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Running Radio Today

How do today's technologies advance radio's business goals?

Paul McLane
Editor in chief

If you aren't already watching our new webcast series "Running Radio Today: Produce, Deliver, Profit," hop online and join us.

OK, I admit it's not "Bridgerton," but I think you'll find it worth the watch.

The free series is intended to help managers and engineers get a better grasp on technologies that can advance their organization's goals.

It will have three one-hour parts, one per month, each focused on a different part of the radio broadcast business mission and workflow.

Each part features presentations from leading technology sponsors, plus a roundtable discussion with me and a co-host from the broadcast engineering community.

The first of the series, "Produce," streamed in March and is available on demand. It focuses on trends and tools for how radio content is created.

Discussing those questions with me were technology experts from sponsors Telos Alliance, RCS and Comrex. My co-host was Jason Ornellas, regional director of engineering for Bonneville International and past recipient of the Radio World Excellence in Engineering Award.

The second webcast, on April 14, "Deliver," is about how distribution of content is changing. What should radio managers know about advances in transmission, codecs, streaming and other technologies that deliver your content to the listener? Is your station up to date?

Joining us for this are experts from sponsors Synthax/Digigram, Xperi, Wheatstone and Comrex. My co-host is Rob Bertrand, chief technology officer of leading public radio outlet WAMU in Washington.

And the third webcast on May 18, "Profit," will focus on monetization and the use of technology that helps generate revenue for radio. We'll find out how modern tech has infiltrated the ledgers and is improving the bottom line from companies including Marketron. My co-host is Emily Lindner, president of TruNorth Consulting Inc.

You can access Part 1 at *https://tinyurl.com/rw-running-1*. For subsequent parts, go to *radioworld.com*, click Resources and scroll to Webinars.

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Performance Royalty Debate Heats Up

The NAB in March asked U.S. stations to run ads against the American Music Fairness Act, which would impose a performance royalty on broadcast radio.

"NAB anticipates the House Judiciary Committee, chaired by longtime performance tax proponent Jerry Nadler, to consider and most likely pass this bill out of committee in the coming weeks," it said.

NAB nevertheless has said it believes congressional opposition "is extremely strong."

President/CEO Curtis LeGeyt was among those addressing the House Judiciary Committee earlier this year. He said NAB welcomes a chance to "work on meaningful solutions to this issue. However, the record labels seem singularly focused on pushing Congress to act on a performance royalty bill that would radically upend one of their greatest promotional tools."

Royalty advocates believe stations should not be exempt and that creators should decide what constitutes beneficial promotion of their work.

The legislation includes a provision to limit the cost to small broadcasters for playing music to $500. Qualified public, college and noncommercial stations would pay $100.

Later in March, the musicFirst Coalition urged the FCC not to ease radio ownership limits as it conducts its quadrennial rule review.

Mawardibahar/Getty Images

It said the FCC should disregard NAB's arguments that broadcasters' loss of audience share and online platforms' refusal to provide adequate compensation justify easing. It accused NAB of hypocrisy for saying that technological changes and COVID justify loosening ownership caps.

"Recording artists operate in the same, radically changed marketplace ... Those changes, as well as the shuttering of live venues during the pandemic, similarly increase the need to revisit the lack of a broadcast radio performance right in sound recordings."

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NAB honors Ashruf El-Dinary

His work on HD Radio has helped it become an accepted part of the radio landscape

Writer
Randy J. Stine
Radio World's lead news contributor is a veteran broadcast radio journalist.

Jumping from spacecraft engineering to broadcast technology might seem like a quantum leap (if by quantum we mean "dramatic" rather than "tiny"). For Ashruf El-Dinary it started with a six-month contract to write software but led to a career in radio of 24 years, and counting.

The senior vice president of digital platforms at Xperi Corp. oversees its HD Radio systems engineering teams, manages the certification and quality control processes, and represents HD Radio technology standards in discussions at the International Telecommunications Union and international regulatory bodies. He leads Xperi's efforts for new broadcast applications, upgrades to emergency alerting and deployment of digital radio solutions internationally.

But prior to his tenure in broadcasting, he worked at the Johns Hopkins University Applied Physics Laboratory, where he developed scientific instrumentation in support of space research programs. He also taught signal processing courses at the university's Whiting School of Engineering night school.

So, he's got some smarts.

El-Dinary is the 2022 recipient of the NAB Radio Engineering Achievement Award.

Recent honorees include Dave Hershberger, Jeff Welton and Gary Cavell. New NAB President/CEO Curtis LeGeyt will present the Radio and Television Engineering Achievement Awards at the NAB Show in Las Vegas. This year's television recipient is Peter Sockett, director of engineering and operations for Capital Broadcasting Company's TV stations.

At the NAB Show
Established in 1959, NAB's Radio and Television Engineering Achievement Awards are given to individuals nominated by their peers for significant contributions to advancing broadcast engineering.

World Radio History

Honor Roll

Recipients of the NAB Engineering Achievement Award are listed. Beginning in 1991, radio and TV winners were named; only radio winners are shown for those years.

1959 John T. Wilner

1960 T.A.M. Craven

1961 Raymond F. Guy

1962 Ralph N. Harmon

1963 Dr. George R. Town

1964 John H. DeWitt Jr.

1965 Edward W. Allen Jr.

1966 Carl J. Meyers

1967 Robert M. Morris

1968 Howard A. Chinn

1969 Jarrett L. Hathaway

1970 Philip Whitney

1971 Benjamin Wolfe

1972 John M. Sherman

1973 A. James Ebel

1974 Joseph B. Epperson

1975 John D. Silva

1976 Dr. Frank G. Kear

1977 Daniel H. Smith

1978 John A. Moseley

Rocket science

El-Dinary, 54, was born in Cairo, Egypt, and moved with his family to the United States in the early 1970s; he grew up in the Chicago area. Early interests included math, science and a propensity to try to fix things.

"I recall my dad giving me a cassette tape of a Beatles album, and it sounded funny. Well, in the manufacturing process, the tape had been wound backwards. Realizing this I disassembled the tape and rewound the tape. It took some patience," El-Dinary said with a chuckle. "I was all about troubleshooting and figuring out how things worked as a 10-year-old."

In high school El-Dinary often listened to shortwave radio and recalls being curious about broadcast radio and how it worked. He also dreamed of working on some cool technology or even a career in teaching. Astronomy and archeology were other childhood interests.

El-Dinary stayed in the Midwest to attend Purdue University and earn a degree in electrical engineering. A masters degree from Johns Hopkins University followed, with a concentration in communications and signal processing.

El-Dinary's first job out of college was at the physics lab at Johns Hopkins, where he worked mostly in the space department. He helped launch satellites with technology and software he designed, which orbited Earth and took scientific measurements of asteroids.

It was during this time that El-Dinary took more interest in the mathematics of signal processing. "I was doing algorithm development and data science at the time and got excited about digital filters. All very novel stuff in the early 1990s."

Then El-Dinary heard of an interesting company called Westinghouse Wireless, based not far from the school, which was looking for engineers to write software for new digital radio technology.

"I accepted a six-month contract to write software. That's how it started," El-Dinary said.

Westinghouse Wireless eventually would be renamed USA Digital Radio, a consortium of broadcasters developing in-band, on-channel technology in the United States. It would eventually merge with rival IBOC radio developer Lucent Digital Radio in 2000 to become iBiquity Digital, the forerunner to Xperi.

