channels.

The AEQ Systal IP 12 basically consists of 12 VoIP audio codecs using SIP (session initiation protocol) and a 12 x 12 routing matrix for analog and digital I/Os. The main advantage of this system is the capability of using any of the phone lines in any of our studios and at any time. While it is possible to use

more than one output of the Systal IP for each studio, we have opted to connect one input and one output for each studio.

The standard way of placing calls on-air is through the "call queue" mode. However, the Systal IP is capable of multicasting the calls.

Controlling the Systal IP is as simple as opening the Web browser at any

workstation in our LAN and providing the IP address, user validation and the ID of the program and studio you are going to control.

Systal IP also includes four ports to connect dedicated operator or producer handsets for each studio. It also allows for using a standard IP telephone set as a system handset. For each line there is an on-hook/off-hook button that will also deactivate or activate the handset. Also, there is an "On-Air/Wait" button; a button that will allow you to access the controls for audio send and receive levels for the line; and a button to choose between "Queue" and "Multiconference or Multiplex" mode. Another feature allows running a short text message chat between the operator and the producer. The system is multiuser but for simplicity of our operation we are only validating a single user per studio.

The AEQ Systal IP 12 was installed in the technical equipment room using part of the network infrastructure dedicated to interconnect IP telephone sets and handsets. Since we didn't have an IP-based PBX, we installed an Asterisk PBX on a standard PC to manage all the extensions, voicemail, call diversion, etc. The lines are distributed according to the studio and program in production. The photo shows Studio 1 with a program using eight lines.

In addition to standard telephone-quality calls, Systal IP 12 offers HD Voice (G.722) communications. This allows us to connect with soft codecs on smartphones or AEQ audio codecs with high-quality audio.

At this stage we are still not using the power and features that the AEQ Systal IP offers, but we will soon expand our uses. One of the things that we are eager to explore is using the system for multicasting our corporate meetings with our headquarters in Mexico. One of the Systal IP 12 outputs available on its routing matrix will be used to send the multiplex to our conference room.

More information, contact Peter Howarth at AEQ in Florida at (954) 581-7999 or visit www.aeqbroadcast.com.

ABOUT BUYER'S GUIDE

Radio World publishes User Reports on products in various equipment classes throughout the year to help potential buyers understand why colleagues chose the equipment they did. A User Report is an unpaid testimonial by a user who has already purchased the gear. A Radio World Product Evaluation, by contrast, is a freelance article by a paid reviewer who typically receives a demo loaner. Do you have a story to tell? Write to bmoss@nbmedia.com.

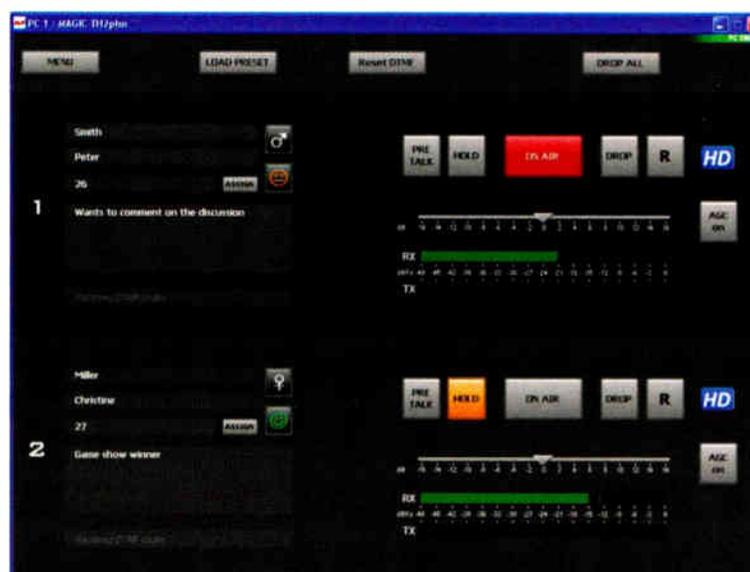
TECHUPDATE

AVT OFFERS HD VOICE

In December 2014 AVT produced an update for its Magic TH2plus and Magic TH6 telephone hybrids. The update allows users who have purchased the optional HD Voice (G.722) upgrade to use it via not only IP but also ISDN.

