



RADIO WORLD

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Do You Know If Your Broadcast Plant Is Really Secure?

Wayne Pecena does — and he can help you take steps to secure yours

RADIO IT MANAGEMENT

BY THOMAS MCGINLEY

“My broadcast plant network is secure. Is yours?”

Wayne Pecena, director of engineering at Texas A&M’s KAMU and a long-time premier SBE educator, posed this somewhat daunting question to engineers at this year’s NAB Broadcast Engineering & Information Technology Conference.

By design, the question provokes angst and uncertainty among most broadcast engineers who are tasked with handling the IT and LAN opera-

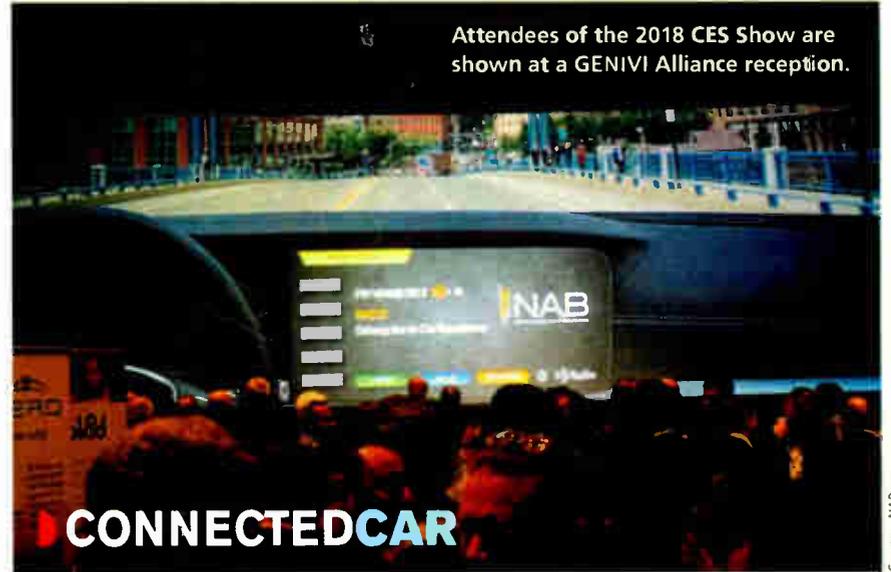
tions at their stations.

PCs, IP networks and the internet have been major components of broadcast plant operations and infrastructures for more than 25 years. Over the course of that time, a lot of lessons about security have been learned the hard way.

Hackers and their malware payloads can drill into devices on IP networks at any moment with ever-increasing sophistication. Recall the ransomware attack on KQED of June 2017, the Max Headroom hack in Chicago in 1987, the Captain Midnight hack on HBO TV in 1986 and several EAS “zombie” attacks not long ago.

Historically, easy methods to secure networks — like running private 10 dot subnets with AntiVirus software on

(continued on page 6)



Attendees of the 2018 CES Show are shown at a GENIVI Alliance reception.

CONNECTEDCAR

Broadcasters Pursue Dashboard Collaboration

In recent months, the NAB has ramped up its efforts to connect with the auto community

BY RANDY J. STINE

WASHINGTON — The National Association of Broadcasters is pushing ahead with outreach to the auto industry in an attempt to help shape the positioning of radio in connected-car dashboards.

Its efforts include the creation of an “automotive initiative committee” to help forge relationships with OEMs in order to search out technical collaborations, according to a person familiar with recent developments. Even the existence of such a committee had been held private for months. The association hopes to build

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How TuneIn Is Delivering Pay Sports Audio to Subscribers

They've teamed up with Amazon to add smart speaker compatibility

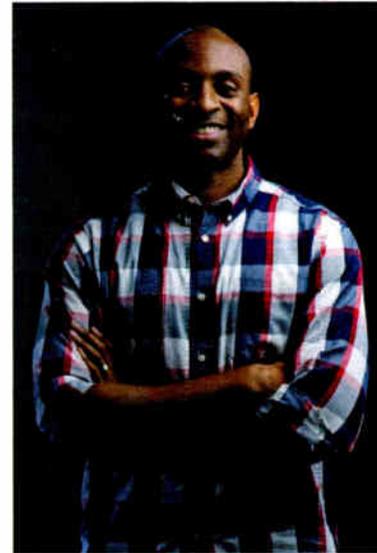
PROGRAMMING

BY JAMES CARELESS

March 29 marked the official Opening Day for the 2018 Major League Baseball season. It also marked the launch of TuneIn Premium, a pay sports audio streaming system created by the TuneIn audio stream aggregation platform.