Career diversion

It was the signal processing part of the job that led to the change in career paths, El-Dinary said.

"I thought I would improve my programming skills and then be able to apply that in the future someplace else. But the future never changed, and I transitioned into a 23-year career here."

The early years at USA Digital Radio/iBiquity were spent developing the signal processing technology and developing the algorithms that would define the standard as the digital radio business was transitioning.

El-Dinary, right, is shown in 2017 with Deepen Sinha of ATC Labs, a former iBiquity Digital colleague who worked on the original HD Radio codec. They were at the Broadcast Engineering Society India Conference.

> **"I was doing algorithm development and data science at the time and got excited about digital filters. All very novel stuff in the early 1990s."**

"I became involved in the analysis and the commercialization of the technology in the early 2000s. We had to start thinking about the commercialization of the technology and how to get it into chips and get the software out and what does that look like," El-Dinary said.

"We came up with the architecture solutions and developed relationships with manufacturers, both on the broadcast equipment and the receiver side. I then took over the technology transfer group in the business and worked with receiver manufacturers in Japan, Germany and the United States."

At the time iBiquity was pushing the FCC to adopt its digital radio technology standard in the United States with the promise of CD-quality audio and additional wireless data capabilities. El-Dinary worked closely with Albert

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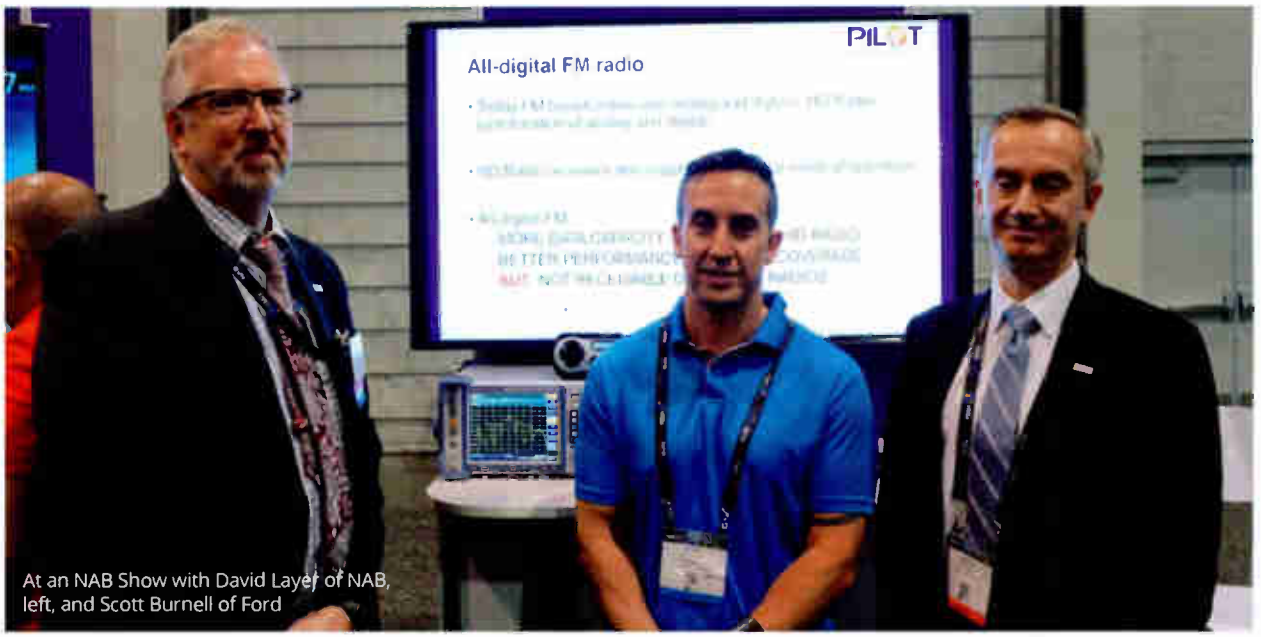
Honor Roll
continued

1979 Robert W. Flanders
1980 James D. Parker
1981 Wallace E. Johnson
1982 Julius Barnathan
1983 Joseph Flaherty
1984 Otis S. Freeman
1985 Carl E. Smith
1986 Dr. George Brown
1987 Renville H. McMann
1988 Jules Cohen
1989 William Connolly
1990 Hilmer Swanson
1991 George Marti
1992 Edward Edison & Robert L. Hammett
1993 Robert M. Silliman
1994 Charles T. Morgan
1995 Robert Orban
1996 Ogden Prestholdt
1997 George Jacobs
1998 John Battison
1999 Geoffrey Mendenhall
2000 Michael Dorrough
2001 Arno Meyer
2002 Paul Schafer
2003 John W. Reiser



At an NAB Show with David Layer of NAB, left, and Scott Burnell of Ford

Shuldiner, who was then iBiquity's general counsel, further defining the transmission standard for digital radio.

"I had more of the systems engineering perspective and could explain the standard to people and how to manage the updates of the standard," El-Dinary said. (In 2018 Shuldiner was named to head the Audio Division of the FCC's Media Bureau.)

The FCC ultimately decided in October 2002 to approve iBiquity's HD Radio IBOC technology as the delivery method for hybrid digital radio broadcasting in the United States.

What followed was development of a receiver certification program for hybrid operation of analog and digital signals. An important part of that was building up customer support and relationships with manufacturers. He did that for the next 10 years or so before transitioning into more of a systems and R&D type of position at Xperi.

"We looked at further commercializing HD Radio and the features we could add, how to improve upon reception and troubleshoot issues," El-Dinary said. "We wanted to make sure if there were problems in the field we were there to solve it. And we did solve issues on both the receiver and the transmission side."

The multicast capabilities of HD Radio quickly gained the attention of the broadcast industry, more so than the promise of improved audio sound, El-Dinary said.

Xperi reports that as of March 1, there are 2,346 radio stations in the U.S. broadcasting in HD Radio, mostly FMs, with a total of 4,471 channels of programming including multicast channels.

Most of those stations are in larger markets. El-Dinary says the hope remains that additional radio broadcasters in small and medium markets will sign on HD Radio signals.

"Obviously it's still a voluntary transition at this point. There's no mandate. As it makes sense for broadcasters, they can move forward to converting to a hybrid broadcast model of analog and digital," El-Dinary said.

"(Xperi) is not actively working toward the goal of digital being mandated in the United States. At some point it could happen if the industry wants to move in that direction. Or once there are enough digital receivers in the market to warrant a change."

Xperi charges a one-time licensing fee of $10,000 for single main FM channel broadcasting, with payment plans available. Additional annual fees are based on a percentage of revenues for each additional multicast channel, with a $1,000 minimum per channel.

El-Dinary says Xperi remains focused on promoting all the services of HD Radio, including multicast capability but also enhanced metadata and the added value that it can bring for advertising clients, in addition to enhanced traffic services like Total Traffic Network and HERE Traffic.

"Those added services have added a lot of value for radio broadcasters and car manufacturers. From a technical perspective it's really just an added layer of data for Artist Experience or traffic data. It's really very versatile," he said.

Rocky start for AM

The initial launch phase of IBOC hybrid AM HD Radio did present challenges for Xperi, El-Dinary said, as the digital portion of the signal brought complaints about interference.

