



# RADIO WORLD

JUNE 24, 2020 | The News Source for Radio Managers and Engineers | \$5.00 | [RADIOWORLD.COM](http://RADIOWORLD.COM)



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## Super Hi-Fi Queues Up Streaming Music

It seeks to be the next “independent darling B2B AI company” in broadcast

### NEWSMAKER

BY RANDY J. STINE

Don't blame Zack Zalon for all of the job losses at iHeartMedia earlier this year.

Fingers began pointing Zalon's way after the radio broadcaster implemented a technological shift to artificial intelligence to help its radio station clusters operate more efficiently. Subsequently, a large number of iHeart employees were let go.

Zalon is CEO and co-founder of Super Hi-Fi, an AI company that designs digital music solutions for the iHeartRadio streaming platform. That relationship drew scrutiny from some radio industry observers who speculated the broadcast giant's infrastructure overhaul included

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**BEST OF SHOW AWARDS**  
Special Edition

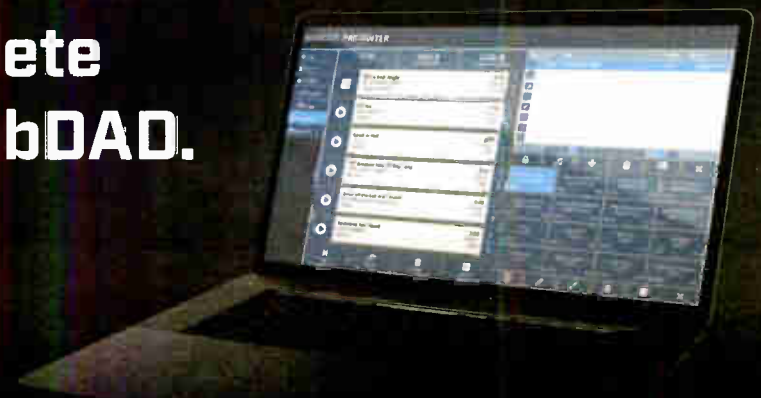
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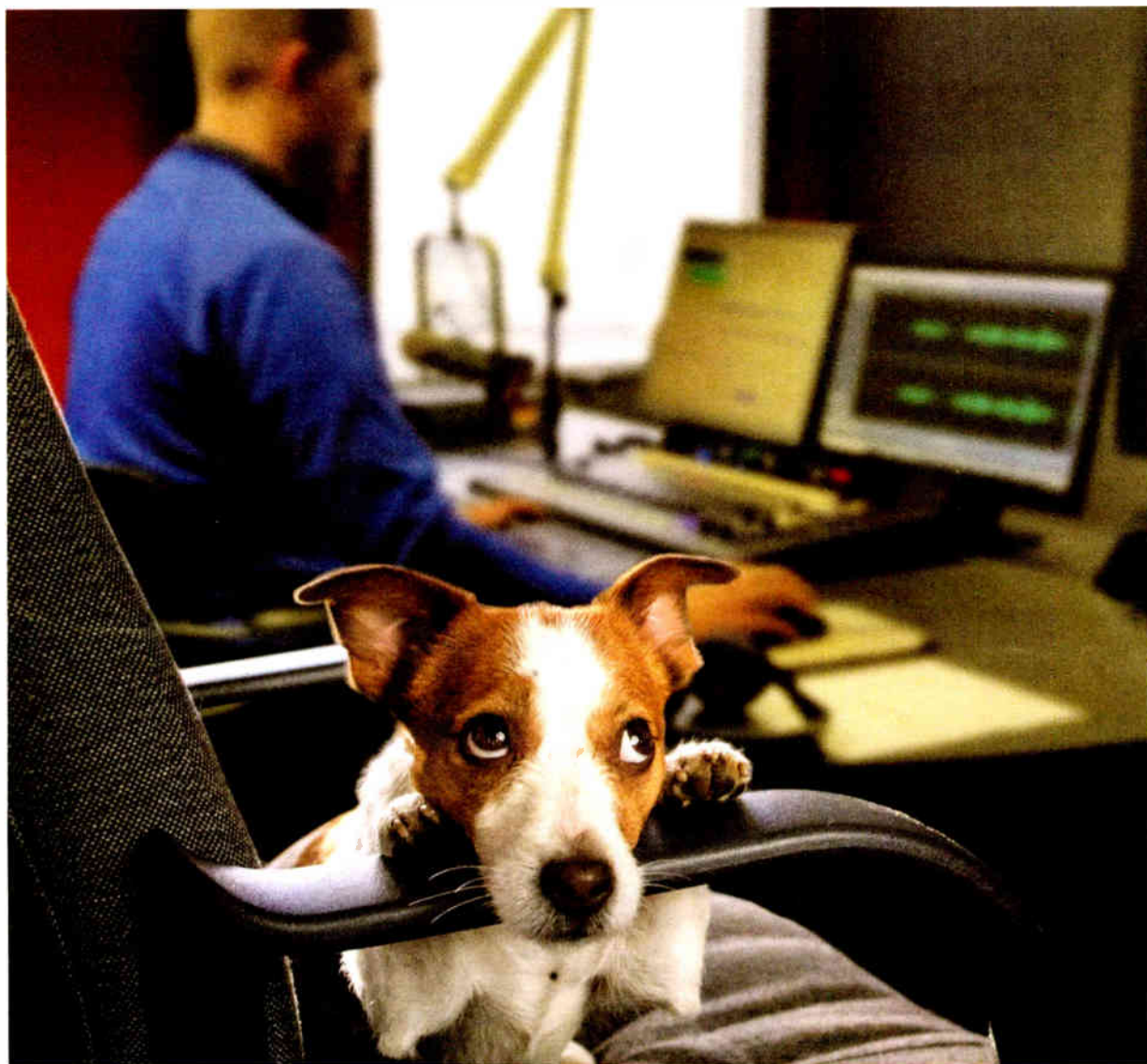


A MagicStitch transition from Super Hi-Fi's testing application.

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Vol. 44 No. 16 June 24, 2020

Note to archivists: Many prior issues in 2020 bore an incorrect volume number starting in mid-January. RW regrets the error.

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## A NOTE TO READERS

Just a heads up that your July and August issues of RW will be "combo" summer issues, meaning one per month rather than the usual two, so look for your next delivery in late rather than early July.

Also, with this issue we welcome readers of the international edition of Radio World, after its final edition published this month.

The Radio World community of readers and advertisers is a strong, loyal and cohesive one. After almost 45 years it is our intention to continue serving readers around the world in our pages, now with more stories of global interest as well as those of interest to our many readers in the United States.

Thank you for spending time with us. As always, feel free to contact me with thoughts and suggestions. I'm at [radioworld@futurenet.com](mailto:radioworld@futurenet.com).

— PAUL MCLANE, EDITOR IN CHIEF

# AI Will Help the Industry Reinvent Itself

Veritone's Ryan Steelberg says broadcasters will reap tremendous opportunities — and this is just the start



The recent Radio World ebook "AI Comes to Radio" explores how artificial intelligence is being used in new radio broadcast applications. This interview with Veritone President Ryan Steelberg is an excerpt. Read the ebook at [radioworld.com/ebooks](http://radioworld.com/ebooks).

**Radio World:** What is Veritone's AI offering in radio?

**Ryan Steelberg:** Veritone's suite of AI-powered services and applications enable both local radio stations and networks to significantly accelerate their workflows, save costs and deliver incremental value to their advertising customers.

Veritone turns media streams into indexed and searchable data in near real-time. With Veritone Discovery, users can easily search for keywords such as brand names or talent, perform fast ad verification, analyze content and leverage custom reports and dashboards.

Veritone Attribute gives broadcasters the ability to correlate ads (including prerecorded, live and in-program executions) with the advertiser's website traffic. This award-winning application arms sales teams with comprehensive performance insights to share with their ad clients and help them optimize campaigns, nurture client relationships, and ultimately secure more share of ad spend.

**RW:** What prompted you to explore this?

**Steelberg:** If there's one industry that can take advantage of the power of AI, it's media and entertainment. Considering the large amounts of data broadcasters and content owners have to manage on a daily basis, AI is

(continued on page 4)

## AI WILL HELP

(continued from page 3)

a critical component to success — it not only reduces costs and time but also opens up opportunities for incremental revenue generation as well as product innovation.

Our AI-enabled technologies put linear media on a more level playing field with digital media, giving broadcasters the analytics, transparency, efficiency and immediacy they need to help their advertising customers measure media ROI and as a result, maintain share of wallet against digital alternatives.

**RW:** Does any of this constitute a first for the industry?

**Steelberg:** At Veritone, we unify substantial domain knowledge from previous successful companies and technologies (AdForce, 2CAN Media, dMarc, Google) with in-depth AI technology expertise and vision, all of which position us uniquely in the marketplace and give us competitive advantage — we are the first AI-native company in this industry.

Today, we are ingesting, indexing and analyzing over 60,000 hours

of unique audio and video content each day. The scale of this processing, for audio and video, is a first in any industry.

**RW:** What do you allow radio professionals to do that they couldn't before?

**Steelberg:** Two things: One, Veritone radio customers can validate placements in near real-time, expediting the clearance process faster than ever before.

**We are ingesting, indexing and analyzing over 60,000 hours of unique audio and video content each day.**

— Ryan Steelberg

Second, our radio customers are now able to compete with digital advertising alternatives by definitive attribution of ecommerce or other website transactions correlated to radio ad placements. To validate placements, sales teams can search on-air content within minutes of the broadcast and perform on-demand or automated searches to track any advertising message, whether live-read or prerecorded, through a simple user interface.

**RW:** Who are some of Veritone's radio customers using AI?

**Steelberg:** iHeart, Learfield IMG College, Cox Media Group, Entercom, Cumulus Media, Beasley Media Group, Bell Media, CMG Radio.

**RW:** What feedback are you getting from customers?

**Steelberg:** "Veritone's industry-leading AI platform will help CMG offer

also enables us to put our terrestrial brands on a more level playing field with our digital assets in terms of the insights and data that can be gleaned from our customers' campaigns." — Bob McCurdy, vice president of corporate sales, Beasley Media Group.

**RW:** Where do you think AI for radio is going next?

**Steelberg:** We believe that AI is already changing the game for radio today, and broadcasters who embrace AI technologies will reap tremendous opportunities and competitive advantage. However, we are convinced that this is just the start for an industry that will reinvent itself. We are excited to be part of this development and to help those who are ready to embark on this journey.

We just announced aiWARE's expanded content classification capabilities, powering contextual ad placements and brand safety management at scale for podcasting. And also, our VeriAds program, which is helping broadcasters to liquidate unsold ad inventory and drive incremental revenue, is growing rapidly in the radio space.

better, more effective marketing solutions to our customers by providing data and insight that has previously not existed in the broadcast space." — Tim Clarke, vice president of audience and content, CMG Radio.

"We're excited to expand our relationship with Veritone into additional markets, as it allows us to capitalize on the extensive reach of radio by quantifying the full value we deliver to our advertising partners. It



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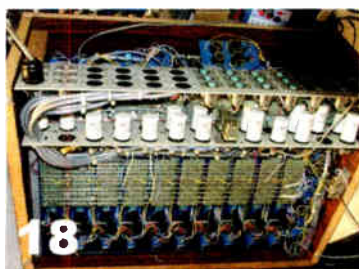
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Radio World (ISSN: 0274-8541) is published bi-weekly with additional issues in February, April, June, August, October and December by Future US, Inc., 11 West 42nd Street, 15th Floor, New York, NY 10036-8002. Phone: (703) 852-4600, Fax: (703) 852-4583. Periodicals postage rates are paid at New York, NY and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 282, Lowell, MA 01853.

## NEWS

## Logo Aims to Help Europeans Make Sense of Platforms

BY PAUL McLANE

# SmartRadio

FM • DAB+ • INTERNET

A new logo program is intended to help consumers in Europe make sense of the proliferating number of radio technologies.

The SmartRadio logo will appear on devices that provide access to radio stations through analog FM, digital DAB+ and over the internet via Wi-Fi. The products must support all three modes to use the logo, which is meant to help consumers easily identify such devices.

The announcement came from technology provider Frontier Smart Technologies and consultancy Science Group. Listing the benefits, they quoted Mark Huijsmans, director of product marketing at Roberts Radio, saying, "The SmartRadio logo will help consumers understand the true benefits of the product and is less confusing than the current diverse terminology: digital radio, hybrid radio, internet radio, connected radio and many more."

For info about the program, see [www.smartradio.info](http://www.smartradio.info).

They said the plan supported by consumer electronic brands selling to European markets including Blaupunkt, Dual, Grundig, Hama, JVC Kenwood, Lemega, Lenco, Majority, Medion, Philips, Pure, Roberts Radio, Ruark Audio, Sonoro, TechniSat, Teufel, TT Micro, as well as department store John Lewis & Partners, is part of Frontier Smart Technologies.

"The consumer audio market has a range of product categories which can overlap, creating confusion for consumers as to the difference between products marketed as radios, smart speakers, internet radios or media streaming devices," they announced.

"Recent consumer research commissioned by Digital Radio UK concluded that 87% of consumers planning to purchase a radio would be likely to buy a radio that combined FM, DAB and delivered services via the internet. The most popular term that would encourage a purchase when compared to other options was SmartRadio."

They drew the analogy to success in the television market with "smart" TVs. They noted that with "smart" receiver products, radio stations are always available regardless of whether the station is coming from the internet, DAB or FM; that thousands of stations around the world can be accessed; and that radio service is enhanced by content such as podcasts and on-demand music streaming. Also, the products can receive over-the-air software updates.

Frontier said products using its SmartRadio platforms are expected to be available later this year.

## BOB GROOME WAS WELL-KNOWN SALESMAN



Bob Groome, a former radio chief who went on to a 41-year career in broadcast sales, marketing and tech support, died in May at age 77.