Using TuneIn Premium, listeners can tune to live audio feeds from the MLB, NBA, NFL, NHL and other sports, plus hear commercial-free music and news stations (like MSNBC). The price to get this access to major league sports audio is \$9.99/month or \$99/year.

Plus, TuneIn has worked with Amazon to create voice-controlled access via Amazon's Alexa web-connected smart speakers. The pay service is branded as TuneIn Live on Alexa (TuneIn Live).



Tony Archibong

audio that has built its listener base — claimed by the company to be about 75 million active users globally. The audio quality, streaming reliability and content variety of TuneIn's audio streams has built its success since being launched as *RadioTime.com* in 2002.

HOW TUNEIN ACQUIRED THIS CONTENT

Theoretically, TuneIn could provide a wide range of sports content by simply compiling the broadcast schedules of the sports radio stations it streams. It could then create a web interface and voice-command interface for users to access this schedule.

However, such a model would not provide the 24/7 sports audio on demand that is a feature of the TuneIn platform. Also, it could cause the TuneIn service to run afoul of major sports leagues — and the

company has no wish to do this, for obvious reasons.

This is why "TuneIn's business model involves direct licensing relationships with all of the sports leagues; such as MLB, the NBA, NFL and NHL," Archibong said. "We license this content under the right to aggregate it all together in our directory as a paid subscription service, which we can then distribute on any streaming platform we choose to create a unique user experience. We do this across mobile apps, our website, speakers, gaming consoles and Alexa."

DOES TUNEIN PREMIUM THREATEN RADIO?

At first glance, the range of sports content offered by TuneIn's pay sports audio service appears to pose a threat to conventional radio.

After all, "the common radio user will typically have only local broadcast rights to listen to one local game," Archibong said. "With TuneIn Live on Alexa, that user gains access to thousands of home and away games across all sports, as well as a selection of premium news and music as well. They are paying for both the vast package, as well as the unique experience."

He describes this as being a one-stop shop for all things sports — all play-by-play audio for both home and away calls, plus sports talk radio — for the four major professional leagues, plus NCAA basketball and football, racing, tennis and soccer that can't be found through just a traditional radio in one location.

"Additionally, the ability to use simple voice commands such as 'Play the Chicago Cubs,' 'What NBA games are on?' or 'Play sports radio' to quickly navigate between this large selection of content adds an enhanced ease of use to those Alexa users that would like to listen to a variety of sports audio," said Archibong. "Lastly, TuneIn Live can provide users team and game schedules when asked, and in the future will be allowing Alexa users to actually set

(continued on page 4)

TuneIn has put major league audio streams at sports fans' beck and call.

"Voice commands such as 'Alexa, play the Yankees game;' 'Alexa, play the NBA playoffs' or 'Alexa, turn on MSNBC' are all examples of how to try this Alexa-based audio experience," said Tony Archibong, vice president of distribution and business development.

Amazon Prime members only pay \$2.99/month to use TuneIn Live, while the service costs \$3.99/month for Amazon members who don't subscribe to Prime.

Whatever a listener's preferred connected listening platform, TuneIn has put major league audio streams at sports fans' beck and call. To whet their appetites, TuneIn offered a free seven-day TuneIn Premium/Live trial at tunein.com.

WHAT IS TUNEIN?

For readers unfamiliar with TuneIn, the website bills itself as "the most popular way to listen to streaming audio from around the world," according to Archibong. "TuneIn has over 120,000 radio stations and more than 5.7 million on-demand programs stemming from every continent, and is available for free across many connected devices and platforms — from Sonos, Alexa, Google Home, Cortana and Tesla to Bose, Roku and Xbox One. TuneIn also serves as the audio streaming partner for daily fantasy sports providers, such as FanDuel and DraftKings."

It is TuneIn's role as a central hub for free streaming

SPORTS AUDIO

(continued from page 3)

notifications as a reminder for when their favorite games are starting.”

Despite all these features, Archibong doesn't view TuneIn Premium/Live as a threat to on-air sports radio, or indeed any medium currently carrying live sports content.