"Some of the digital carriers underneath the analog were audible on some legacy analog receivers, so that caused a problem. Once we went with the concept of using reduced data bandwidth but still carrying the signal, it cleaned up the experience. The AM band is just really challenging to deal with.

"However, we are seeing good success with all-digital AM transmissions. It has great reception, great coverage,

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continued

- **2004** E. Glynn Walden
- **2005** Milford Smith
- **2006** Benjamin Dawson & Ronald Rackley
- **2007** Louis A. King
- **2008** Thomas B. Silliman
- **2009** Jack Sellmeyer
- **2010** Steve Church
- **2011** L. Robert du Treil
- **2012** Paul Brenner
- **2013** Frank Foti
- **2014** Jeff Littlejohn
- **2015** Thomas F. King
- **2016** Andy Laird
- **2017** John Kean
- **2018** Tom Jones
- **2019** Garrison Cavell
- **2020** Jeff Welton
- **2021** David Hershberger
- **2022** Ashruf El-Dinary

Recording audio and noise during field testing of AM reception in electric vehicles.

low noise and no interference with adjacent stations. It's a much better experience."

El-Dinary said Xperi has had a considerable number of broadcasters take advantage of a free early-adopter AM all-digital license — usually commercial AM stations pay a one-time $7,500 licensing fee — but only a few have as of now launched the service.

"We see the capital investment for broadcasters to transition the equipment as slowing things down a bit, especially during the COVID-era. But we envision that as a growth area going forward."

COVID also brought a temporary halt to travel for El-Dinary, who before 2020 spent much of his time on the road, focusing on visits to manufacturing partners in Japan, Korea, China and to automotive partners across Europe.

"And I was busy looking at new broadcast opportunities in the Philippines and India. I was probably on the road at least three months out of the year."

The HD Radio system in the U.S., Canada and Mexico is well established, El-Dinary said. Global broadcast observers have been following Xperi's testing of HD Radio in India, curious about that country's eventual path to digital radio on the FM band. Xperi has been testing with All India Radio, El-Dinary said. Testing was completed in Delhi in February 2021 and in Jaipur, India, the following month.

Digital Radio Mondiale is also under consideration in India.

"It's not clear what that country wants just yet. From a regulatory perspective you have to realize that process takes years to complete. The government has to decide what they want to do for a solution. They are looking to the best and most reliable path forward to guarantee commercial success," El-Dinary said.

"We think digital radio is well-suited for the market given all of the languages and dialects within India they need to support."

Latin America and South America are potential future growth areas for HD Radio, El-Dinary said, with "a lot more activity and interest right now" in digital radio.

He continued: "It would make sense for the Americas region to be all one digital standard. That would be preferable from a manufacturing and standards perspective."

Race for the dash

Xperi has spent a lot of time examining the in-cabin user experience. Its DTS AutoStage hybrid radio platform has gained the attention of the broadcast industry as Xperi lobbies for its use in the dashboard of connected cars.

El-Dinary says that although work on DTS AutoStage is "adjacent to" his broadcast responsibilities, there is significant overlap. He said the platform "is going to play a crucial role in the user experience. Broadcasters will certainly have a role now in the personalization of content and information in the dashboard."

Implementing DTS AutoStage does raise some technical issues for Xperi broadcast engineers trying to perfect the user experience.

"The handoff of terrestrial broadcast to the IP content can be a challenge. Making sure the receiver knows which station it is monitoring within the coverage area and ensuring you get the right IP content and product delivered to the infotainment system," El-Dinary.

With HD Radio technology shipped in 54% of new cars sold in 2021, El-Dinary said he is excited about the future and continues to look at other audio enhancements utilizing DTS audio technology. Xperi Corp. is the parent company of DTS.

"Now that we are in the car, we can start looking at other things, including emotion detection or facial analyses that can help select the right radio station for your mood. We did an interesting live demo at CES in Las Vegas using in-car cameras able to detect mood based on whether a person is smiling or not.

"This is all within the DTS technology space (DTS AutoSense) with our in-cabin solutions and connected car initiatives. It's primarily for driver and passenger safety as vehicle entertainment becomes more immersive. It's meant to cut down on distractions and measures driver attentiveness and activity, but there are other possible applications," he said.

El-Dinary resides in Howard County, Md., with his wife Pam; his off-hours hobbies include yoga, kayaking, snowboarding, cycling and cooking.

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Squeak, scrape, sag and stick?

Rolf Taylor has some tips for that door that's driving you crazy

John Bisset
CPBE
With more than 50 years in broadcasting, the author is in his 31st year writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.

Tips welcome
Workbench submissions are encouraged and qualify for SBE recertification credit. Email *johnpbisset@gmail.com*.

Rolf Taylor is with Rocket Engineering and Consulting in northern Virginia. He read about the lock problems we discussed here in February.

Rolf divides lock issues into cylinder problems, latch problems (doorknob or deadbolt) and lockset problems involving the mechanism inside the door.

If the latch or bolt is binding, fix that first. Friction here is a cause of frustration and broken keys. Lubricating the cylinder won't help. Often it's a matter of aligning or filing the strike plate on the door frame, as shown in the first photo.

Note that when you fix hinge problems (like loose screws causing the hinge or door to sag), you can cause misalignment issues.

A little bit of very light lubrication on a bolt or latch is OK (wax is a good option) but won't solve most problems.

For deadbolts, see if the door is hard to lock/unlock using the twist knob inside the door instead of the key outside. If it is hard to operate, alignment is likely your problem.

With doorknobs, lifting up while turning the knob can give insight into hinge problems. Viewing the alignment of the latch as it meets the strike plate can also be useful.

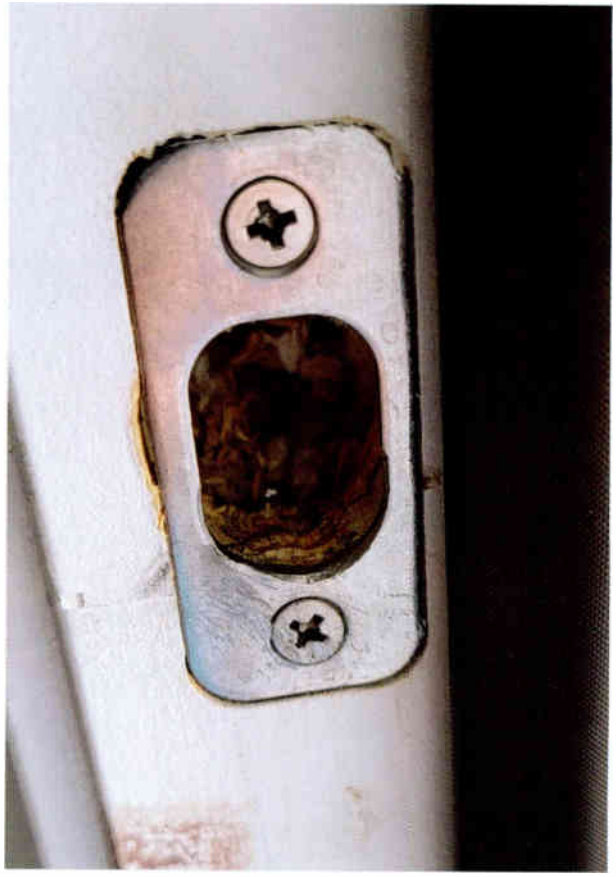
For the lockset, binding is often indicative of long-term wear. Still, disassembly and lubrication is worth trying. For old-timers, this is similar to lubricating the various parts of an automatic record changer.