In this way it is possible to establish a connection in 7 kHz quality with the Magic telephone hybrids, without the need of an additional audio codec. The extension is available through a firmware upgrade that can be downloaded from the company website. Customers who have not yet purchased the HD Voice Upgrade can get the option for their Magic TH2plus and Magic TH6 ISDN telephone hybrids. AVT says that the upgrade price has not increased.

For information, contact AVT Audio Video Technologies in Germany at 011-49-911-5271-0 or visit www.avt-nbg.de.



NeoWinners Takes Winners to a Higher Level

Portland iHeartMedia cluster can now manage contests and promotions with one program

USERREPORT

BY MELISSA IVES
Director of Marketing & Promotions
iHeartMedia-Portland, Ore.

PORTLAND, ORE. — One day last April, our Director of Engineering Chris Weiss asked me to attend an impromptu presentation of some software application used to interface our new Telos VX system. I had been curious to see what this was all about, and what I discovered is something that we had been lacking for years: A centralized database across our nine stations for our winners, calls and contests that is easy to use and packed with functions to save an enormous amount of time

and duplicate efforts by our Promotion Team. It was NeoWinners, from a company called NeoGroupe.

Not only can the system adequately serve our giveaways organization — the promotions/on-air/reception desk — but it also links to phones for the on-air talent. Listeners playing too often are now caught before the jocks even pick up the phone, rather than at the reception desk, when it's uncomfortable to deny a prize because of our rules. We were missing that function previously.

Though installing such a system affects quite a number of people (promotions, on-air teams, technical department, reception, likely more than 30 people), integration went well and extensive training helped us getting started in less than a week.

To give you an example: Scheduling a contest with "week-day qualifiers" and "weekly grand prize trip winners" was done in two minutes when it would have taken me two hours with our previous system.

NeoGroupe also converted and merged our existing separate databases into NeoWinners (showing our previous separate lists had duplicates) and increased our IRS compliance, as winners have now a unique record across all stations.

The final touch was the link with the phones. Hosts said "Wow! This is so cool," when they saw existing winners calling in to their studios and being immediately recognized.

Even the street team and online/Internet giveaways are managed within the same database. It makes things a lot easier than with several different interfaces.

We are looking at integrating with the NeoGroupe Web/SMS solution.

I recommend NeoWinners to anyone



involved with prize and winner management on a daily basis.

For information, contact Philippe Halin at NeoGroupe at (210) 757-4700 or visit www.neogroupe.com.

TECHUPDATE

BROADCAST TOOLS TT-1 PLUS SUPPLANTS TT-1

According to Broadcast Tools, its TT-1 Plus is more than just an ordinary telephone line coupler.

It says the TT-1 is a compact telephone line-powered auto-answer and auto-disconnect hybrid/coupler. Built upon the platform of the TT-1, the updated TT-1 Plus utilizes dual-hybrid transformers providing full-duplex audio at a plain old coupler price, it adds.



The rear panel has a multi-turn hybrid null trim to allow the user to achieve approximately 20 dB of trans-hybrid loss. Additional TT-1 Plus features include front-panel line seize button, call drop button, auto-answer/monitor-TAP switch, audio mute switch and off-hook and ring indicators.

A rear-panel RJ-11 is provide for connection to a POTS line along with a second RJ-11 loop-thru jack that may be configured to disconnect attached devices when the TT-1 Plus goes off-hook. Plug-in euroblock screw terminals along with 3.5 mm stereo jacks are provided for balanced send and caller audio. Plug-in euroblock screw terminals are provided for remote seize and drop inputs and the SPDT off-hook dry relay contacts. The TT-1 Plus may be set on a desktop, mounted on a wall or up to four units mounted on the Broadcast Tools RA-1, Rack-Able mounting shelf.

For information, contact Broadcast Tools in Washington state at (360) 854-9559 or visit www.broadcasttools.com.

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READER'S FORUM

BRING BACK LIVE

Hats off to Mark Lapidus for hitting the programming target ("Step Up and Be a Trailblazer," Dec. 3).