According to his Facebook page, he passed away at his home in Florida after a long battle with cancer. Most recently he worked in sales engineering for RF Specialties.

"Although his working career extended an extraordinary 59 years, he was particularly proud of his technical position in 1963, working on NASA's Apollo project, as a lead (PWB) technician for General Electric, on contract supporting NASA in Daytona, Fla.," according to an obituary on his Facebook page.

"But his love of music and technology ultimately led him to the broadcast industry, beginning with his very first job at WOOO radio (1310 AM) in Deland, Fla. in 1961,

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## BOB GROOME

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as chief engineer and DJ personality 'Bob the Bachelor' and later, chief engineer at WGCL radio, Fort Myers, Fla., from 1969-76."

Radio World readers will know him best for his work with numerous prominent equipment and service companies including Audio Associates, Harris Broadcast, Allied Broadcast Equipment, Arrakis Systems, Jampro Antennas, Electronic Research Inc. (ERI) and RF Specialties.

"As a member of Society of Broadcast Engineers, Bob authored and presented papers at local, regional and national conferences. Bob presented to Mexico's Ametra, Japan's InterBEE and Canada's CCBE meetings. He presented papers and was invited to attend engineering roundtables at professional conferences held by Texas Association of Broadcasters, Broadcasters' Clinic, Iowa Public Symposium, Tampa's SBE Symposium, among others."

According to the obituary, Groome was a spiritual man and a devoted Christian. His interests included technical projects such as building an electric car, computers, collecting music, woodworking, and visiting the traces of the "old Florida" of his youth.

"He loved his wife [Philippa Jeffreys], Krispy Kremes, Rod McKuen poetry, the ocean, and Tina Turner. He watched 'Young Frankenstein' at least once a year. Everyone loved his crooked smile."

Groome maintained a website, the Sweet Old Bob Website, [www.bobgroome.us](http://www.bobgroome.us) that includes FM and AM formula calculators "to help his radio broadcasting comrades with their work. This site is up and helping others at the time of this writing, and we hope to maintain this website to honor Sweet Old Bob, the wonderful husband, dad, brother, grandfather and friend who touched so many lives and will be dearly missed."

— BY PAUL McLANE

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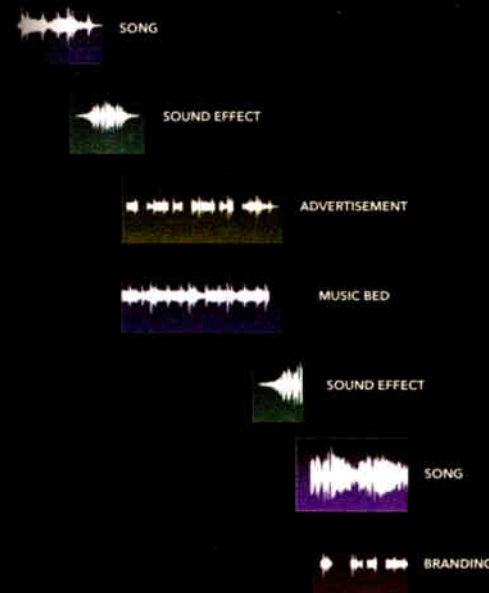
## HOW IT WORKS

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**THE PLATFORM** Super Hi-Fi consists of a layer of cloud services, APIs, and components/reference implementations for major mobile and desktop environments.



An image from the Super Hi-Fi website. "Each transition is uniquely programmed for that specific pairing, whether it is song-to-song, song-to-advertisement, song-to-content, or any other combination."

## SUPER HI-FI

(continued from page 1)

the use of Super Hi-Fi's MagicStitch technology, an "audio stitching" program capable of creating "human-like" segues between online music tracks in playlists.

"We are dealing only with the iHeart-Radio streaming people," Zalon said. "We are working on the innovation side, which is streaming-based. Not terrestrial radio."

iHeartMedia's massive reorganization included the creation of AI-enabled Centers of Excellence, according to a company press release at the time. The broadcaster pointed to the improvement of its technology backbone, in addition to strategic technology and platform acquisitions like Jelli, a programmatic ad platform; RadioJar, a cloud audio playout company; and Stuff Media, a podcasting firm.

Super Hi-Fi was not mentioned by name in the iHeartMedia announcement.

### BRIDGING A GAP

"We are working with iHeart on a very deep level to bridge that gap between broadcast and digital. There is a lot of roadmap stuff to improve the audio experience," Zalon said.

The radio business "seems like an underdog right now," Zalon said, "when actually radio is still the number one form of music consumption in America. Radio has a lot of great experiences and resources."

However, it seems "broadcasters just don't know how to view streaming and whether it is a threat or not. And streaming media people think radio is old tech-

nology and not all that valuable," he said.

Zalon says broadcasters and media companies have been reaching out to him during the COVID-19 pandemic in search of opportunities to add efficiencies to technical operations via Super Hi-Fi's technology platform.

"Broadcasters are searching for a way forward that brings together broadcast and digital and drives revenue and loyalty. Broadcasters have been talking to us about inserting our technology into the broadcast stack for the purposes of efficiency. And when I say efficiency I mean using the resources they could free up for the artistry of radio. Focusing on the curation, the production and

figuring this out. When streaming audio works you need more people to curate music. You need more people to work with advertisers to inject commercials in the system. And produce those commercials."

AI is not a replacement for people yet, he said, but an "enabler of human capabilities that has never existed before." But Zalon does envision a day when computer-generated voices sound as real as a human voice and pop up on iHeart-Radio streams.

### WHERE THE ENERGY IS

Zalon said Super Hi-Fi's primary focus remains enabling new audio

Citing recent notable business deals, Super Hi-Fi has described itself as "positioned to be the next independent darling B2B AI company of the music and broadcast industries."

the human voice, which makes radio so effective," Zalon said.

Broadcasters are realizing, Zalon said, that some broadcast technology could be more efficient if AI assisted them with things like placement decisions in their automation.

"Programmers are just lining things up in automation systems really, and that isn't necessary anymore when AI can do it for you automatically. AI can make a lot of presentation decisions," Zalon said.

"But AI isn't a job killer. There hasn't been a single service we have integrated into, iHeart included, that hasn't utilized more human resources after

streaming experiences and bridging the gap between what he thinks are "silos of broadcast radio and digital" that haven't been bridged.

"We want to enhance experiences by taking the concepts of broadcast and engineering solutions. Streaming audio is where it's going. Streaming media is fantastic. The sound quality is incredible. The personalization options are amazing. That is where all the energy is moving toward. We are interested in bridging the silos. Radio services will ultimately all be streaming when 5G is in the car.

"And when 5G is in the car what will be the point of connecting to a broadcast

tower? Streaming is a technology not a technique. As technology evolves we think the technique should evolve as well. I think broadcasters are beginning to recognize that," he said.

Zalon's background is steeped in digital music experience, including building one of the earliest consumer digital music platforms, Radio Free Virgin, which was part of Richard Branson's Virgin Group. At other points he has helped launch and design digital music services for CBS Radio, Sony Music, AOL Radio, Muve Music and Yahoo Launchcast.

Zalon handles the strategic direction of Super Hi-Fi, which he launched in 2018 with co-founder and Chief Technology Officer Brendon Cassidy. The AI company, based in Los Angeles, works with a variety of companies and has about 35 employees.

Digital music streaming's lack of flow and production quality has always been an issue, Zalon said, with too many dead gaps in the music and a lack of emotion.

Super Hi-Fi and iHeartRadio announced its partnership in 2018 with a goal of creating intelligent audio transitions in the iHeartRadio app. MagicStitch is also deployed by Peloton and the recently launched Sonos Radio. And it just announced a partnership with Octave Group, which provides retail music entertainment in locations like Starbucks.

The patented MagicStitch system adds things like transitions, sonic leveling and gapless playback to the iHeartRadio digital stream, Zalon said.

"Radio is our inspiration. And I think one day radio owners will realize they hold the keys to digital listening experiences. They just haven't activated them correctly. They have not seen them as assets but instead as liabilities. We see that totally the other way around," Zalon said.

"Radio broadcasters have the tools and experience to create these incredible professional-sounding broadcast streams to make the digital music experience exciting. They have the tools to make the digital media experience stickier and more valuable than what is in the marketplace right now."

#### PERSONALIZED AND SCALABLE

Super Hi-Fi has developed a technology that can deliver that vision, Zalon said, via MagicStitch and its ability to be more than just a playlist with long gaps of silence.

The AI system consists of a layer of cloud services, APIs and components/reference implementations for major mobile and desktop environments, according to a press release. The results are personalized and scalable listening

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# Digging Deeper With Zack Zalon

We asked Zalon further questions about how MagicStitch software works and about the company's technology in general

**Radio World:** *What physical signal parameters are being measured and assessed about a particular music track to define the way that Super Hi-Fi handles that track?*

**Zack Zalon:** For starters, I'll share that we are gathering a tremendous amount of data on the audio files. Yes,

we are collecting countless features, but we are also gathering some very unique attributes from our machine learning services, as well as from over 1 billion data points from commercial usage that we collect every month.

The amount of data that we collect on each file is actually larger (in stor-

age terms) than the source file itself. There are literally millions of data points that we collect, and then the trick is to train the AI to actually use these data points.

**RW:** *Exactly how is the "human touch"*

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## COMREX

## DIGGING DEEPER

(continued from page 7)

*of a segue developed for each track?*

**Zalon:** For us, the key is not data per se, it is the idea of context. Yes, we need data, and a lot of it. But the data for us is a means to an end. What we're working toward is a perfect contextual understanding of the audio file so we can automatically make really artful, human-like decisions about how to handle that content.

How does a quiet song transition into another quiet song? How does that same song properly transition into a higher-energy song? Does having a female singer make a difference, does it change the way a listener will react to a specific song transition? Should it be different if there is an advertisement that comes afterward? Should there be talking over the song?

These are the questions that we have been tackling, and then working backward to modify the service to ensure that it understands — comprehends — the content with enough depth to be able to make the right choices, all day every day.

**RW:** Does the Super Hi-Fi algorithm analyze different segments of an audio track differently?

**Zalon:** More specifically, we are collecting all of the data points you asked about earlier, though we use LUFs as a measure, not LKFS. But we also have designed and developed dozens of proprietary analysis tools and associated proprietary data points to measure. Existing tools weren't giving us the broad-based view of the content that we needed for the AI to work properly. Please note that we aren't just looking at music files, we are also analyzing spoken word, sound effects, advertising (of numerous types), sonic logos, etc.

So using traditional music analysis techniques wouldn't be sufficient. Also to be specific, we analyze the entire file, not just any one section, and we analyze the difference of each data point so we can build a richer base of understanding regarding that file, how it changes over time, and how it relates to the other files that we may be stitching around it.

**RW:** Does the AI system do any audio correction or modification of the tracks?

**Zalon:** We do not do any audio correction or modification. In fact, we don't actually deliver any files. Our customers deliver the files, what we do is to send them a set of presentation instructions in real time that they use to create their experiences. Everything for us is about placement, as though it is being mixed by a human DJ at a



**Super Hi-Fi is currently generating over 1 billion transitions per month for our customers. That's the equivalent of us powering 138,000 broadcast radio stations, 24/7, all in real time.**

broadcast radio station. But it is actually AI making all of the calculations and sending those to our customers as they are requested.

**RW:** What really differentiates your AI from a cloud-based automation solution? There seem to be automation systems that can do the same right now. They have been stitching audio, liners and segues for decades. Is MagicStitching simply automation for the cloud?

**Zalon:** Today's radio automation systems have some of these capabilities, like an Auto Jock, but they are very different from Super Hi-Fi. These radio systems do a great job of automating for a linear terrestrial broadcast, using specific human annotation points — such

as segue points — added in on a very select number of content files, be they music, voice liners, or advertising.

Super Hi-Fi is built for the scale and breadth of today's largest digital streaming services, where the number of content options are virtually limitless, and the number of personal experiences are just as broad. With our AI, the data is all analyzed and annotated with no human intervention, so our system understands an incredibly wide array of music features on literally tens of millions of content files. Each decision — whether it be a song segue, a voice liner, a podcast snippet, or an advertisement — is calculated in real time based on each specific set of content options and for each unique listener. This provides

enormous flexibility and control, and allows large streaming music services to start delivering radio-like listening experiences without limiting the kind of unique, personalized experiences that consumers have come to expect.

So, in a way, the outputs of the experiences are somewhat similar. We are very influenced by how radio uses production techniques to create differentiation and to build amazing branded services. We're just coming at it from a very different direction and for use in a very different way.

The best example of this is in a comparison of scale: On a broadcast radio station, you can expect there could be perhaps 10 "transition" moments per hour (segues, liners, etc.), which adds up to around 7,200 per month. Super Hi-Fi is currently generating over 1 billion transitions per month for our customers. That's the equivalent of us powering 138,000 broadcast radio stations, 24/7, all in real time. Today's radio automation systems are fantastic at what they do, but they just aren't built for the same use case.

**RW:** Are you collaborating at all with RCS, a company owned by iHeartMedia? RCS has a cloud solution for radio automation.

**Zalon:** We have a ton of respect for RCS, they're definitely top of their field. But again they are focused on radio automation, and that's not what we do. We are enabling unique, radio-like experiences for digital music streaming services, and so our technologies are very different from one another. That said, there's no reason why we couldn't collaborate with them; in some ways I imagine we're each very complimentary to what the other does.

**RW:** You talk a lot about creating efficiencies with MagicStitch. What specifically do you add to the "broadcast stack"?

**Zalon:** When we talk of efficiencies, we are generally referring to the breadth of streaming music services. Imagine the difficulty of having to manually tag all 51 million music files that exist on today's services. Imagine having to program the transition technology to handle hundreds of millions of listeners, and trillions of possible content combinations. It's just not achievable without the kind of efficiencies that our AI provides. Now, I imagine that there are efficiencies available to radio broadcasters as well.