If the old grease is stiff, you will need to clean it off. If it's in good shape it may just need to be redistributed to the right areas and perhaps rejuvenated with some oil mixed in.

Rolf generally recommends a very light grease, like the tubes of white grease sold for lubricating car door hinges. Often he will mix this grease with a bit of light oil such as 3-In-One to obtain a more liquid suspension, which is easier to distribute.

(According to *3inone.com*, their product's roots go all the way back to 1894, when George W. Cole of Asbury Park, N.J., compounded a mixture to accomplish three things in connection with the maintenance of a bicycle: a lubricant, a rust preventive and a cleaner.)

For the actual lock cylinders — the part where the key goes — first suspect the key. Copies of a key may be marginal and thus not work consistently. Lubricating the cylinder may help, but it's better to replace the marginal key with a fresh copy made from a key that works properly. If you have a key with a six- or eight-digit number code on it, that is an original.



Above
Make sure the strike plate is aligned properly.

Right
Check alignment of the latch with the striker plate to help diagnose a problem.

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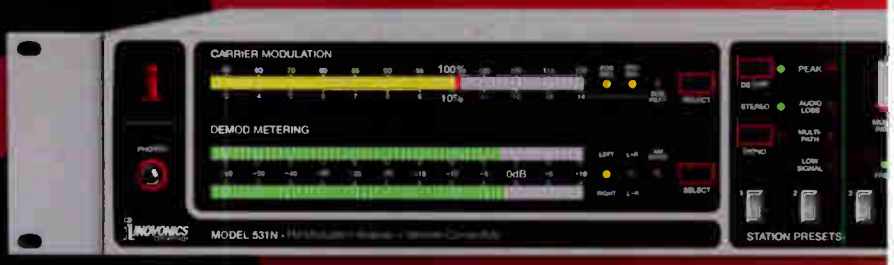

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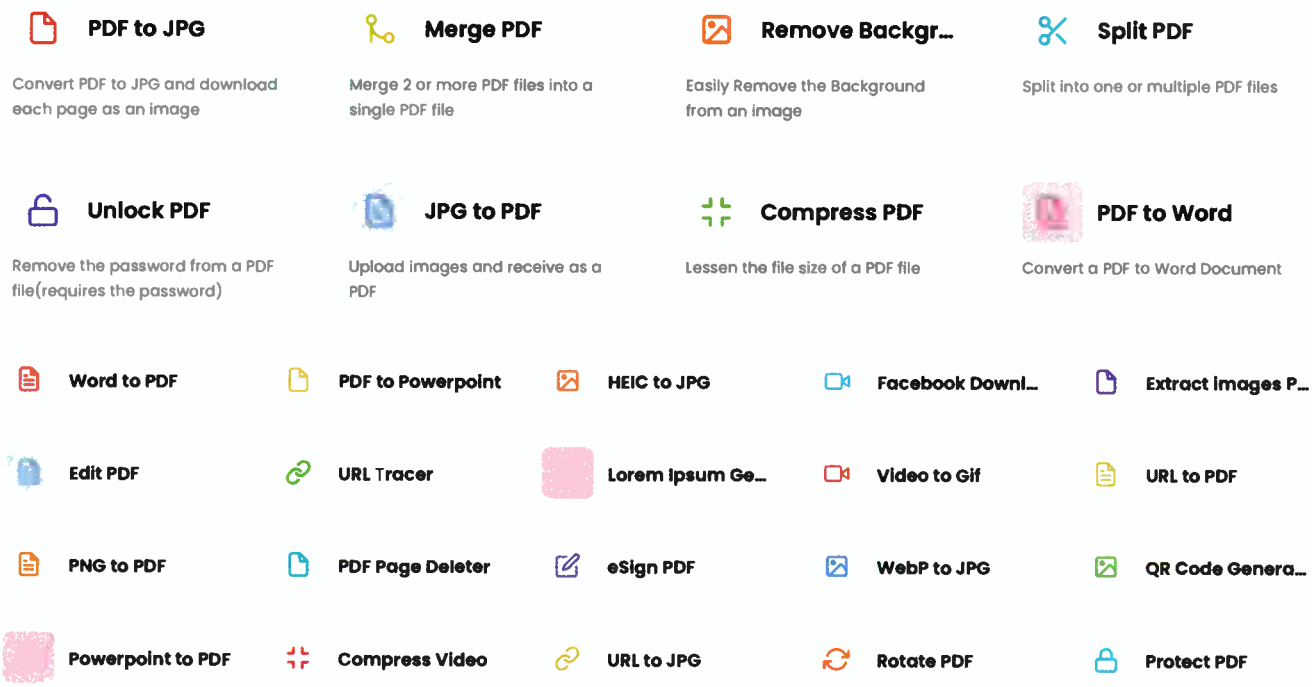

Below Some of the free tools at *TinyWow.com*.

If the only key you have is badly worn, you can ask a locksmith to "originate" a key from the code. This should give you a perfect copy made to the original specs. If the cylinder is difficult to turn using multiple keys, lubrication is worthwhile.

Lock-Ease Graphite Lubricant by AGS is an aerosol, similar to KANO's Penephite graphited penetrating oil. It is readily available at hardware stores but less expensive than the KANO product. You could try that if the 3-In-One doesn't do the job.

Lock and lube

Continuing our ongoing discussion of lubricants and related products:

Alan Colwell is an SBE Life Certified Professional Broadcast Engineer. He is a fan of LPS No. 1 Greaseless Lubricant, sold by hardware and industrial supply stores as well as Amazon. He was introduced to this product nearly 50 years ago by his local electronics dealer.

Since then, Alan has used LPS-1 to keep all of his locks working. He prefers it over the popular WD-40 brand, which costs less but that he finds hard on plastics. When he worked for a local radio and TV repair shop, they would clean noisy volume controls with tuner cleaner; they tried WD-40 on plastic volume controls, but it melted them, while LPS-1 did not.

Free is good

Dan Slentz discovered a really neat site that can help engineers manipulate their files. TinyWow.com is a collection of online tools that perform tasks such as editing PDFs, converting a PDF to a JPEG image, compressing or re-sizing video, adding text to an image or converting a PDF to a Word document.

"TinyWow is free. We don't have ads, we don't sell data," the site states proudly.

"We currently have no plans to monetize. Why offer these tools for free? We operate two tech websites: Alphr & TechJunkie. We thought our users might find these tools helpful. For now, utilizing our existing infrastructure we are able to operate these tools at minimal additional cost. Building this and watching the growth has been fun, so we're going to keep building free stuff."

They add that when you upload a file to their servers for processing, they delete the file 15 minutes after the processing is complete.

GWB for your XLR

Oh, and here's a trick Rolf Taylor learned to keep XLR pins wired properly: "George Washington Bridge."

1 = Ground (George)
2 = White (Washington)
3 = Black (Bridge)

But Rolf adds that when he learned this, most microphone cable had white and black for signal conductors. Because most cabling today substitutes "red" for the Pin 2 "white" connection, you'll have to rework the phrase! Suggestions?