He wrote: "It has never been easier to record, edit and schedule audio for broadcast, and yet, outside of public radio, I don't hear many real people speaking. Voice tracking is the norm for so many music stations, and while it can be perfect, it is also mostly sterile." (My emphasis.)

Please thank him for pointing out the advantages of today's recording and editing methods, but also the disadvantages. He's so right; with proper use, a "live" person can reach out, edit and comment on listener's thoughts and enrich any format.

We've forgotten the listener while chopping costs. The same technology that creates such seamless and click-snap-pop programming can be used to actually create a warmer, more personal broadcast style that will captivate the listeners.

Listeners listen to and react to people, and they're aware when the programming is automated, no matter how cleverly done. We need to bring back the real-time "live" announcer, whatever the format.

Don Kennedy
President
Crawford Houston Group Inc.
Atlanta



CALL SIGNS

On and off, I keep mulling over a couple of things that the commission has done that make very little sense. Like allowing LPFMs to enjoy the same four-letter W and K call sign scheme that commercial and noncommercial operators enjoy.

I know that the idea was to give these LPs the illusion of real radio, to appease those that desire a voice and have the appearance of being a real station. Ever try to select a call sign? These LPs are eating up a major portion of the alphabet.

While we're talking about call signs, what about translators? I understand the unique designation (something that LPs should have gotten).

Here's an idea: If the FCC is going to open up a translator window for AM stations and they want to make sure that the translator is forever linked to its AM "parent," affix the AM's calls to the translator. Pretty simple and straightforward, huh?

One thing that grinds me is that we pay an annual fee for our 2MV/M contour. However, that contour is not really being protected against all of the interference by items that the commission regulates. What are we paying for? A fee is being extracted for an AM contour that is becoming increasingly noisy. Bottom line? The two could soon be a listener-less portion of our coverage, yet we are paying for the bodies within that area.

I'd better quit before my blood pressure takes off.

Jonathon R. Yinger
President/CEO
CBSL
Flint, Mich.

AM: IT'S NOT ABOUT THE SIGNALS

As a long-time radio hobbyist, amateur radio operator and telematics system engineer in the OEM automotive field, I too think AM radio needs drastic change.

But at some point, people seem to have conveniently forgotten that the quality or even range of an AM signal is not what's killing listenership.

I have an extensive collection (more than 100) of beautiful 1930-1949 tabletop radios, more than half of which I have restored. But I have not restored even one of that collection now for nearly a decade.

Why? Because I don't listen to AM radio anymore. It's just tough to justify the time and expense on a project when it won't be functionally used. It looks just as nice on the shelf, working or not.

The reason I, and many of my friends and colleagues, do not listen to AM anymore is the content. Not the frequency response, not lack of channel separation or a poor SNR.

I have my homebrew Wilkinson monoblocks and Klipsch Cornwalls to listen to when I want quality.

Highly polarized emotional diatribes, complaining and hating on one AM channel, the next three filled with 100-percent philosophical advertising/propagandizing for one religious interest or other, the next one extolling a one-sided political agenda from one side or another ... The list goes on and on.

I'm only 48, but AM radio was not like that when I enjoyed building crystal radios as a kid and learned to repair tube sets in my teens. I loved hearing the news, the ballgames and talk shows. They were not offensive

in tone or content to anyone. They were also not so targeted. It felt like there was far less advertising — oh it was there, but not every 6.3 minutes as it is today.

Like it or not, advertising, the lifeblood of the industry in the U.S., is largely to blame as large corporate media owners have bought up most all AM stations and automated everything to connect to central feeds. This to allow them to slice and dice markets to a fine degree — "serving the community," but really so the advertisers could get a more targeted audience. This has also contributed to a polarized public — each hearing only what he or she wants to hear — and nothing much balancing it out.

So many people I know complain about how sour the AM band has become... but I have never heard anyone, not a single person, say they'd listen more if it just sounded better. In that, we are really missing the point. Somewhere, sometime, the art of broadcasting to the public has evolved to become just media channels for the industry.

And the public is not impressed. No amount of sales of new broadcasting gear, marketing know-how and FCC rulemaking to force the industry to make cheap AM digital chipsets will bring back an audience with so many alternatives available, unless there is something there worth listening to.