As an example I can state with confidence that we're gathering vastly more data on each piece of content than any human would be able to assess. So that's one specific example. But as to where we add value to the broadcast stack, I

(continued on page 10)



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## SUPER HI-FI

(continued from page 7)

experiences (see sidebar).

MagicStitch, to borrow a broadcast term, takes the dead air out of audio streaming, Zalon said during a recent demonstration of the digital platform. The technology “stitches” together transitions between songs as if done by a real human DJ.

“Our research is focused on understanding audio content to the same depth as a human. When we were building CBS Radio’s digital platform, we all thought the gaps in the music were terrible. Pandora was around at the time. They all sounded the same if you close your eyes. We thought what if we were to smartly use radio techniques to stitch songs together to improve the experience. Then we started thinking about segues and how many of different combinations there could be and how to that figure out algorithmically.

“Well, we soon figured out it wasn’t possible at that time. The number of segue calculations were literally in the trillions. So went on building these music services but they still didn’t sound quite right.”

Zalon said he and Dawson realized it was impossible to write enough algorithms to solve the segue problem and instead began to focus on training artificial intelligence to do what radio DJs do. “For the AI to be smart enough to have the dexterity of a trained human DJ,” he said.

“Our belief is that it’s the techniques of radio, the music transitions, the voice branding and all of those other elements of radio that makes the digital product stand out.”

Music services like Spotify and Apple Music use a “cross-fade” function to help cut down on the gaps between tracks, Zalon says, but the problem is the platforms still don’t recognize the subtleness of the human touch.

“It’s not all mechanical. MagicStitch

in real time calculates what it thinks is the perfect segue for any two tracks you might play back to back in a playlist. And uniquely for those two songs. MagicStitch reaches back to our cloud server and gets back the proper instruction and then aligns it down to the correct thousandth of a second. It considers rhythmic elements and lets the previous song play out the right way. Whatever it takes to make it sound radio worthy,” Zalon said.

However, MagicStitch does more than segues, Zalon says; it can also brand the digital stream much like radio does with the human voice.

“Music transition is the core of what we do. The next step was training MagicStitch to understand branding elements and the human voice with that same level of depth. It uses radio techniques like interview snippets that don’t step all over the music in an inappropriate way to build a personality into a streaming service,” he said. “Now we can assign the branding component based on lis-

tener preferences and interject voice them like broadcast radio does.”

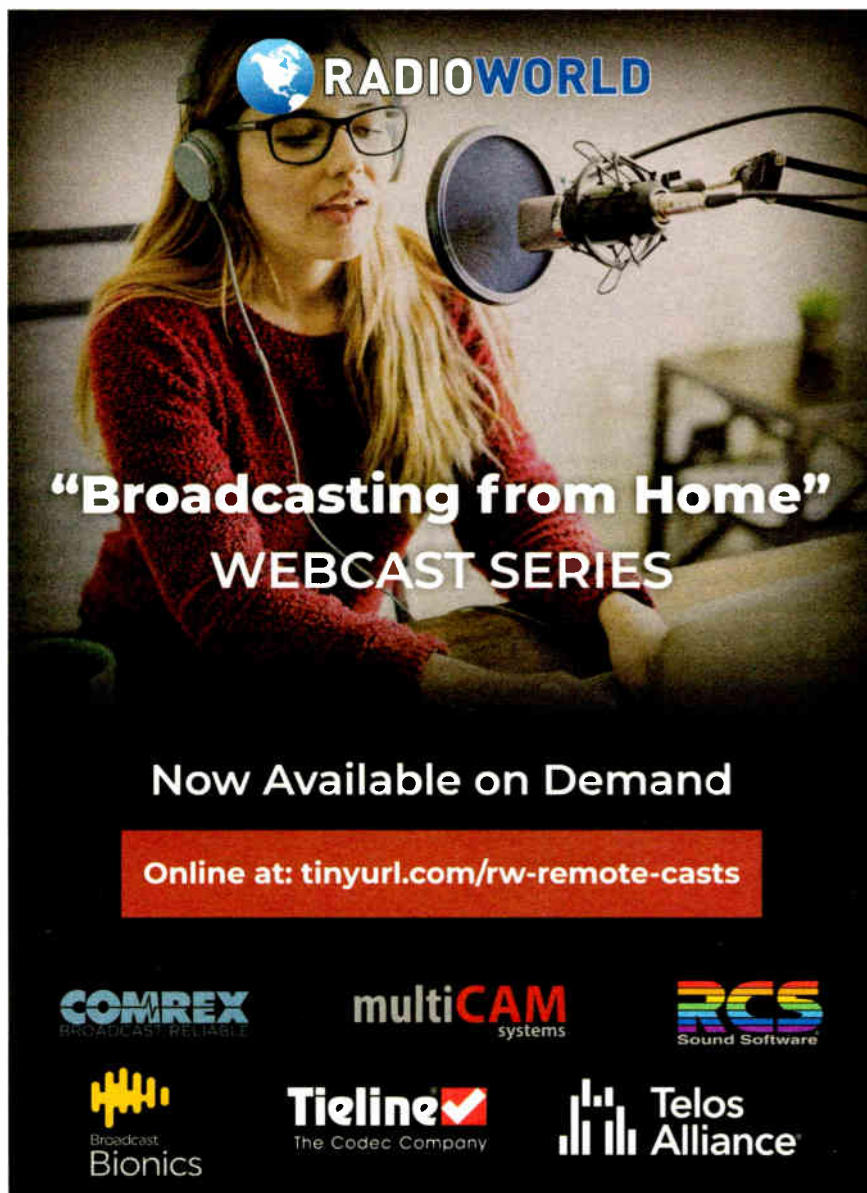
MagicStitch can layer multiple elements into the stream, such as audio liners, commercials and branding messages, he said.

“It’s capable of delivering a seamless layered stream experience to a smart speaker,” Zalon said.

And the AI system gets smarter each time it performs a song segue, Zalon said. “The platform has a feedback loop so it is digesting a lot of machine learning advances all the time and understanding content better. So as the data grows and the more calculations you add MagicStitch can represent in creative ways,” Zalon said. “It essentially gets smarter with each audio transition.”

MagicStitch currently completes a billion streaming song transitions across multiple services each month, according to Super Hi-Fi data.

*Comment on this or any story to radioworld@futurenet.com with “Letter to the Editor” in the subject field.*



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## DIGGING DEEPER

(continued from page 8)

would guess that it would be different for each radio service, based specifically on their individual goals.

**RW:** If Super Hi-Fi AI can make placement and presentation decisions, what specific decisions does it make? Could the AI replace the need for radio broadcasters to schedule music and promos, or even commercials?

**Zalon:** Super Hi-Fi makes presentation and production decisions, but it doesn’t program music. I would guess that a radio broadcaster could use some automated programming technology, but humans seem to do a much better job of that. Our technology takes what has already been programmed and automates the presentation so it sounds amazing, with all of the segues perfectly designed for just that set of content, without human intervention.

**RW:** That said, talk of efficiencies typically means jobs losses in any business field. Where can Super Hi-Fi AI save broadcasters money? Can you give examples?

**Zalon:** I really can’t yet, as we don’t have any of those specific examples to give. Right now our customers are using Super Hi-Fi for next-generation streaming services, and in each of those cases our customers added

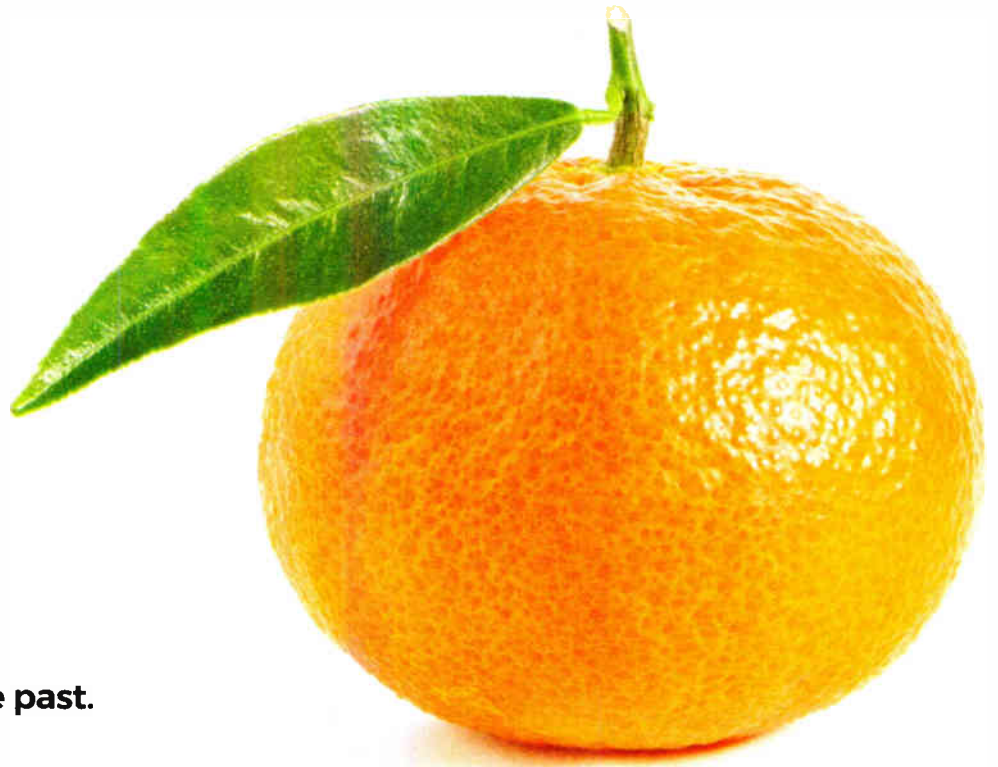
employees. In other words they are using the efficiencies of our platform to grow listeners and revenue, not to drive cost savings.

Now, I imagine radio broadcasters could use our tools to save time and money, eliminating the need for anyone to add data to content or to align content in their radio automation services. But I think Super Hi-Fi is a more attractive option for broadcasters who want to use what they are already amazing at — incredible radio listening experiences — and to apply that to the next generation of listening. In other words, to take what they’re already doing but to do it across a new generation of listening platforms for a new generation of listeners. That’s where Super Hi-Fi really starts adding huge value.

**RW:** And those computer-generated voices you mention. When are those coming? Years or months? And how close are you to a solution?

**Zalon:** Great question. We aren’t a text-to-speech company, though we definitely keep our eye on the space. Amazon is doing some amazing things with their Polly service, and there are some very cool products that are in the early stages of commercial deployment. But let’s not forget that Bill Gates said in 1995 that the computer voice services would be amazing in five years, but here we are 25 years later and it still sounds computer generated. So it wouldn’t surprise me if it took another 25 years.

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# Why WWV and WWVH Still Matter

Fans of NIST signals cite benefits including understanding the near-Earth environment

BY JAMES CARELESS

Last year was one of both celebration and uncertainty for WWV, the station adjacent to Fort Collins, Colo., that transmits automated time broadcasts on the shortwave bands.

On the plus side, it marked the 100th year of WWV's call letters, making the site, operated by the National Institute of Standards and Technology, one of the world's oldest continually operating radio stations.

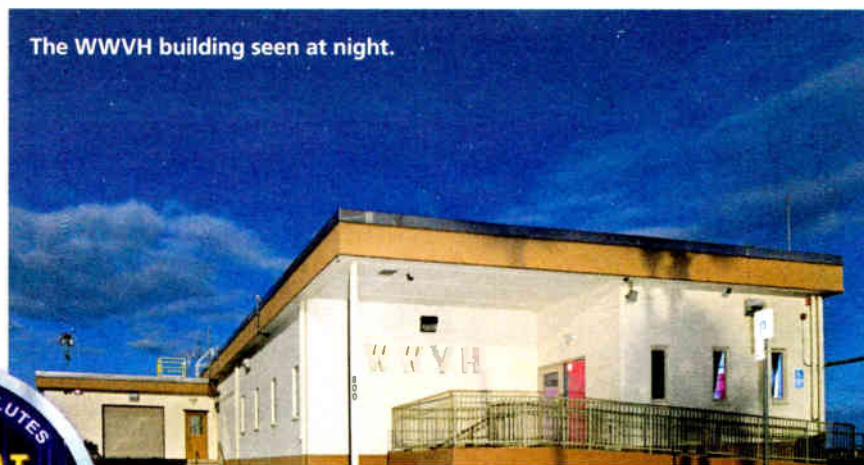
On the negative side, WWV and its sister time station WWVH in Hawaii nearly missed this centennial. That's because NIST's original 2019 budget called for shutting down the pair, along with WWVB, the longwave code station co-located next to WWV, as a cost-saving move.

Fortunately, these cuts never happened, and WWV, WWVH, and WWVB

remain operational at WWV and WWVB. "WWV has 11 operational HF transmitters (including standby equipment), eight transmitting antenna towers, and associated time and frequency distribution equipment."

Located on the southwest portion of Kauai, WWVH "broadcasts 5 kW on 2.5 MHz and 10 kW on 5.0, 10.0 and 15.0 MHz," said WWVH Station Engineer Dean Okayama. "The time/frequency systems and transmitters are similar to WWV."

Both stations are known for the automated voices that tell the current time; WWV uses a male voice, while WWVH uses a female one, both timed to speak



The WWVH building seen at night.



Timecode generators at WWV.



Part of the 15 MHz antenna system at WWV.

For a lack of delay, nothing beats terrestrial radio. It is held back only by that pesky speed of light.

— Kim Andrew Elliott

seem likely to keep broadcasting the most accurate time from NIST's atomic clocks, at least for the immediate future. (No further cuts have been threatened.)