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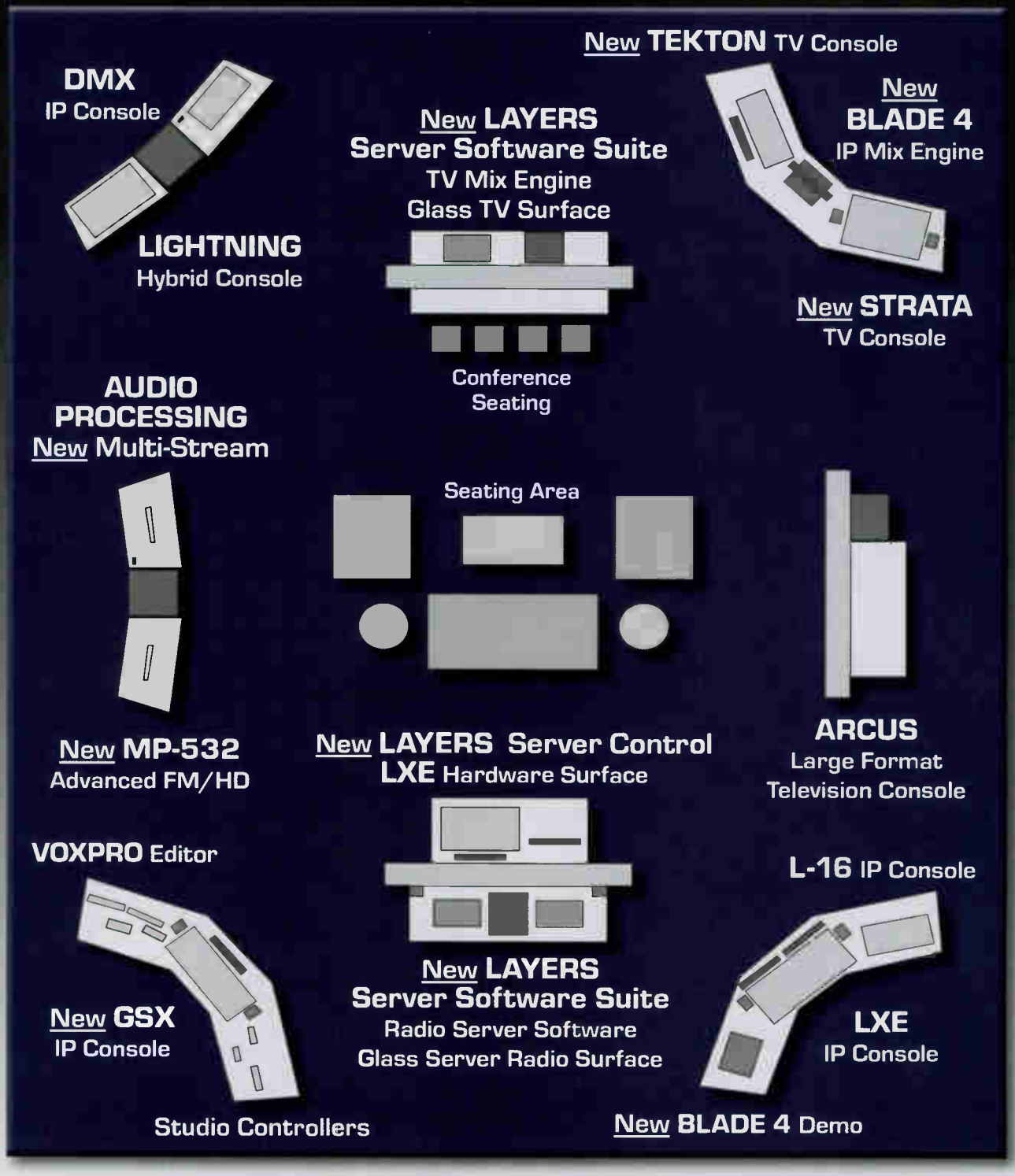

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About Buyer's Guide

The Buyer's Guide section appears in every other issue, focusing on a particular category of equipment and services. It is intended to help buyers know what's on the market and gain insight into how their peers are using such products.

MP-532, the little processor that rocked

Chris Verdi on Great Eastern Radio's new Wheatstone MP-532

A station acquisition often calls for an audio processor "refresh," doubly so if you're acquiring two stations and there's a format change involved.

Such was the case when Great Eastern Radio acquired WXMS 97.9 and WWFK 107.1 in Burlington, Vt.

Chris Verdi, CBNT, CBNE, is chief technology officer for Great Eastern. "The two additions, which brought our total to 19 stations covering greater New England, came with dated processors that just could not make the cutover to a classic rock and hot AC format, respectively," he said.

Their prior recent processor purchase was a Streamblade, a WheatNet-IP audio appliance for provisioning multiple streams that includes processing designed for nuances of streaming.

"We had heard about the MP-532, an AM/FM/HD multiprocessor that is also made by Wheatstone. We had heard field reports about how it could produce 'airy and silky highs,' mids that are 'warm and mud-free' and 'deep, powerful lows.'" He also liked the price and that it includes features like an RDS encoder as standard.

"We started with Classic Rock 107.1 Frank-FM. I installed the MP-532 using the quickstart default preset. I was expecting to have to fiddle to get it close to what we wanted and was surprised what came out instead."

Everything sounded "cleaner, brighter and louder than anything I've heard in a long time."

The little tweaks they did for the classic rock station worked so well that they decided to run a similar setting on the AC station.

"We have a country station there running a top-of-the-line Wheatstone X3 FM/HD audio processor, and this little MP-532 really holds its own next to the X3 and any other processor in the market. It doesn't look as pretty in the rack, but it sounds almost as good, if not better in some ways."

It was a bonus that the MP-532 is a multipurpose processor. He recommends it for a cluster that might need an all-around backup that can stand in as an AM or an FM, or as a streaming processor.

> **"This little MP-532 really holds its own next to the X3 and any other processor in the market."**

More Info
wheatstone.com

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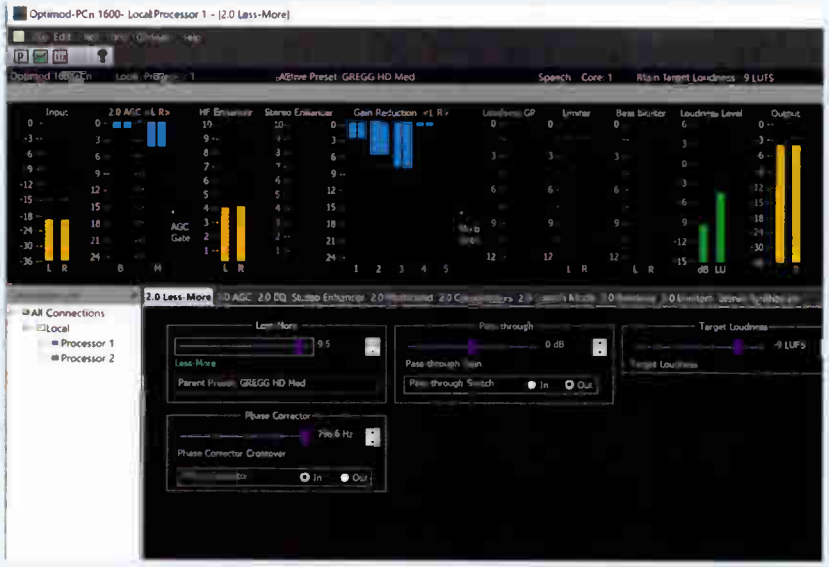
Tech Update

Optimod-PCn1600 Is for Digital Radio and Streaming



Besides its hardware audio processors, Orban offers a solution for server-based audio processing.