Dan Brazier, N8ZJV
Audio/Bluetooth Systems Engineer
Visteon Electronics
Holland, Mich.

READER'S FORUM**HD RADIO & GM**

The vast public of one potential GM product buyer is bereft, shocked and dismayed ("GM Drops HD Radio From Some 2015 Models," *radioworld.com* Aug. 27). A petition against the GM move is online and is being overwhelmed to the point that the server has capacity of which only 1/10th will ever be reached.

Big consolidators took promotion, advertising, positioning, branding and marketing seriously by only promoting on their own free air. They have run thousand of hours on their O&O stations for even greater sums of dollars with no help from print or other complementary, cross-pollinating media. The die is cast.

How's that working out for ya?

*Dave Burns
Richmond, Ind.*

I have HD Radio in my VW. I enjoy it, as a ham and radio buff, but the problem is that the power level of the digital is too low, so you get the st-st-stutter when the radio goes from digital to analog.

The programs should be matched on the streams, but often aren't. I live about 40 miles from the NYC transmitters in the hills, so there is a lot of on/off digital-analog.

The other issue is that the subchannels drop off a cliff and are all or nothing. Near the city, they work well, but out in the hills, you really can't use it. Pity too, as many of the subchannels are interesting.

The hybrid system is just annoying. Go full digital, or stay full analog.

On another note, there is *not* currently produced a stand-alone HD receiver for the home. What is up with that?

*Casey Raskob, Esq.
speedlaw.net
Croton-on-Hudson, N.Y.*

HD RADIO ON LPFM?

I'm not sure what you have experienced with HD Radio but my experience in Atlanta is very good ("HD Radio on LPFM: Could It Be?" Sept. 1).

Even running -20 dBc IBOC gets reliable coverage on HD when using in-dash car tuners with outside antennae. Stations like mine that run -14 dBc or better can be heard out to the 54 dBu with very few dropouts.

I was under the impression that HD was *not* legal on a translator. But the FCC has basically thrown the rules out the window, so who knows.

I agree with the others who advise concentrating on the analog signal first. Don't bite off more than you can chew! Many of the LPFMs in Atlanta have gone off the air.

*Tom Taylor
Chief Radio Engineer
Atlanta*

If you could run a whole 100 watts in HD Radio you might have a chance; but remember, most HD stations run 1 percent digital, which would be one stinkin' watt; even if they could run -10 dB or 10 percent of their signal, that's only 10 watts to work with.

You might get something out of that, based on a 1 kW AM here that had a 10-watt HD signal — if FM can even obtain that four-mile range that the AM had (before they shut it down).

*John Pavlica
Engineer
Toledo, Ohio*

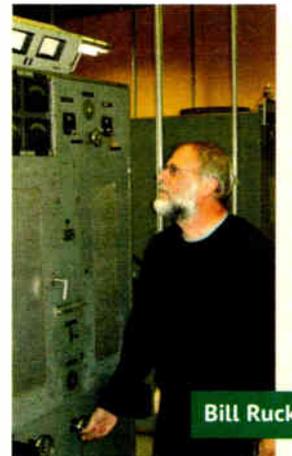
BILL RUCK

A brilliant engineer who has had an impact on many organizations, not the least of which was the NFL ("Bill Ruck Joins Bay Area Radio Hall of Fame," *radioworld.com* Aug. 20). His sponsorship of the budding NFL Frequency Coordination Group so many years ago was the motivation needed to successfully launch that new program for the NFL.

I have known Bill for those many years and am grateful for his brilliant engineering skills that helped so many frequency coordination engineers around the league. When in doubt, Bill is a go-to guy. He deserves these accolades and then some.

*Jay Gerber
Mt. Laurel, N.J.*

Jay Gerber is former vice president of operations for NFL Films and founder and former manager of NFL Frequency Coordination Group.



Our readers have something to say:

“I've been reading Radio World for 30+ years and still have to drop what I'm doing to peek inside. I learn something from nearly every issue.”

Joseph M. Davis, P.E.
Chesapeake RF Consultants LLC
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Yorktown, Va.

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