That's good news for the stations' many supporters, who say that time broadcasts still matter in the Internet Age.

## WHAT THEY HAVE TO OFFER

Today, listeners around the world can get the most accurate time possible via WWV and WWVH's broadcasts on the shortwave bands.

To make this happen, "WWV broadcasts continuously on six shortwave frequencies: 2.5, 5, 10, 15, 20 and 25 MHz," said Glenn Nelson, an electronics techni-

cian at WWV and WWVB. "WWV has 11 operational HF transmitters (including standby equipment), eight transmitting antenna towers, and associated time and frequency distribution equipment."

one after the other whenever both stations are heard on their shared channels. This NIST service also broadcasts standard time intervals, standard frequencies and other information including solar conditions affecting radio propagation. Both stations report the time using the Coordinated Universal Time zone, a.k.a. Greenwich Mean Time, which is five hours head of Eastern Standard Time.

In the early days of radio, WWV/WWVH's standard frequencies were used by commercial broadcasters to calibrate their transmitters to their assigned frequencies.

"In the 1930s, WWV began broadcast standard time interval pulses," said Nelson. "In the 1940s, the U.S. Navy granted WWV permission to broadcast time of day announcements (this had been the exclusive responsibility of the Naval Observatory up until then). Voice announcements of time were added in the 1950s and a digital time code was added in 1960. In the '70s, the WWV audio signal was made available by telephone at (303) 499-7111, and this service has continued to the present day."

## WHY THEY STILL MATTER

The possible closing of WWV, WWVH and WWVB did not pass unnoticed. Tens of thousands of supporters signed petitions opposing the move, for a variety of reasons.

Even today, WWV and WWVH's standard time broadcasts and frequencies are a great help for engineers calibrating equipment.

"While time-of-day information can nowadays be obtained through the internet, the combination of circuits involved in internet distribution can result in delays," said Dr. Kim Andrew Elliott, retired Voice of America broadcaster and audience research analyst, and now

producer of the experimental broadcast Shortwave Radiogram (<https://swradiogram.net/>).

"These delays usually involve fractions of seconds, but that is enough to be significant in certain endeavors such as high-speed trading. For a lack of delay, nothing beats terrestrial radio. It is held back only by that pesky speed of light."

WWV/WWVH's audio tones are also precise and thus useful.

"On WWV, the 440 Hz tone (the musical note A above middle C) is broadcast once each hour, during Minute 2 on WWV, and Minute 1 on WWVH," Elliott said. "You can tune your violin using WWV."

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On a more scientific note, these reliable signals play an important role in forecasting "space weather," which can have a serious impact on the world economy whenever it gets "stormy."

"As WWV's signals move from their transmitter site in Fort Collins to shortwave receivers, they pass through the ionosphere and undergo slight delay and frequency changes," said Dr. Philip Erickson of the MIT Haystack Observatory's Atmospheric and Geospace Sciences Group.

"These changes, if measured carefully, contain much information on waves, density changes and other phenomena that form space weather known to affect national telecommunications, long-distance power grids, and human spaceflight."

Initially, these changes could only be detected using professional-grade receivers. But times have changed.

"Atomic clock signal accuracy at the Colorado and Hawaii transmission sites means that modest receivers using inexpensive, modern technology can use these time signals as beacons to sense ionospherically induced changes," Erickson said.

"This allows the formation of a distributed space weather network in the backyards of thousands of amateur radio enthusiasts across the continental U.S."

Such a concept is being realized now by the Ham Radio Science Citizen Initiative (HamSCI; [www.hamsci.org](http://www.hamsci.org)), which is developing a personal space weather station for use by citizen scientists.

**THEY WOULD BE MISSED**

These benefits would come to an end should NIST's time stations ever go dark.

"The ideas I've outlined, plus other similar concepts, naturally extend WWV's 100-year historic mission into the 21st century, and form an important part of national infrastructure in both the professional and emerging citizen science field," said Erickson.

"It is vital that these signals continue to operate for the benefit of advancing human understanding of our near-Earth space environment."

It's not just WWV and WWVH that would be missed: "The general public will take notice if NIST station WWVB shuts down as its 60 kHz signal controls self-setting clocks known as 'atomic' clocks," said Thomas Witherspoon, editor of the shortwave radio website the SWling Post ([www.swling.com](http://www.swling.com)).

"Many don't realize it, but a large portion of wall clocks, alarm clocks and watches, not to mention weather stations, cameras and potentially a number of other devices, have a built-in receiver that self-calibrates," he said.

"NIST notes that there are more than 50 million radio-controlled clocks in

operation and another few million wristwatches that rely on WWVB for self-calibration.

"The thing is, these devices are so embedded in our lives here in North America we scarcely notice them, and many consumers likely assume they're set by the internet. They're not."

**A DEFENSE AGAINST FAKE NEWS?**

WWV and its sister stations could also have relevance now for another reason.

"Internet has become infamous as a purveyor of false information and coun-

terfeit sites," said Kim Andrew Elliott. "This is true even during emergencies, including the coronavirus outbreak.

"WWV and WWVH can be useful transmitters of emergency information: They are much more difficult to spoof than a website," he told RW. "If a fake station tries to transmit on WWV/WWVH frequencies, co-channel with WWV and WWVH, the listener will hear immediately that something is not right. If the fake station comes from overseas, it will usually sound distant, compared to the signal we are used to hearing in North America."



WWV 10 MHz transmitter and standby.

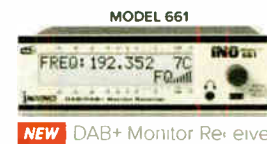
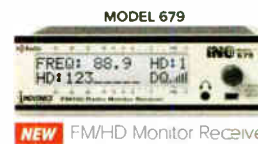
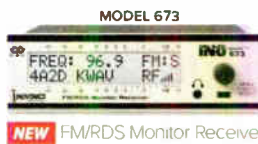
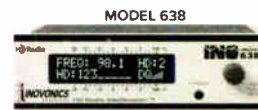
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# Q&A: How the Xperi/TiVo Deal Will Affect Radio

Joe D'Angelo highlights delivery of high-quality images and richer metadata

BY PAUL McLANE

Xperi Corp. and TiVo Corp. recently completed their merger. To learn more about how this might affect readers of Radio World, we asked Xperi SVP of Broadcast Radio Joe D'Angelo.

**Radio World:** What relevance does the merger have for people who follow the technology of radio and audio consumption?

**Joe D'Angelo:** Xperi and TiVo have a long-shared history supporting the media and creative industries (i.e. films and music). With little overlap in our legacy platforms, we are able to complement each other to boost our portfolio of offerings.

Most meaningfully to broadcasters, the combined company will facilitate

**“The combined company will facilitate the delivery of the highest-quality images and much richer, deeper metadata.”**

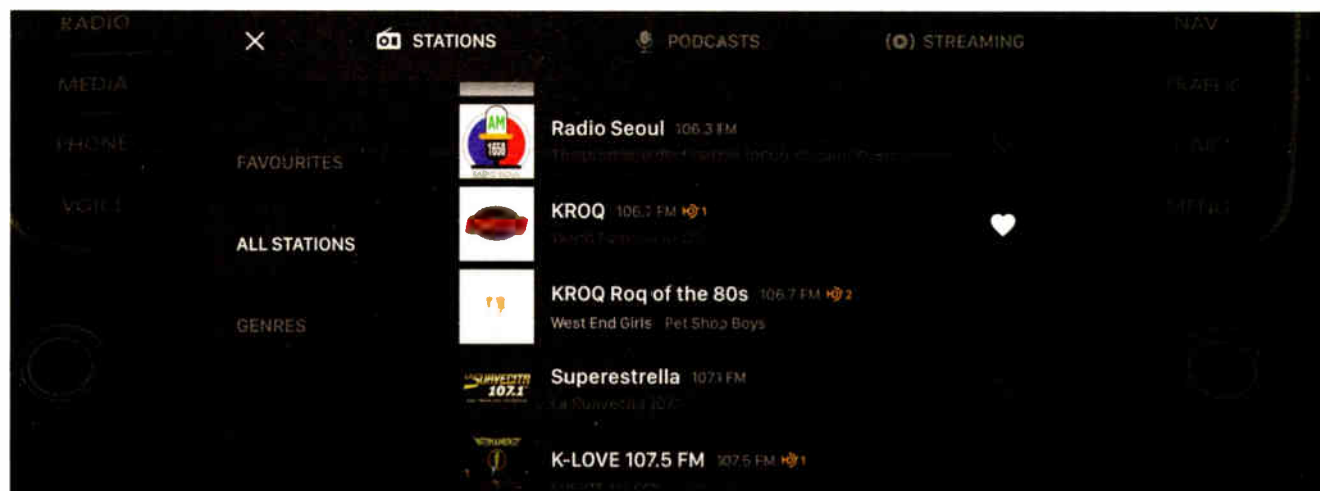
the delivery of the highest-quality images and much richer, deeper metadata (i.e. genre, release date, songwriter).

This is, of course, great for listeners and has the potential to simplify the radio industry's reporting obligations. TiVo's metadata will also help broadcasters better organize their internal content catalogue, make more informed programming decisions, and improve reporting accuracy.

The merger will have benefits across Xperi's HD Radio, DTS Connected Radio and digital platforms including apps and websites.

**RW:** What specific technical change or improvement will we see in either HD Radio or in the hybrid radio DTS Con-

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This image from Xperi illustrates “discovery” with KROQ HD2. The display features a live, now-playing station guide with logo, name and currently playing information. Stations displayed are stored by frequency and filtered by genre. These are conceptual images; UX designs are under development with manufacturers. But the features shown are now available and supported by DTS Connected Radio; Xperi says integration of TiVo metadata will provide deeper, better metadata.

nected Radio platform as a result of this business development?

**D'Angelo:** The TiVo metadata will continue to complement the implementation of the HD Radio Artist Experience feature for broadcasters who have adopted our technology and will provide Xperi with the ability to ensure consistent delivery of deep track information on the DTS Connected Radio platform.

**RW:** How exactly does a “metadata platform” help improve future radio product?

**D'Angelo:** Metadata is the key enabler for new digital platforms in terms of discovery, content identification, recommendations and personalization. Voice interfaces are also dependent on rich content metadata — think Alexa, Siri and similar. The metadata platform makes it possible to cut through the content chaos, brings content together, and makes it easy for listeners to find information specifically relevant to them.

**RW:** The company said that the solutions this merger is poised to bring “take radio and the digital dashboard to a completely new level of discovery and engagement.” Please explain.

**D'Angelo:** About discovery: Digital radio, both HD Radio in North America and DAB+ in Europe and Australia, has enabled a significant increase in the number of radio stations available to listeners in any given market. No longer is it viable to simply tune up and down a linear radio dial, frequency by frequency, to get a full understanding of all the programming on-air. In New York City, thanks to HD Radio, there are close to 100 FM analog and HD Radio stations; and in London, thanks to DAB+, there



illustrating “engagement,” this display features rich complete metadata with integrated LA-based 106.7 FM HD2 station branding. The display provides interactive support for events, likes/dislikes and favorites.

are now over 120 audio services.

With all this amazing new content, it is critical to provide new approaches to content discovery, navigation and selection. Metadata is the foundation to make this a reality.

Xperi is now able to present structured, searchable and categorized station information, including live now-playing data for display in the dashboard and driving voice interfaces. The end result is the most advanced and accurate digital program guide for radio to the dashboard.

As for engagement: Once the in-car user has identified and selected (queued) a radio station, Xperi's platform elevates the audio experience with deep, engaging and informative text and images. This seamless and enhanced presentation becomes possible with the direct support of broadcast programmers, creative teams, and our rich metadata catalogue.

These enhancements, while common on other digital IP based services, are new and revolutionary for broadcast

radio. We are now able to level the playing field with pure IP services and give listeners everything they could ask for from a digital audio platform, but from a free, over-the-air, live, and locally curated source.

By using our platform, listeners will not only be able to get additional information about songs, events, topics, artists, and show hosts, but also interact with the programming by sharing feedback with the stations about song selections and discussion topics.

**RW:** What else should we know?

**D'Angelo:** This is just the tip of the iceberg in our combination of technology and services — we will be innovating on a number of fronts to ensure broadcast radio prominence in the dash.

For example, we have recently won some in-cabin monitoring design-ins with key OEMs, and are looking to develop a feature where we combine that technology with our infotainment solution to provide a personalized user experience.

# PEOPLE NEWS

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**Dave Sampson**  
Calrec

He becomes network specialist, a newly created position, to support Calrec customers in their moves to IP.



**Sherri Powers**  
Beasley Media Group

She was promoted to chief engineer for the Detroit cluster.



**Chris Tarr**  
Magnum Media

was named group director of engineering.



**Duchesne Drew**  
Minnesota Public Radio

He becomes president of MPR, succeeding Jon McTaggart and founder Bill Kling.



**James Leifer and Ralph Beaver**

Society of Broadcast Engineers

The SBE elevated James Leifer and Ralph Beaver to the membership rank of Fellow.



**Jim Houser**  
Educational Media Foundation

He joined EMF as its first chief content officer, overseeing content for the K-LOVE and Air1 radio networks and its streaming efforts.



**Alex Roman**  
MediaCo New York Radio

Roman was promoted to chief technology officer of the company, which includes Hot97 and WBL5 107.5. It is a newly created position.



**Mike Kernen**  
Crawford Broadcasting

Kernen began work as market chief engineer at Crawford's Detroit operation.