The company says the Optimod-PCn1600 is suitable for broadcasters who need a flexible and scalable audio processing solution that does not occupy a lot of rack space.

"The number of audio processor instances activated via one license can be selected according to the customers' requirements," it states.

"Various factory presets are included in the delivery, which allows the user to choose the appropriate sound for his station. All of these factory presets can be adjusted easily to fine-tune the audio processing."

The software provides a consistent, well-produced sound by performing phase skew correction, stereo enhancement, intelligent automatic gain control (AGC), equalization, multiband gain control, peak-level control and smart automatic loudness control.

"Optimod-PCn 1600 subjective loudness control incorporates contemporary concepts of 'target loudness' including those specified in EBU R128 and ATSC A/85 and the most recent ITU-R BS.1770 loudness measurement algorithm as well as the proprietary third-generation Orban-CBS Labs Loudness Meter and Loudness Controller."

It runs as a Windows Service on its host computer, so it will start automatically with Windows and run in the background. The Optimod-PCn 1600 configuration is done easily using the Windows PC user control application, included in delivery. Via the user interface, audio processing streams in the connection list can be controlled.

Applications include internet, DAB/DAB+, HD Radio and other dedicated digital radio services as well as sound-for-picture, mastering and audio production.

Info: www.orban.com

Tech Update

StreamS-Modulation Index Is a Supporting Dealer for Orban

Modulation Index LLC, based in Los Angeles, is headed by 45-year broadcast technology veteran Greg J. Ogonowski, founder of Gregg Laboratories and former VP of product development at Orban.

He was the co-developer of the Orban Optimod digital series of broadcast audio processors and the Orban Opticodec-PC file and streaming encoders, the first commercially available encoders to feature the AAC/HE-AAC (formerly aacPlus) audio codecs for streaming.

StreamS is the company's line of professional streaming encoders and internet audio-related products.

"Modulation Index is committed to providing broadcast-quality streaming audio with 24/7 reliability, improving performance and quality of the internet streaming experience using modern technologies," Ogonowski said. "StreamS encoder software and hardware are used by some of the largest content providers in the world."

He said StreamS is the first to offer HLSdirect/DASHdirect streaming audio encoders with xHE-AAC and Lossless audio codecs.

The company staff includes Senior Software Architect Nathan Niyomtham and a soon-to-be-announced marketing and sales director, together having decades of experience in the broadcast, pro audio and IT space.

Modulation Index is a supporting dealer of Orban Labs products.

Info: www.indexcom.com/about/

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The Fish is hooked on its FM processor from Telos Alliance

More Info
telosalliance.com

"Omnia.11 just reaches out and gives the listeners a big hug when they tune in. It does."

So says CJ Jackson, chief engineer for Salem Media Group's WFSH(FM) 104.7 The Fish in Atlanta

"I've used, and sometimes modded, virtually every processing chain over my career — ranging from the famous 'Black Box' to gear from what seems to be about a third of the alphabet when I think about it. For FM and HD, the Telos Alliance Omnia.11 is my go-to for all formats."

Jackson finds that many processors have one overall personality, and when you want something different, you are out of luck.

"With an Omnia.11, especially when updated to v4.0, I can tame the always-hard-to-process CCM format, give a news-talk show that warm high-TSL AM sound, or make a classic rocker jump out of the radio. If I need to 'crank it up,' well, Omnia.11 is a champion of taking it to 11, and it still sounds clean."

He finds it easy to dial in a station's unique on-air personality.

An added benefit is that Omnia.11 works well with the Voltair Monitor and Processor from Omnia's sister brand 25-Seven, as it has the optimum patch point.

Omnia.11 simplifies other air-chain workflows too. "Taking AES 192 into my new Nautel? Done. Composite into another transmitter? Done. Audio input failover? Done. Lock my presets? Done."

He recommends it for stations in any market, whether a regional flamethrower or a Class A.

Tech Update

Inovonics David IV 719N Is Network-Savvy

Inovonics recently introduced a version of its FM/HD Radio broadcast processor with a network interface.

It says the David IV 719N adds easy web access for setup, control and increased networking capabilities to its David IV 719 processor. The price doesn't change.

President/CEO Ben Barber said adding the interface provides two important features.

"One, the Web GUI can be controlled from any web enabled device; and two, adding SNMP makes remote management and control a breeze."

The 719 David IV launched in 2011 with an all-digital DSP design, continuing a line of products that carry the David name, as in vs. Goliath. The 719N model adds a menu-driven web interface for remote setup, monitoring and control.

Recent purchasers should contact the company for info to upgrade. For those with 719 processors purchased before 2020, there is a $500 upgrade fee plus shipping costs to convert their units to the 719N model.

Info: www.inovonicsbroadcast.com

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Tech Update

GatesAir Integrates ATC Audio Processing

Professional 10-band audio processing software from ATC Labs is now offered by GatesAir in two of its latest Intraplex transport products.

It added ATC Labs' Perceptual SoundMax Audio Technology to its Intraplex IP Link 100c hardware codec and Intraplex Ascent cloud transport platform.

"The embedded software innovation can save users thousands of dollars in auxiliary equipment," the company says.

"Broadcasters that activate this accurate high-resolution audio processing functionality within either product will eliminate the costs and rack space of external audio processors inside studio and transmitter facilities, while achieving exceptionally bright and open sound."

The IP Link 100c codec is a cost-efficient, integrated single-channel solution for remote contribution, Icecast streaming and standard STL IP connections. Intraplex Ascent's scalable platform accelerates migration to a software-based, cloud transport solution that can scale audio processing requirements for multiple channels.

"The presence of higher-resolution audio processing in Intraplex solutions brings far better control to broadcasters as the technology

affects only the specific and targeted audio characteristics," GatesAir continued.

"Perceptual SoundMax combines high-resolution audio processing technology is combined with psychoacoustic principles and wide-band perceptual models, which ensures the greatest possible accuracy in tuning the sound quality for each application."

Info: www.gatesair.com/products/transport/audio-contribution-distribution

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World Radio History

Tech Update

A New Processor From **Angry Audio**

Angry Audio has introduced the Chameleon C4 Livestream Audio Processor.

"Built exclusively for streaming and HD audio applications, C4 is the first in a family of processors based on Chameleon technology," the company stated.

Chameleon was developed by audio processing expert Cornelius "Corny" Gould. It uses a form of artificial intelligence to analyze incoming audio and make processing decisions accordingly.

"Parameters are being continuously adjusted to fit the audio content which means the same device can be used for virtually any format."

The company says the processor is simple to deploy because much of its work is automatic.

Angry Audio says the C4 delivers loudness, consistency and punch. Suitable applications are broadcasters with HD Radio channels or livestreams in need of processing; content creators who wish to make their programs sound more polished and professional; and anyone who wants to comply with the new loudness recommendations from Amazon, Apple and others.

The C4 offers analog and digital inputs and outputs, a built-in power supply rather than a wall wart) and a powder-coated steel enclosure. Retail price $989.

Info: www.angryaudio.com/audiochameleon

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AngryAudio.com/AudioChameleon

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SEPsoniX Promises "Simple, Easy Processing"

JT Communications offers the SEPsoniX processor, a complete FM processor in a single rack space that also features a post-processing output for streaming applications.

The output can set to a 0 or -10 dB level, to match both professional and consumer devices. The output follows the post-processed audio signal from the SEPsoniX. This output can also double as a process monitor for studio feeds of processed audio.

Features of the processor include stereo dual-band compressor with optimized attack/release values; compressor feedback-derived AGC for smooth gain riding; and active balanced RFI-protected audio inputs. Its 25 Hz active high-pass filter eliminates LF/sub-audio disturbances.

Also included are an active phase rotator for symmetrical modulation peak detection; a compression "freeze" feature that reduces audio "breathing" during audio gaps; internal stereo generator; external SCA/RDS input; and LED indicators for input, compression, HF limit, stereo, composite clipping and power.

In the event of power loss, the unit recovers rapidly, with no start-up delays.

MSRP $1249.95. An optional programmable FM signal generator is available so that the user can connect the processed RF signal directly to an FM tuner for off-air monitoring of the full processed signal.

Info: www.sepsonix.com

Tech Update

A Broadcast and Streaming Processor From **Thimeo**

Thimeo STXtreme is a new FM, AM, HD and/or streaming audio processor.

This plug-and-play device from Thimeo Audio Technology offers the features of the company's software audio processor Stereo Tool, such as the Declipper that repairs clipped audio, and the FM section that optimizes the signal for maximum loudness, dynamics and clarity, with improved reception in fringe and multipath areas.

"The firmware and hardware are meticulously tuned to each other to achieve maximum audio quality and minimal latency; the monitoring output can run at a latency below 5 ms," the company states.

STXtreme has an easy-o-use HTML5-based interface so it can easily be controlled from a PC, phone or tablet.

The included RDS encoder can be controlled remotely. It can output MPX through analog and digital connectors, or stream it over an IP link using MicroMPX on low-bandwidth connections without loss of quality.

Info: www.thimeo.com/stxtreme/

World Radio History

NATE Highlights Worker Shortage

Todd Schlekeway is president/ CEO of NATE: The Communications Infrastructure Contractors Association. This is an excerpt from an article at radioworld.com.

NATE has said that tower service companies in the United States face a workforce shortage of almost 15,000 people and that it could get worse. What does NATE want government or the private sector to do about that problem?

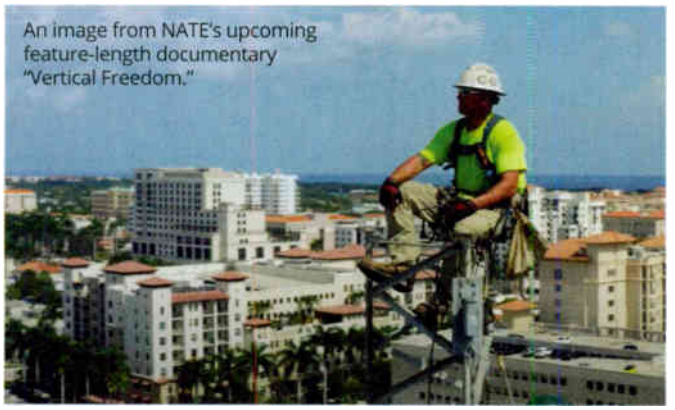
Todd Schlekeway: NATE's own workforce survey from our member companies encompassing all 50 states revealed a workforce shortage of 14,693 tower workers and other essential deployment personnel. This is just the shortage under NATE's membership umbrella!

Workforce development is a top priority for NATE and we are currently in Year 2 implementing our workforce strategic plan.

Of note, NATE just finalized a Telecommunications Tower Technician I (TTTI) Turnkey Curriculum package that will be utilized in community colleges and technical institutes around the country. Later this spring, three community colleges in the state of Ohio will be the first to utilize this curriculum. NATE will be working diligently to establish these TTTI programs in other schools around the country over the next few years.

Congress, in addition to the federal government, can play a role in moving the needle on our industry's workforce needs by ensuring that a portion of the generational type broadband deployment money, that is coming as part of the Infrastructure Jobs and Investment Act law that passed last year, be allocated to communications technician worker training programs.

This is a conversation NATE has frequently with the members of Congress and the key federal government agencies we collaborate with. If there is not a workforce to come alongside the financial investment, it will be very difficult, if not impossible, to close the digital divide and accomplish our nation's ambitious connectivity and deployment goals.



An image from NATE's upcoming feature-length documentary "Vertical Freedom."

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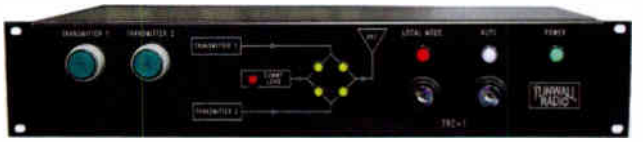

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World Radio History

Smarter ways to improve emergency alerts

Want to help people with disabilities (and everyone else)? Build more Weather Radio transmitters, underwrite weather receivers and improve WEA

Ilya Lukichev/ Getty Images

Writer

Dan Gunter

CBT

Owner/ Broadcast Engineer, Alabama Broadcast Services

Groups representing deaf and hard-of-hearing people have asked the FCC to mandate that emergency alerts appear on wireless devices. They also recommended that streaming services like Netflix and Hulu carry them as well. The groups were commenting in an FCC inquiry into how to improve emergency alerting.

I would like to share some thoughts in reply to the article "Disability Groups: Streamers Should Carry Emergency Alerts" at *radioworld.com*.

I speak from a combination of perspectives: I am a broadcast engineer, I am a "cord-cutter" and I am classified as disabled, with a condition that most of the time severely limits my mobility and, in turn, my ability to work and realize income that I could if I didn't suffer from a physically disabling condition.

Like many others who subscribe to streaming services, I watch little "over the air" television. When I do tune to any of the relatively local television stations, it is usually via streaming service using cellular or satellite-based internet streaming, and that is rarely; when I do, their EAS alerts are usually included in and available via their online streams.

As for radio, I listen to local stations both at home and on the road. I have SiriusXM service but primarily listen to over-the-air FM and AM stations when traveling, so I have their EAS alerts available over the air.

When there is potential severe weather nearby, I make it a point to stay "weather-aware" and listen to local over-the-air, broadcast media outlets.

Issues of concern

The technical logistics that would be required for streaming-based services to make EAS alerts available to subscribers — regardless of what virtual channel, network, application, etc. they might be tuned to — would require a lot of technical "rebuilding" and financial investment on the service providers' end.

It also could necessitate redesign of many of the physical devices and software from all the vendors involved in building their networks and services.

First, they would need a way of knowing each subscriber's location at any moment. That would be "guesswork" much of the time, since cell- and satellite-based internet service is likely to erroneously pinpoint a subscriber's geographic location (based on their assigned IP address); it could be one or more states away from their actual location.

Most subscribers to YouTubeTV, as an example, have had to deal with the headache where YouTubeTV asks the subscriber — who is tuning in from their home, which has not jumped up and relocated itself to another location — whether they are "just visiting" or whether they have moved. The service continues to warn the subscriber that

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their local affiliates are not available at the time because they are out of their home market.