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# BROADCAST PARTNERS DELIVERS SMARTRADIO TO VRT

**Terneuzen, NL** — Radio has come a long way since the first transmission of the human voice in 1900, becoming an indispensable part of the media landscape, locally, nationally, and internationally. Over the years it has been forced to adapt on numerous occasions, from AM to FM, to DAB+, video, and online. A radio station is no longer just a frequency that you can tune in to, but a brand that can be found in apps, on websites, in Spotify, on web-channels, Social Media, in podcasts, and even on television. This, combined with the need to save money, work remotely, reduce expenditure, and more recently Covid-19 has provided media companies with many new challenges. 3 years ago, Broadcast Partners from The Netherlands launched SmartRadio, a radio-as-a-service answer to these demands.

## SMARTRADIO - MULTI-CHANNEL PRODUCTION

"SmartRadio was designed to help media companies with this digital transition..." explains Rene van de Kolk, Manager R&D at Broadcast Partners. "Our main objective was to create a dynamic, fully cloud-and web-based innovative platform that could create, edit, and publish audio content to anywhere on the planet, on any platform. With our 40 years of broadcast experience and over three decades in playout software, we have found that the traditional back proved rigid, expensive, and incapable of adapting to these needs. Companies often invest in costly hardware, software, and personnel that have been made redundant after a short time. More often than not, there is a lack of the right personnel and funding to make this transition even possible. So why not create a more flexible complete new hybrid solution?"

"To stay relevant and stay under budget, great thought needs to be put into every Euro spent, investing in solutions must be scalable, flexible, simple to use and affordable..." explains Edward Hotchkin, Sales Manager at Broadcast Partners. "Just being on-air or online isn't enough anymore, you have to test various marketing channels on multiple platforms, evaluate available data, and chose what works best for you. I have seen numerous companies waste time and resources on expensive hardware, personnel, and marketing tools and still come out struggling for market share. Companies need to adapt to stay relevant and to stay tuned in. VRT, the Flemish public broadcaster is a great example of an organization that has shown great resilience in times of need".

## VRT USES SMARTRADIO FOR ONLINE RADIO CHANNELS

VRT's music station **Studio Brussel's** 'StuBru #ikluisterbelgisch is a new initiative facilitated by

SmartRadio. The new online Pop-up stream has been created to enable listeners to discover and listen to new Belgian music. It is Studio Brussel's way of supporting the Belgian music industry during these difficult Corona times. In addition to their popular "**StuBru #ikluisterBelgisch**", "**StuBru Hooray**" (hip hop music), "**StuBru Bruut**" (guitar-rock), also "**MNM90s & '00s**" by VRT's youth station MNM, have been facilitated by SmartRadio.

This SmartRadio environment is the result of close collaboration with a VRT project team which resulted in a cloud-based environment within Microsoft Azure. There is a 1 to 1 VPN connection with Brussels. For program makers and engineers, the existing Dalet

In technical terms, SmartRadio consists of various API based microservices. These microservices run in a virtualized Windows environment, and can be set up to offer tailor-made solutions for our customers. VRT uses this for its 4 online streams including the **Smart Database**, **Smart Playlist**, and the **Smart Non-Stop Player**. The Smart Non-Stop Player can be monitored through a very user-friendly web interface. An overview of all playlists and hours can also be seen. If desired, mix points can be adjusted in the **4 channel Multitrack** editor in Chrome browser, without latency. SmartRadio also allows **metadata** entry via the interface and can establish connections using AolP software.

To recreate its unique sound, VRT opted for **Smart Processing**. This new and innovative product, cloud- and web-based audio processing, was created through a **unique collaboration between Broadcast Partners and Orban Labs**, enabling stations to make their own audio choices through the Smart Processing web interface. For this, Orban has supplied its software which uses its unique algorithms. This software is comparable to Orban's hardware products

and produces a very unique sound for the VRT theme channels using Smart Processing High-End.

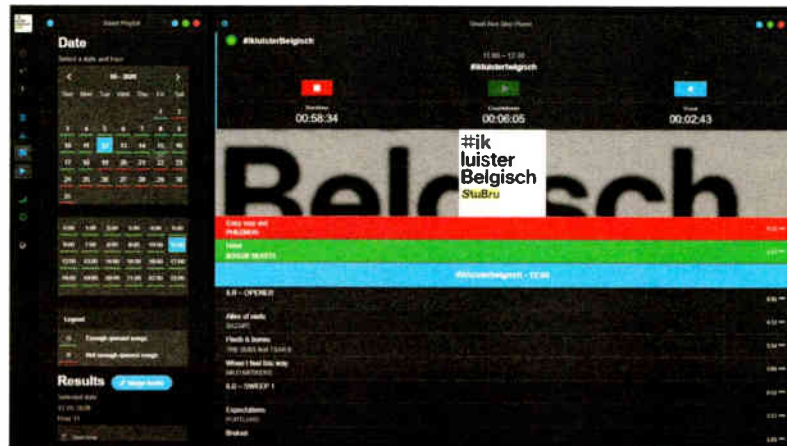
## LARS DE VOS (VRT PROJECT TEAM):

"VRT appreciates Broadcast Partners' SmartRadio as a valuable addition to the existing file-based, radio playout infrastructure. This cloud-based solution offers VRT the technological opportunity to quickly respond to the streaming needs of our radio networks".

## EDWARD HOTCHKIN (SMARTRADIO SALES):

"Broadcast Partners is very proud to have delivered innovative SmartRadio services to VRT. The chosen custom solution creates a variety of possibilities. VRT sets out some preconditions to make the expansion of their platform much easier. It has extremely user-friendly options for platform expansion capabilities for both program makers and engineers. With the use of Smart Processing, virtualized cloud-based modulation can optimally be put to use."

For more information, visit [www.smartradio.nl](http://www.smartradio.nl) or e-mail [smartradio@broadcastpartners.nl](mailto:smartradio@broadcastpartners.nl) or check all new online radio stations from VRT at the Studio Brussel and/or MNM App or website [www.radioplus.be](http://www.radioplus.be).



environment remains unchanged with SmartRadio being integrated with it behind the scenes. With this, existing ways of importing new music and jingles which are used for the main radio channels will not be impacted. The new services will benefit from imports, mix-points and now/next on-air information. In addition to this, the existing **Music Master** scheduling software has also been integrated into SmartRadio. All scheduled playlists can be uploaded to the platform very smoothly. Detailed reports such as broadcast reports of course are also available. The ease of use for the program makers is always paramount!



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# State-of-the-Art Audio on an Octal Tube Socket

Also, a fun book by Tommy Edwards about radio, from behind the mic

## WORKBENCH

by John Bisset

Email Workbench tips to [johnpbisset@gmail.com](mailto:johnpbisset@gmail.com)

Henry Engineering founder Hank Landsberg wrote in after reading the Workbench column in the May 13 issue, where we showed the Sparkos "discrete ICs." A number of years ago, Hank built an audio console based on OpAmp Labs plug-in amplifier modules that were popular in the early 1970s. Old-timers may remember them.

Hank's console, pictured in Fig. 1, was actually a smaller version of the boards that he designed and built for Drake-Chenault in 1977. Both designs were built using OpAmp Labs plug-in amplifier modules.

Seen lined up inside the console in Fig. 2 (the cylindrical grey "cans"), these modules were made up of discrete parts, which plugged into an octal tube socket. There were dozens of versions.

Hank's console was a smaller version of the boards that he designed and built for Drake-Chenault in the 1970s.

ideal for anyone who wanted to build their own audio gear: mic preamps, equalizers, mixing consoles, monitor amps, etc.

What made them particularly attractive was the price; they were inexpensive at \$35 each, and convenient. Using the OpAmp Labs plug-in modules eliminated the need to make your own PC boards, and simplified construction of home-brew audio gear. The modules continue to be sold; see [www.opamplabs.com](http://www.opamplabs.com).

Hank reports that after 30 years, the



Fig. 1: Hank Landsberg's console, based on the Opamp Labs amplifier modules.

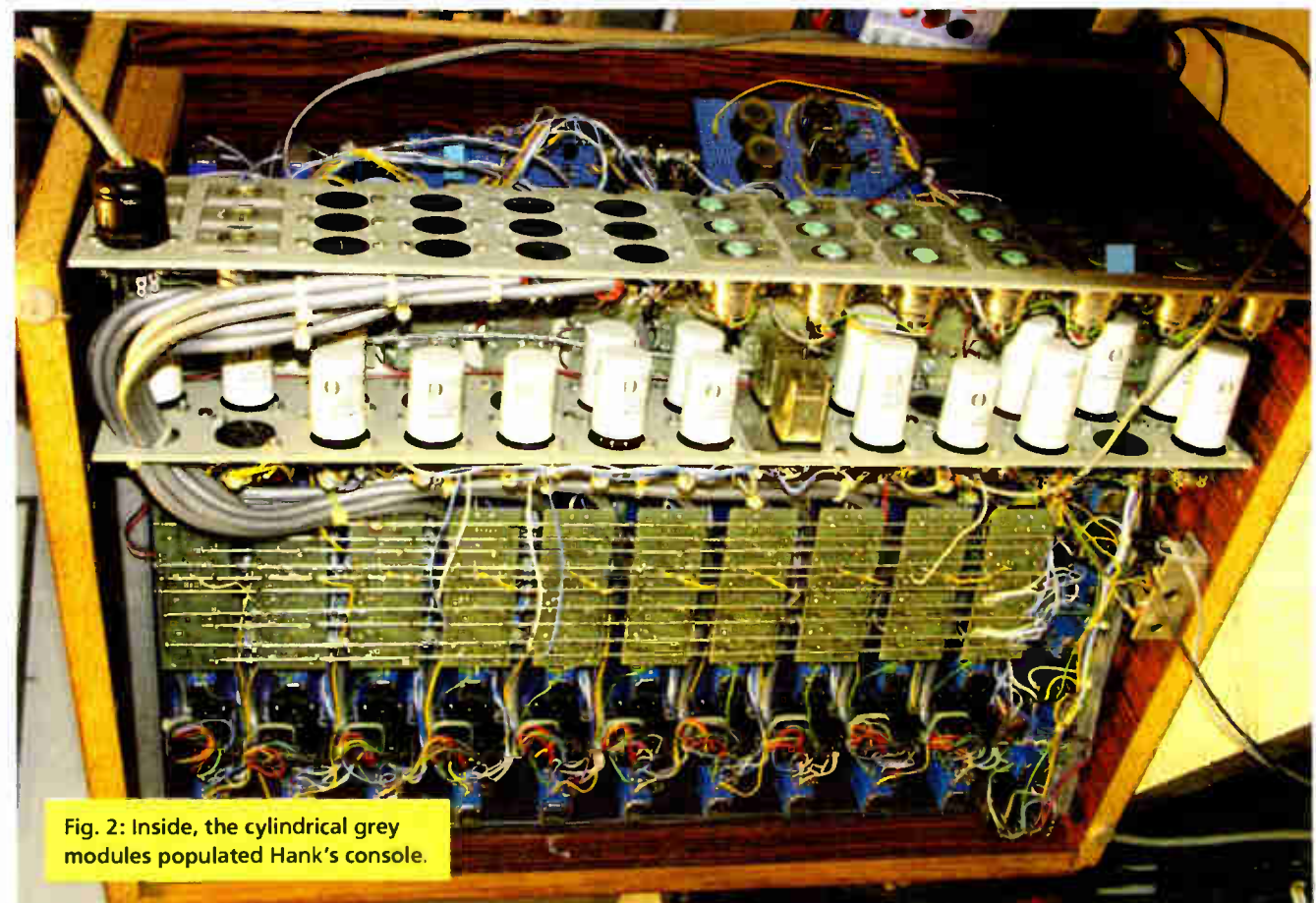


Fig. 2: Inside, the cylindrical grey modules populated Hank's console.



modules in his console started to fail. So he built a "retro-fit" replacement, similar to the Sparkos stuff reported in our 5/13 column. OpAmp Labs has never disclosed what circuitry was actually in their modules, and since they're "potted" and sealed with epoxy, it's impossible to know what components were actually used.

Hank's "retro-fit" amplifier would be compatible with the OpAmp units, so he could replace those with his own circuitry. Since the OpAmp units use the "octal" or eight-pin base, Hank's replacement did too, and is seen compared with the OpAmp Labs module in Fig. 3.

By using surface-mount technology components, Hank was able to put the whole amplifier on a PC board about the size of a postage stamp, and mount that on the top of an octal plug. Hank selected the Texas Instruments OPA1612 dual-opamp IC, and included 15VDC voltage regulators on each PC board.

He rebuilt the console with about 15 of these home-brewed modules. Fig. 4 shows the finished result. With some careful gain-structure engineering, Hank was able to eliminate all of the coupling capacitors in the circuitry, yielding frequency response that is (lit-

*(continued on page 20)*



Fig. 3: A comparison of the two octal socket amplifiers.

# CREATIVE PLANET

— NETWORK —

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## WORKBENCH

(continued from page 19)

erally) flat from DC to about 30 kHz, with very low noise and distortion.

Thanks to the availability of small-quantity PC board production, the cost to produce a few dozen of these modules was relatively low. And Hank is sure they'll be working just fine another 30 years from now!

Want to see what's new at Henry Engineering? Head to Hank's fresh new website at [www.henryeng.com](http://www.henryeng.com).

Like most of us in this business, our career started with a dream, maybe mimicking DJs as you played 45s on your older sister's record player. Perhaps your inquisitiveness lured you into taking things apart — funny how they

never got completely re-assembled!

For me, it was growing up in the Washington, D.C., suburbs and listening to the top 40 powerhouse 1390 WEAM, though I also took things apart that never got reassembled properly.

One of the familiar voices on WEAM was 7-to-midnight jock Tom Edwards. As an early teen, I listened every night while I did my homework, trying to copy the way he talked up every song, never missing the post. I grew up listening to Tom, as did hundreds or thousands of other teens, and not just in Washington. Tom's career took him from D.C. to weekends in New York, then Chicago, Boston and finally L.A.

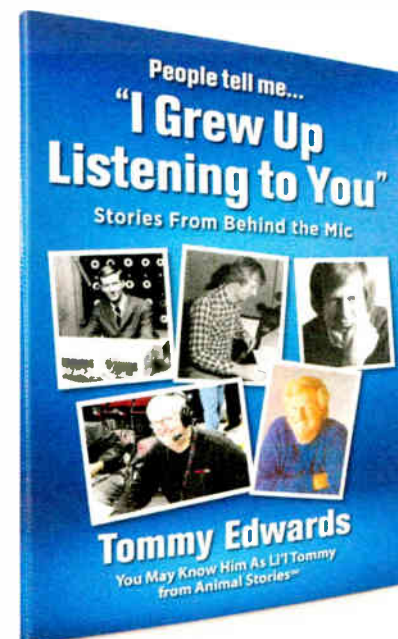
You may recognize him as Tommy Edwards, depending on which market you heard him. As a kid, I met Tom and found a real gentleman, patient and willing to answer a kid's many ques-

tions about radio. Like so many familiar voices, I lost track of him when he left the market.

Imagine my surprise when, nearly 50 years later, I discover that Tommy Edwards has written a book, appropriately titled "I Grew Up Listening to You." The content is fascinating, as Tom lays out his career, complete with behind the scenes stories — like hanging up on top 40 radio programmer Bill Drake. The book is well-written, easy to read and available on Amazon for under \$20. You'll have a hard time putting it down, as you read about many industry greats with whom he interacted over the years. Just enter the title in the Amazon search box, and enjoy.

After reading Tommy's book, I was hankering for some radio like it used to be, and stumbled on [WCFLChicago.com](http://WCFLChicago.com). If you grew up in the 1960s and '70s, this site is for you. Complete with the superlative TM jingles, as well as commercials, promos, and even some of the Chicken Man skits, this site will take you back to Chicago's Voice of Labor — Super 'CFL.

John Bisset has spent over 50 years in the broadcasting industry and is still learning. He handles western U.S.



The new book by Tommy Edwards of stories from behind the mic is a great read for listeners as well as radio folks.

radio sales for the Telos Alliance. He holds CPBE certification with the Society of Broadcast Engineers and is a past recipient of the SBE's Educator of the Year Award.

By using surface-mount technology components, Hank was able to put the whole amplifier on a PC board about the size of a postage stamp.

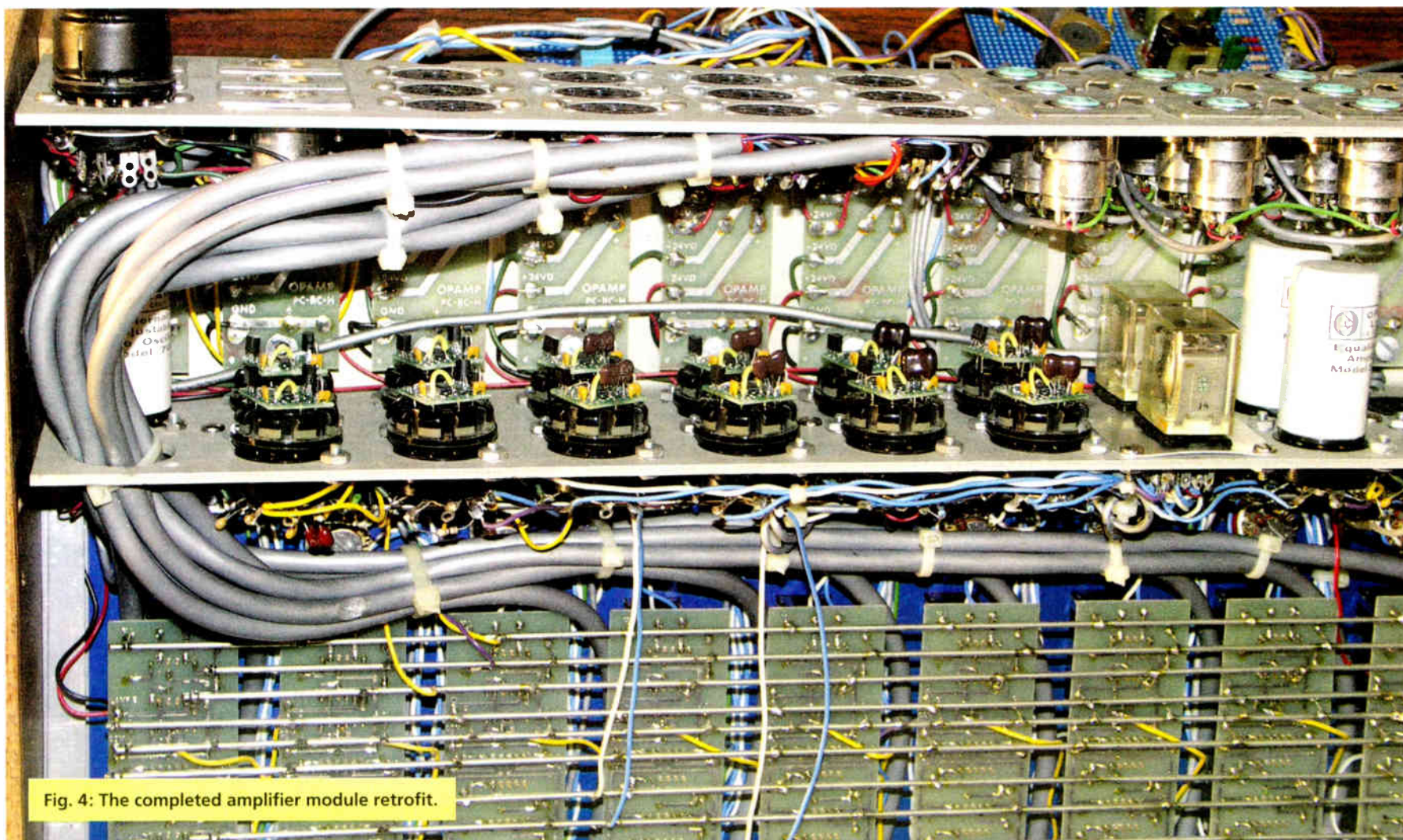
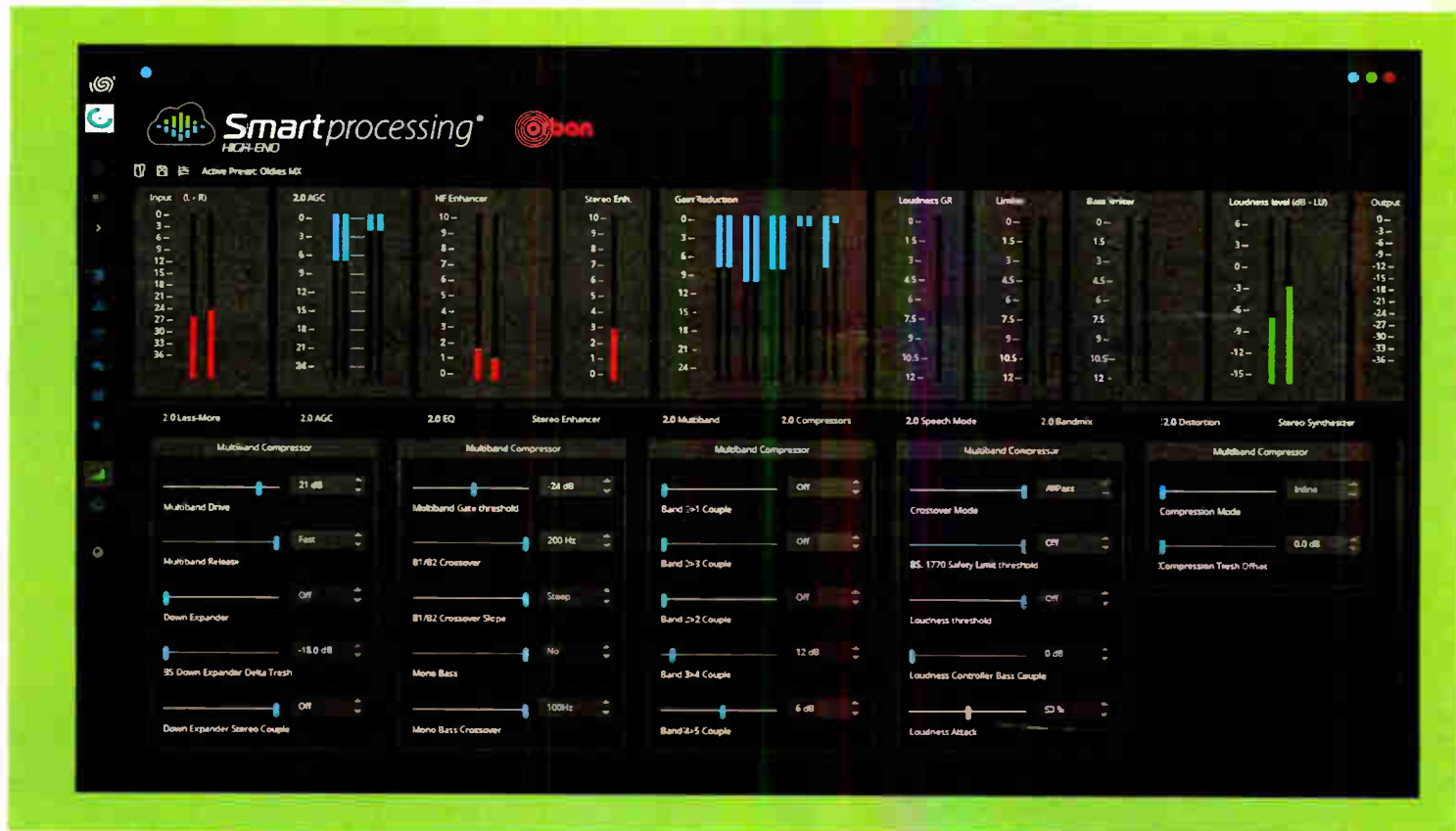


Fig. 4: The completed amplifier module retrofit.

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# BEST OF SHOW AWARDS



Special Edition

## Award Winners Headline 2020 Spring Show Season



Congratulations to the winners of the Special Edition "Best of Show" Award from Radio World, featured here.

The program honors and helps promote outstanding new or recently introduced products and services. A special edition of the awards was created this year in the absence of a physical spring NAB Show.

"Our thanks to the many companies that participated in this year's program under such unusual circumstances," said Paul McLane, managing director of content in Future's B2B media technology group and editor in chief of Radio World. "It's clear from the nominations that despite the current health crisis, technology innovation remains strong in our industry."

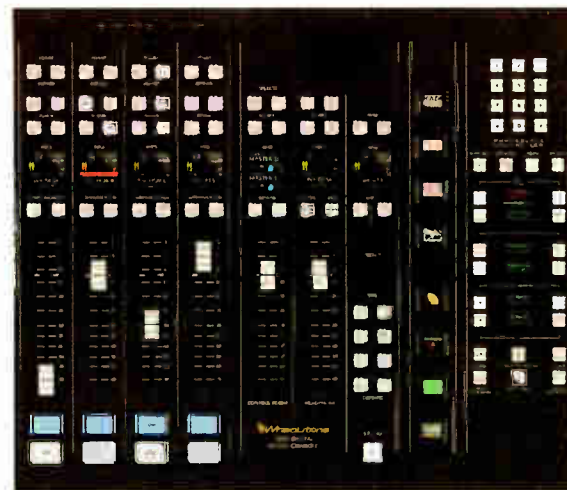
Companies pay a fee to participate; not all entries are chosen. To learn about all the winners as well as all the nominees, read the Program Guide at <https://tinyurl.com/rw-BOS-20>.



## Wheatstone GSX Programmable Console

Here's a new sibling to Wheatstone's flagship LXE control surface, scaled for the modern broadcast studio.

The GSX is a user-configurable 24-channel surface with soft switches and controls. Like the LXE, this surface for the WheatNet-IP audio network features the ConsoleBuilder UI for programming the hardware surface; any knob, button or fader can be assigned one or several



of more than 25 functions. Wheatstone's ScreenBuilder UI is used for creating custom touchscreens using simple drag-and-drop objects and scripting wizard.

Features also include tap-through graphic menus for setting parameters, triggering presets, storing snapshots of events, and monitoring signals; on-board OLED displays, scriptable to show EQ overview, levels, dynamic performance and a variety of information; and optional Remote GSX client software that can be set up on a laptop or desktop at home or elsewhere to mirror and remotely control the GSX physical console at the station facility.

The GSX integrates with the WheatNet-IP Blade 4 audio network, an AES67-compatible network system that Wheatstone says offers end-to-end audio transport, logic control and an audio toolkit at every I/O point in the network to enable intelligent deployment and operation.

Info: <https://wheatstone.com/gsx>

## Angry Audio Bluetooth Audio Gadget

Products that help you get audio on the air from anywhere are the stars of the season, for obvious reasons. This is a professional bidirectional audio interface that makes it easy to put a smartphone on the air.

"Just pair your phone, and the Bluetooth Audio Gadget automatically negotiates the optimal codec algorithm (usually APT-X for Android, AAC for iPhone)," the company says. "Balanced audio I/O connects the Gadget to your console. The sound quality is amazing. And the Bluetooth Audio Gadget is bidirectional, so you can even send mix-minus to your caller."

Applications include playing recorded audio, voice clips and music; using a SIP client as a codec, and putting callers on the air. As the company says: "So much better than taping your phone to the mic."

Features include steel enclosure, internal AC power supply and gold-plated audio connectors and switch contacts. It can be placed on a desktop or mounted with the available rackmount kit.

Info: <https://angryaudio.com/bluetoothgadget/>



## Digigram IQOYA Connect codec manager

Digigram calls this "a SIP infrastructure and a web application to be always in control." It is a remote broadcasting preparation tool intended to simplify broadcaster's life.