This occurs because their ISP has dynamically changed their IP address or for some other reason the location of their IP address now appears to YouTubeTV be in a different location, often far from their stationary home.

One can only imagine the havoc such errors in IP address location could cause: A subscriber whose IP address appears to be in a different state would likely end up getting misleading or irrelevant severe weather alerts, Amber alerts, etc., potentially causing confusion or unnecessary panic and stress.

Wiser approach

A better solution is to continue expanding and improving the geographically targeted Wireless Emergency Alerts system incorporated into all modern cell phones.

Also, more investment should be made in improving the number and quality of NOAA Weather Radio transmitters across the United States.

> **A more reliable and better improvement in public safety would be for the government to spend the money to make a free, good NOAA Weather receiver available to every household in the U.S.**

While the vast majority of people are within range of a NOAA Weather Radio transmitter with ample signal strength to provide reliable signals to inexpensive NOAA Weather/All-Hazards type radios, expanding the network for higher-density coverage would be a good investment.

Follow that up with improvements in that network such that all types of alerts (severe weather, Amber, local law enforcement, national or presidential, etc.) are included and geographically targeted for the applicable NOAA transmitters. The system would be even better than it is now — and I contend it is already light years better than anything we had just a few decades ago.

I suspect that the majority of disabled (including income-limited) persons own a working cell phone, thanks in part to government programs that help make them affordable (if not free) to low-income individuals.

As for NOAA Weather Radio/All-Hazards alert receiver radios, these have long been available at a one-time investment of $50, often much less when retailers offer promotions.

Being an avid weather enthusiast, SkyWarn area coordinator and former public safety professional, I am adamant that NO home, place of business, school, church or any place where people are present should be without at least one of these inexpensive, potentially life-saving radios.

I keep at least two at separate locations in my home so that we can hear an alert anywhere in our residence at any time.

If I can afford some sort of internet service plus subscriptions to Netflix, YouTubeTV, Hulu and other streaming services along with cell service, I should be able to justify spending $49 or less for a good NOAA Weather receiver/radio that requires no ongoing subscription fees, and only the cost of keeping fresh batteries in it to cover power outages.

Mandating that streaming services be forced to work with all the other players in the EAS system to devise an entirely new and complex system for including EAS alerts would be far more expensive to develop and deploy, and extremely less reliable in terms of "geographic targeting" and accuracy for subscribers.

On the flip side of this record, the best solution in terms of public safety and reliability would consist of ongoing (if not greatly increased) investment in further expanding the existing cell-based, WEA and NOAA transmitter coverage and alert inclusion.

Personal investment

We broadcast engineers are well aware of the significant advancements and improvements that have been made in EAS alerting, which radio and television stations have had no choice but to invest in and implement over just the past couple of years. We play an ongoing role in assisting to help stations stay legally compliant and support public safety and service.

Forcing streaming services to include EAS alerts could cost billions of government dollars promulgating new rules and legislation and funding the FCC and other agencies to make sweeping technological changes.

A more reliable and better improvement in public safety would be for the government to spend the money to make a free, good NOAA Weather receiver available to every household in the U.S.

We engineers can't help putting a lot of thought into such matters; we also like to know that we ourselves can count on receiving alerts when we might be affected by weather or other hazardous situations. That's all the more incentive for us to work hard in assisting clients in making sure their EAS equipment is reliable and functioning so that it will do its job if and when an alert is issued.

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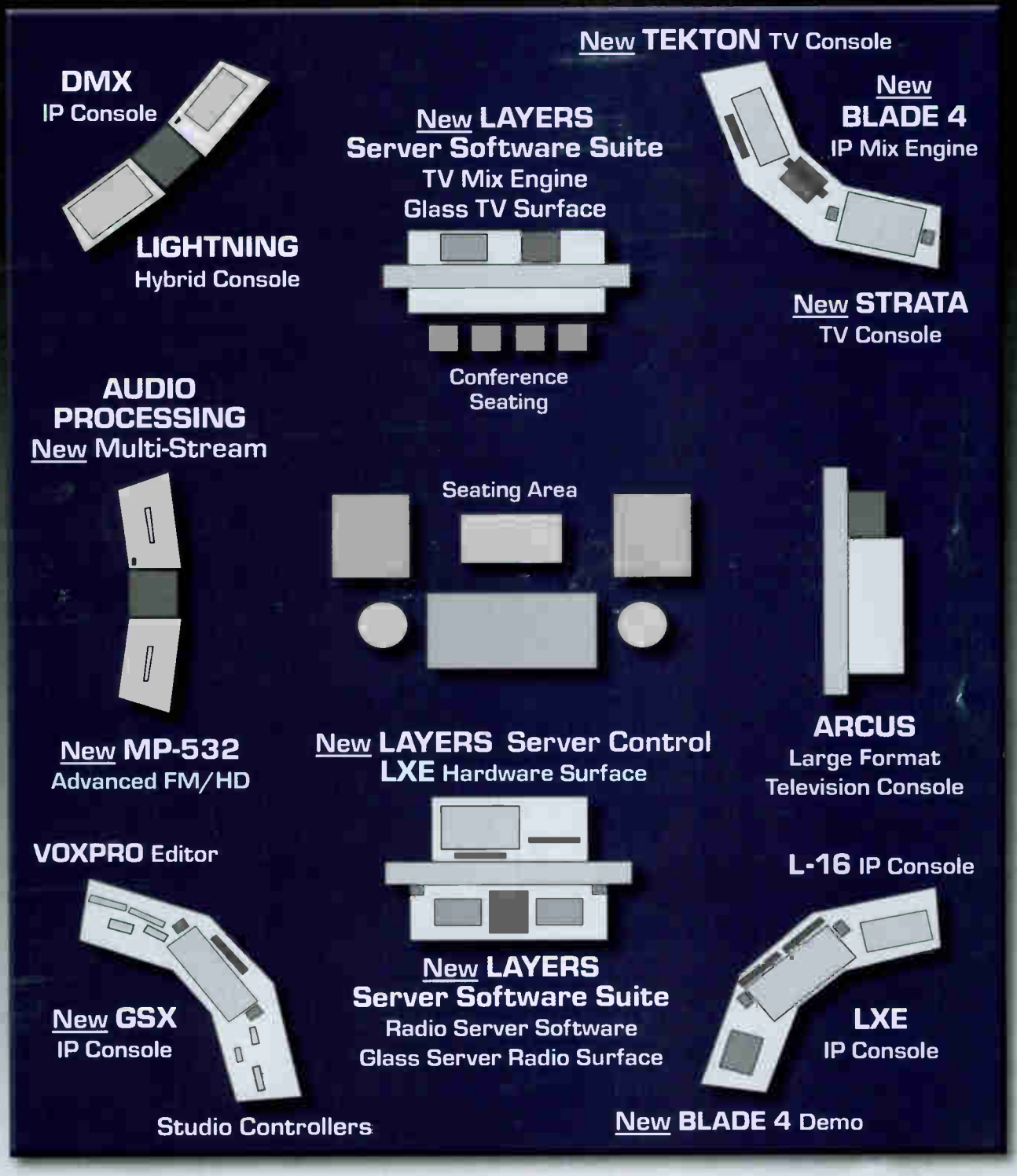

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