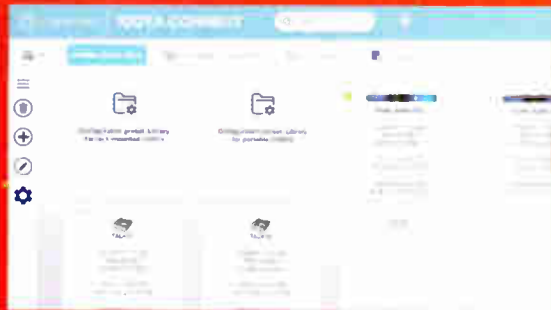
"Journalists today are expected to be quick and focused on conveying the story, but also operate complex portable codecs while on the field," it states. "The technicians, on the other hand, are expected to ensure all systems work well even if they are not on the field. IQOYA Connect is just the perfect link between the journalist on the field and the technician at the radio station."

The SIP infrastructure enables secure and simple communications between multiple codecs. It comes with a suite of web-based monitoring, controlling and managing tools that the broadcaster can subscribe to, for additional functionalities while operating a fleet of codecs.

A technician can remotely access and take control over an on-field codec from the studio and make any changes to the settings, so journalists don't need to. In the field, the connection to the station involves no configuration.

Connect is interoperable with non-Digigram codecs. "Persistent testing and quality monitoring has enabled us to create a SIP infrastructure that seamlessly interacts with all major remote and distribution codecs available in the market today."

Info: <https://tinyurl.com/digigram-connect>



## DEVA Broadcast DB4005

The DB4005 is DEVA Broadcast's latest digital FM radio modulation analyzer and receiver, the third generation in the family line.

"Upon demodulation of the FM signal, the RF signal is digitalized by the SDR FM tuner and all signal processing is achieved through sophisticated DSP algorithms," the company says. "The high precision of the powerful digital filters used in this equipment enables the FM signal to be accurately and repeatedly analyzed with each device."

Its MPX input is notable; it allows the user to monitor external composite signals, regardless of whether they are from a composite STL receiver/stereo FM encoder or from an off-air source.

"As this is a tool of great processing power, it provides detailed readings of all the multiplex FM signal components, while all measurements are refreshed simultaneously and synchronously."

DEVA also points to the unit's Loudness Meter, which allows for measurements to be shown as defined by ITU BS.1770-4 and EBU R128 recommendations.

Features include a high-resolution OLED graphical display and very bright bargraph LED 60 segment indicators that allow reading the main signal parameters easily.

Info: <http://www.devabroadcast.com/db4005>



## ENCO Systems WebDAD Mobile Radio Automation

WebDAD is a browser-based remote automation control system. The company says it's particularly relevant in these days of work-from-home and a challenging economic environment.

It provides cloud-based operation through an updated HTML5-enabled user interface. The addition of ENCO's Presenter On-Air interface makes it more powerful. The latest version offers voice tracking enhancements including FastTRAK one-button voice track creation and insertion feature; this was previously available in the local DAD interface but is new to WebDAD.

ENCO highlights WebDAD for its "Studio in the Cloud" capabilities its control and playout capabilities for on-air presentation, playlist manipulation, voice tracking, and other workflow tasks.

Info: <https://www.enco.com/products/webdad-encloud>

## Nautel LookingGlass

This is a specialized tool to monitor, record and analyze up to 30 discrete analog FM broadcast signals simultaneously. Nautel acquired it earlier this year from Modulation Arts, where it was developed by Leif Claesson and Alex Hartman.

Nautel says you can verify that your stations are transmitting what you think they are, capture data for affidavits, keep an eye on your local competition, and a lot more. "This one unit does what would otherwise take a hefty budget and a lot more rack space and expertise to achieve."

Features include an oscilloscope, baseband scope, injection and modulation levels, power monitor, loudness monitor, RDS data logger, HD presence, LKFS metering, RF recorder, and real-time audio analysis. It uses wideband SDR technology and captures 25 MHz of spectrum at 12-bit depth.

It has large touchscreen panel, 13 TB of storage and software that enables remote access software from anywhere including streamed RF, locally decoded so you can listen to your station live.

Info: <https://www.nautel.com/lookingglass/>



# Radio Méga Creatively Connects With Listeners

Community station in France runs radio studio on an electric tricycle

BY FRANCK ERNOULD

**VALENCE, FRANCE** — Radio Méga has been broadcasting from a fully functional, autonomous mobile radio studio since June 2019. Hosting three people plus a driver, the studio is equipped with a Focal PA system, a Digigram Iqoya Talk IP 4G codec and an iPad to play effects and other sound clips.

Radio Méga is a community radio station based in Southern France. Since its establishment in 1981, its goal has been to “create links with listeners, wherever they are.” The station has a main studio in Valence, which features an Axia IQ audio console and WinMedia automation software Version 2.18. It also has a secondary studio in Romans-sur-Isère about 20 miles away, as well as a host of gear for mobile broadcasts.

## TRICYCLE STUDIO

The “tricycle studio” idea came from Raphaël Terribilé, a former schoolteacher working at Radio Méga since 2003. He now has his own show, “Rock à la Casbah,” and is one of the five Radio

Méga employees. The station also has 80 volunteers.

“We have always gone out to meet our listeners around Valence,” explains Terribilé. “We are generally hosted in office and state buildings such as city halls. But we noticed that many people didn’t dare come up to talk with us. So I had to find a way to eliminate this distance and encourage our audience to meet us.”

Instead of equipping a van or a caravan as a radio facility, Terribilé decided to use a three-wheel electric cycle to host the studio. The structure is designed to support the weight of the passengers and technical equipment.

“The ‘fun’ factor is huge and people are curious — our studio is really open to the world, there’s no obstacle, and listeners are not afraid to meet us anymore,” he added. “Sometimes, I drive right in the middle of the road, disturbing car or truck drivers, but they rarely honk at me. I usually get a thumbs up! Moreover, this mobile approach is fully environment-friendly.”

Radio Méga always prefers, when



Radio Méga’s tricycle studio can be used on a public square to meet listeners more easily.





possible, to deal with local suppliers. The Urban Arrow Tender 1500 three-wheel electric tricycle is a Dutch model that is 10 feet long and 4 feet wide, weighs about 500 pounds and has a range of 25 miles. It's fitted with a wooden structure purpose-built at Lycée Amblard, a Valence vocational high school.

"Assisted by Mr. Gallot, the wood crafts teacher, and Ms. Lombard, the applied arts teacher, first-year students designed and built the box, engraved with Radio Méga logos. They stepped up to the challenge and pushed the project further than the first drawings we gave them to explain our concept." The total cost was more than €20,000 (US\$21,622).

#### TECHNICAL SETUP

The wooden structure, which hosts three announcers, has gooseneck microphones and four speakers from French company Focal. It also features a Digigram Iqoya Talk IP codec/mixer. Sounds are triggered from an iPad mounted on a special support. The students successfully resolved all issues, including weight and cable-run problems.

Radio Méga acted as a beta tester for the Digigram Iqoya Talk IP 4G codec. "The company was about to release it, and they lent us a unit, to get our input — we asked them for modifications on the mic preamps, for example. We were even able to use it in harsh conditions."



Radio Méga's tricycle studio can also be used inside a building, like here in a museum — as long as the entrance doors are high and wide enough.

**We noticed that many people didn't dare come up to talk with us. So I had to find a way to eliminate this distance and encourage our audience to meet us.**

— *Raphael Terrible*

he said. "In the Sénégal desert, for example, for an operation we had there. The system works fine: we use it with two different SIM cards simultaneously, as double streaming, for redundancy. It also automatically switches when a problem appears, and total latency is usually less than 60 ms."

The three-wheeler uses a camping/car battery to power the amplifiers; the Iqoya Talk has its own batteries (two of them, plus a third one, for spare, they are hot-swappable). In addition, there is a lockable wooden trunk above the right wheel arch, to put headphones, microphones and cables in when they are not in use. The Iqoya Talk codec and the iPad have their own briefcase.

Built from January to June 2019, the tricycle/studio was inaugurated on June 23, for the "Hors les murs" show ("Outside the Walls"). It then was presented to the Nantes Festival de l'Info

Locale, and was seen (and heard) on the Drôme roads at least once a week during the summer and the fall. The station has also used the mobile studio in the winter, for example during the "Jazz sur le Grill 2020" festival; even if it's harder to manage the broadcasts with the cold and rain.

#### ATTENTION

The Radio Méga three-wheeler was on show during the Salon de la Radio event in Paris last January, and attracted a lot of attention, including that of CSA President Roch Olivier-Maistre.

"We mainly use the studio outside, but we can also get into specific places if needed," said Terrible. "Sometimes, entrance doors are not high enough, and once at a museum, for instance, I had to deflate the tires to get the tricycle into the venue."

People now expect Radio Méga to come to them with the three-wheel-



A Radio Méga project in Sénégal offered the station a chance to test the new Digigram Iqoya Talk IP 4G codec.

er, even for a "simple" interview. A major project took place during four weeks in May last year. This was the first "Traversée de la Drôme à vélo" ("Crossing the Drôme With a Bike").

In collaboration with regional and national education organizations, Radio Méga trained a total of 500 middle school students as radio journalists. As part of the project, they were required to prepare and host their shows on-air, to interview

people in villages, dealing with cultural aspects, patrimony or local initiatives.

Radio Méga then aired the shows and also made them available as podcasts. They also taught the students how to build a related multimedia website with text and pictures. Some pupils even created short videos about the crossing. All this is perfectly in line with Radio Méga's philosophy: To be close to its listeners in a spirit of sharing and openness.

# On-Air Solutions During Coronavirus Quarantine

To paraphrase the old Memorex commercial:  
Is it studio or is it home?

## FROM THE FIELD

BY CHRIS WYGAL

In late February and early March of 2020, COVID-19 had crept across the globe and eventually became a threat to the U.S. At the onset it was a far-fetched consideration, but the management at the six-station Summit Media Corp. cluster in Richmond, Va., began to consider the possibility of requiring employees to work from home.

By March 24, however, Virginia's governor declared the state closed. On-air staff received credentials from the Virginia Department of Emergency Management declaring them "essential personnel" and could travel to and from work. The fact remained, however, that social distancing was the key to slowing the COVID-19 spread, so Summit Media Richmond acted quickly to ensure the on-air staff could remain on the air, but from the safety of their homes.

### TINY COMPUTERS

Logistics was the key, as it would be in any unique strategic scenario. Summit Richmond uses WideOrbit Automation for Radio. Included in the WideOrbit suite is Distant City Voice Tracker. Its look and feel harken back to the Scott Studios era. We had just begun using DCVT for cross-market voice tracking and it had proven itself to be a good solution. What hadn't been proven was the notion of on-air staff using DCVT at home.

I wasn't excited about cobbling together mic processors, sound cards and PCs for the staff to carry home with them. Plus, most folks don't have acoustically stringent designs in their homes to accommodate voice record-

ing. The actual connection for DCVT to work from outside the Summit IP LAN architecture could easily be handled by VPN. However, there were six DJs who needed to do their dayparts at home and there were still more hurdles to jump.

It just so happens that we weren't quite finished with the most recent desktop PC life cycle management. In late 2019, Brett Glover, our Birmingham, Ala.-based director of IT, sent us a batch of Dell Optiplex 5060 Micro desktops. The computers themselves are 1.5 x 7 x 7 inches. They're unimaginably small



### Learn More

This article is part of our ongoing coverage of how radio has been adapting to changing situations at radio stations in the wake of the coronavirus. To see more on how others have approached this challenge, check out the May ebook "Broadcasting From Home Around the World" and our recent four-part webcast series on the same topic. Find them at under the Resources tab at [radioworld.com](http://radioworld.com).



WKHK evening host Jason Paige uses his favorite Neumann TLM103 microphone and a Steinberg UR22C for voice tracking duties from his ham radio shack at his home.

The dens, bedrooms, home offices and walk-in closets that our staff converted into voice-tracking studios are little short of miraculous.

and even with KVM considerations, these computers can be easily moved around. No aftermarket sound cards can

be installed, but we would have had the same dilemma with laptops.

I had a fair amount of experience



with Steinberg products. They make a series of USB I/O devices that are not only physically bulletproof in their construction, but they are also packed with Yamaha-powered DSP effects and processing. Plus, the Class-D microphone preamps on the “UR” product series are excellent.

It occurred to me that the Steinberg UR22C was an all-in-one solution. It is just a bit smaller than the Dell 5060 Micro PC and only weighs two pounds. It has two mic inputs and the Yamaha DSP effects provide an in-the-box solution for mic processing (which, as it turns out, actually sounds as clean as the \$1,000 mic preamps in the studios). Plus the UR22C has a headphone jack for monitoring, and it is powered by the 5 VDC USB voltage from the PC. All in all, I couldn't have found a better use for the UR22C. No extra power cords, and even better, no hauling mic processors and headphone amps! It's all in a box the size of a big sandwich.

**The technology and work practices we have put in place have proven themselves beyond our expectations.**

In addition, we had several Electro-Voice RE20s lying around, so microphone availability wasn't an issue. All the air talent had to do was turn on the PC, log in to VPN, launch WideOrbit's Distant City Voice Tracker and they were set. DCVT easily recognized the USB audio source. No problems there.

**SUPER SOUND**

As mentioned, the nitty-gritty caveat of sending our air talent into a world of potentially endless acoustic environments gave me heartburn.

As it turns out, the dens, bedrooms, home offices and even walk-in closets that our staff converted into voice-tracking studios are little short of miraculous. They all sound essentially perfect. I've even asked a few of them, "Did you track in the studios today?" I honestly can't tell the difference.

Additionally, while at home the air talent can still access most of the accoutrements of the studios. Show prep services are, of course, available online. Plus they're able to remote into the automation systems, music and traf-



Grouped in WKHK(FM) midday host Lori Kelly's temporary COVID-19 socially distant studio are a Steinberg UR22C interface, the well-known EV RE320 microphone and WideOrbit's Distant City Voice Tracking software. It operates near a bedroom window.

fic schedulers and production software. It has been a mostly seamless process, and there are some production and live call-in resources that we are still considering.

Except for the Steinberg UR22C, at Summit Media Richmond we essentially had all the tools in place for this emergency-style of remote broadcasting. In less than a week, the system was in place to send all our full-time on-air staff home until COVID-19 passed. Even though this pandemic is a stress

on generally everyone, if there is a silver lining, it has forced us to be creative and further prepared to keep folks safe and on the air.

We began deploying our on-air staff for voice tracking at home at the end of March, not having any idea how long the scenario would be in place. As of early June we still didn't know. We've heard it could be days, weeks or months. Nevertheless, the technology and work practices we have put in place have proven themselves beyond our expecta-

tions. This is brought to light by the lack of support phone calls these days. When I hear the air talent on the air, it serves as verification that things are clicking along quite nicely.

COVID-19 has forced us to be creative and I'm curious to see how all this creativity will change the landscape of our workflows in the future.

*The author is a longtime contributor. Got a story to share about how your station responded to the crisis? Email radioworld@futurenet.com.*

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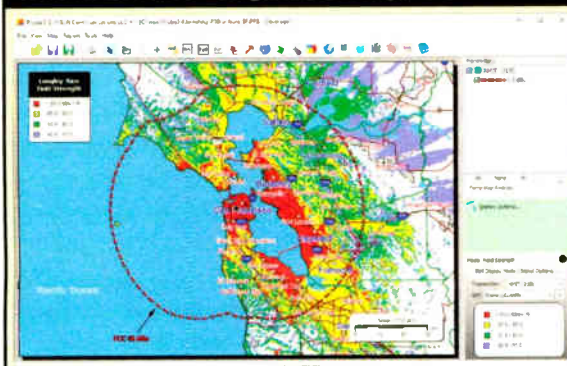
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# College Radio Moves Beyond the Shock

Station supervisors develop solutions to keep their operations functioning

## COMMENTARY

BY ROB QUICKE

*The author is founder, College Radio Foundation and College Radio Day, and a professor at William Paterson University, New Jersey.*

Right now, most college radio stations studios are empty. The music director's office is silent. The newsrooms are shut down, and the lounge area has empty sofas and chairs, with things left out on desks and tables, such as open magazines with half-read articles, unchecked lists of tasks that needed to be completed before spring break, and schedules for shows that will now never take place.

It's like stumbling onto the Mary Celeste, a place that has been hastily abandoned on short notice. The students, who are now on the long, summer break, never came back to finish their work at the radio station.

### UNCERTAINTY

"Our students were on spring break when the world began to shut down. Their belongings were still on campus, and the uncertainty of what was next was definitely a huge factor on their anxiety levels," said Anabella Poland, general manager at WMSC, Montclair State University in New Jersey.

"As information began to trickle down from authorities, there was a shift to first sadness, grieving their loss of community, loss of togetherness, and for some, the loss of their last semester on campus and all the celebratory activities this semester would bring." For many involved in college radio, the shutdown was a massive blow.

For example, at the radio station that I manage, WPSC — Brave New Radio at William Paterson University in New Jersey, we had to cancel all our planned major events for the rest of this academic year. No more Braveathon, no annual Alumni Weekend (devastating for the alumni who love coming back), and no game coverage for our sports crew that lives and breathes competitive sports.

But there is hope, a resistance to the circumstances that the students now find themselves in.

Many students involved with college radio have quickly adapted and are finding new ways to create radio and find a way to communicate that to their audiences. Even though the spring semester is now over and the summer is here, it's heartening to witness their passion com-



WMSC's Anabella Poland creating programming from home.

bined with sheer ingenuity, to create and share content that provides information and comfort to a listening audience.

That's true at WMSC, whose staff went from a period of mourning their losses to switching "to strength and sheer determination, to not let this time define us, and to explore the available options to continue to service our community," said Poland.

The students quickly committed to continuing their meetings and creating content. "While emotions do vary day-to-day, based on news headlines and on each student's individual circumstances, the group's morale when they come together in virtual meetings and shows is good." Poland shared, "I am not a psychologist, but I always begin my meetings asking how everybody is doing. I validate their shared feelings."

### RESILIENCY

At Neumann University in Pennsylvania, close to Philadelphia, resiliency is a way of life. Director of Neumann Media Sean McDonald has been very busy.

"Morale at my station (WNUW) has progressively gotten better," he says. After the sudden shock of the situation, "The initial response was dead air. Nobody wanted to do anything," said McDonald. But now the students are back to creating content.

"Because of my background in broadcast engineering, I quickly go into problem-solving mode," and so right now, "WNUW is fully operational, even though I am the only person legally allowed into the station. I took home a bunch of equipment and created my own remote studio/master control, and have complete control of our TV and radio studios. My students are doing both

Comrex units to get on the air. Like I said, having a broadcast engineering background certainly comes in handy during a pandemic!"

Poland is also using similar strategies and technologies to keep WMSC on the air.

"We began broadcasting via Zoom on FB Live and uploading the shows to YouTube and SoundCloud, and then our chief engineer procured the necessary software to remote us into the station. Now we do our morning show live Monday through Friday. We also host two other news shows live. As we get more comfortable with this new modus operandi, we are adding prerecorded shows to our RCS NexGen lineup."

### MUTUAL SUPPORT

Poland and McDonald have been working together to develop a project called the College Radio News Network (CRNN), which was conceived by Poland a while ago and was already being used to share content and programming for celebratory occasions such as the annual College Radio Day and Vinylthon events.

But the current situation now offers a perfect scenario for people to collaborate and share material that would help stations in this difficult time. The CRNN could be a vital tool for college radio stations during this time of social distancing, allowing students from college stations across the world to connect, share content, and participate in each other's broadcasts.

So, looking to improve the process, Poland reached out to McDonald at Neumann University, to create a space that would allow for easy content sharing.

"In order to keep the CRNN free to

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use and access, I had to find a way for stations to be able to contribute content that would not take too much time — I was looking for a way for people to easily upload and download content. Sean's extensive technological background was vital to creating that space," said Poland.

McDonald was able to set up a space on a secure server at his university and was happy to help Poland take her idea to the next level.

"The College Radio Network is the baby of Anabella Poland. We all have different perspectives, coming from all over the country. The idea of the website is to share copyright-free material created by college radio, for college radio," McDonald said.

"Newscasts are how this started, but we're also looking to share coronavirus content in various forms. From interviews with front-line workers, to diaries of how you're feeling, to play-by-play of your mother in the kitchen making pancakes (true story), we want to give content to stations to share and to be the voice of the pandemic. There's no obligation or pressure, just another resource to use during this strange time in our world."

Other initiatives are also taking place, such as the College Coronavirus Coverage Awards, organized by four major journalism organizations — The Society of Professional Journalists, the Associated Collegiate Press, the Society for News Design, and College Broadcasters Inc. — which have joined forces to recognize college journalists who are "admirably covering a pandemic for little or no money while struggling with online classes." The awards invite content from students "about COVID-19 that informed your audience of students, faculty, staff, administration, and alumni," according to the website.

All these developments and initiatives are evidence that this difficult time can be met with responses of ingenuity and determination to connect with others.

"Bringing my studio to my house has made me excited to go to work, and excited to problem solve," said McDonald. He added, "Right now I'm loving what I'm doing and I'm making the best of it."

There is the belief that college radio should not be silent during this time. As Poland says, for her students, "There is a sense of urgency and duty to be on the front lines covering a historic moment, and to not allow the virus to take that from them." There is also a realization that this experience has given them an opportunity to explore how they create radio; in ways they might never have before. These lessons may stay with them, even when they are no longer experiencing the disruption of COVID-19.

So, perhaps something good can come from a bleak moment in time, and college radio can step up and help fill the silence.

## No-cost Targeted Programming Is a Win-Win

Content available at little or no cost is a boon as radio searches for solutions to its challenges

### COMMENTARY

BY DAN SWEENEY

AM/FM, low-power and internet radio stations increasingly are turning to an abundance of very good, no-cost, targeted programming to add "personality" to their format mix — including doo-wop, oldies, classic hits, variety and specialty. Passionate radio vets, former media execs, professors and retired enthusiasts all participate in creating fresh, new content as a "labor of love."

"Not only has it been fun to promote, it's created new and very loyal listeners," says Zeb Navaro, general manager of KKSM(AM) in Oceanside, Calif.

Unlike podcasts, these shows are built specifically for over-the-air and internet linear radio operations that need to allow for IDs, commercials and local news break. Most syndicators have invested in jingles, logos, websites and content. New professionally built shows are distributed weekly.

For example, my show, "Dan Sweeney's One Hit Wonders," which recaps "one and done" music from 1955 through 2015, is distributed to about 60 stations in the United States, Canada, U.K., Germany and New Zealand. The 55-minute shows are free to air for affiliates, and I reserve two minutes for underwriting.

This niche program complements other syndicated shows and is frequently packaged into program blocks adjacent to local market content and random music segments.

KKSM is licensed to the Palomar Community College District; it broadcasts on 1320 kHz and is located in the San Diego DMA. KKSM packages a "Super Saturday" lineup that includes my show along with "That Thing With Rich Appel," a classic Boss Radio format, on approximately 100 stations; Larry Kratka's "Nothin' But Old 45s," telling back stories of old 45s, available on 40 stations; and Craig Orndorff's "Seems Like Old Times," featuring music from the 1940s through the 1960s, on almost 40 stations.

The lineup has increased stream numbers by 200% over the same period before the package was created and promoted. Navaro says, "No other station in the San Diego market is offering this programming."



Mike Putnam, general manager of WMNB(LP) in North Adams, Mass., part of the Albany, N.Y., DMA, serves the listening area with extensive local/regional politics, talk shows and news. His variety format also includes several nationally syndicated shows that help build audiences and keeps them tuned in between the local content.

Asked why he carries the shows, Mike said, "The shows are entertaining, there is no cost to run them and I receive significant positive feedback from listeners. It's unique programming with personality versus just music. Anyone can use Spotify for that."

WQFB, Surf 97.3 FM, an LPFM in the Daytona Beach DMA, has long embraced "no-cost" nationally syndicated programs as a way to keep expenses low and complement local programming. Vern Shank, the general manager, said most of the staff is made up of volunteers and that WQFB carries a fair amount of free syndicated programs with personality that complement its local shows.

Clear Communications WVLT(FM) Crusin' 92.1 in Vineland, N.J., near Philadelphia added several free nationally syndicated shows as local DJs were confined at home because of COVID-19. Some may remain after the pandemic passes.

The balancing act between cost-cutting to protect an ever-shrinking financial margin and keeping listeners has intensified. Local radio content is still king. No-cost nationally syndicated programming goes a long way to reinforcing the needed personality of a station. If the syndicators can afford to produce and distribute quality content using creative

### PROGRAM SAMPLER

Here's a selection of professionally produced syndicated shows worth considering, all at little or no cost:

**Dan Sweeney's One Hit Wonders**  
<https://www.onehitwondersds.com/>

**That Thing with Rich Appel**  
<https://www.thatthingshow.com/>

**Nothing But Old 45s, Larry Kratka**  
<https://ka1okh1986.wixsite.com/nothingbutold45s>

**UK USA Rock n Soul Connection**  
<http://ukusarocknsoulconnection.com/>

**Seems Like Old Times**  
<http://www.oldtimesradio.com/>

**Ken Michaels, "Every Little Thing"**  
<http://kenmichaelsradio.com/every-little-thing.html>

**Bart Shore's Time Warp Radio**  
<http://bartshore.libsyn.com/>

**Greatest Hits USA**  
<http://greatesthitsusa.com/>

**Dennis Mitchell's Breakfast With the Beatles**  
<http://www.beatlesradioshow.com/>

**Rockabilly N Blues Hour with James Riley**  
<http://rockabillynblues.blogspot.com/>

**Music Expert Retro Countdown**  
<https://www.facebook.com/MusicExpertRetroCountdown/>

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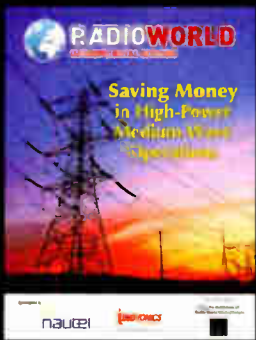
**Pat Gwinn at the Beach**  
<https://patgwinnatthebeach.com/>

**The IceMan Radio Show**  
<http://www.theiceman.net/>

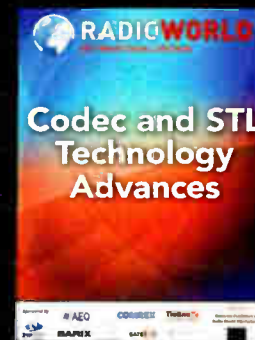
monetary strategies including underwriting, merchandising and bartering, this could be a "win-win" strategy for stations and syndicators.

*The author says "Dan Sweeney's One Hit Wonders" features unique stories about some 2,300 one-hit wonders, artists and songs including "where are they now" updates. The show was chosen "Best Community Volunteer Program" by the Intercollegiate Broadcast System in March. For info email djsweeney.ds@gmail.com.*

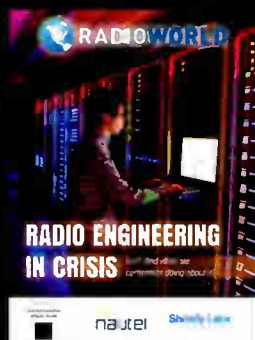
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