“Not at all,” he said. “In fact, we believe this is just another way for true sports fans to enjoy live play-by-play games when they can't be there in person.” Broadcast radio managers, of course, might see it differently.

WILL SPORTS FANS TUNE IN TO TUNEIN?

At this point, it is difficult to predict or assess TuneIn Premium/Live's impact on sports media consumption. For its part, TuneIn won't project how many paying customers it hopes to capture via TuneIn Premium/Live, or how many people will be using Alexa to access its sports audio streams.

“We aren't disclosing our metrics for Alexa specifically, but we are thrilled with the growth we've seen across all of our platform and distribution partners,” Archibong said. “In fact, we have more than 200 connected device and auto partners, and TuneIn users have listened to more than one billion hours of music, sports, news and talk programming on the service in the last 12 months within the speaker category alone.”

Meanwhile, TuneIn “is definitely open to working with other [smart speaker] platforms on extending this content to them in the future,” he added.

One way or another, pay sports audio via TuneIn will become even more accessible to consumers in the months ahead. Just how many will pay for this content remains to be seen.

IN CASE YOU MISSED IT

A sampling of recent headlines delivered to Radio World readers in their free daily NewsBytes e-newsletter. (Click the Subscribe tab at radioworld.com, then Newsletters.)

> C Band Registration Is Key, Westwood One Says

The syndicator is among major radio organizations urging stations to register their C Band downlinks by July 18. It also noted that the registration process does require a \$435 filing fee, but that the normal additional requirement for a frequency coordination study has been waived, saving considerable expense.

> FCC Rejects 2017 Prometheus' Translator Siting Concerns

While the industry digested 998 objections that Prometheus and two other advocacy groups filed in May, the commission issued a firm “no” in a separate Prometheus filing — one that may be of interest to low-power FM stations, AM operators, LCRA supporters, and those watching for a future tug of war between AM radio stations and LPFMs.

> Byron St. Clair Dead at 93

President emeritus of National Translator Association played a role in the development of translators, LPTV and low-power FM.

> iHeartMedia Enters the Radio Analytics Race

The company calls this the first fully-digital attribution service for broadcast radio.

> FCC's Carr: Internet Won't End June 12

The commissioner indicated he thought reports of the impending death of the internet from the rollback of net neutrality were highly overrated.

> Pai Sets July Vote for C Band Item

The FCC will vote at its July public meeting on a proposal to make more “intensive” use of 500 MHz of midband spectrum in the 3.7–4.2 GHz (C Band). That is according to Chairman Pai, who announced the planned vote at a wireless industry event in May. Cable operators use that band for thousands of receive-only earth stations.

> ATSC and SBE Developing ATSC 3.0 Certification

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Courtesy ajel sa

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DASHBOARD*(continued from page 1)*

connections with automakers and key automotive suppliers it views as critical to radio's continued success.

The effort took a more visible role this spring when NAB President/CEO Gordon Smith lauded the presence of Ford, Audi, Honda, GM and Avis Budget Group executives at the NAB Show in Las Vegas.

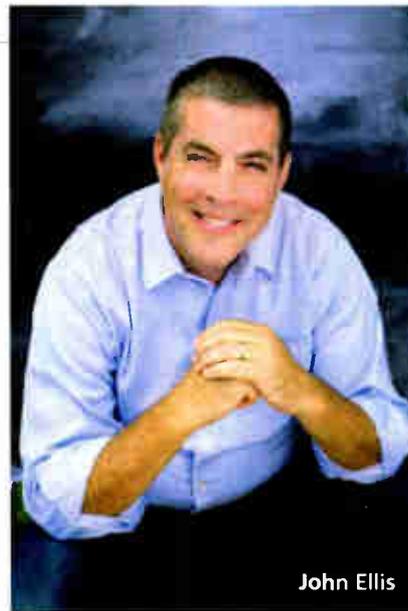
"We are working closely with leaders in the auto industry to identify areas of collaboration and ways to enhance the relevance and operation of radio in present and future automobiles," Smith said at the time.

Giving at least a bit of insight into the process, Smith noted in his remarks that NAB's Pilot innovation initiative has conducted experiments with all-digital FM radio "that could deliver more digital audio channels and data capacity to support autonomous vehicle and connected car infrastructures, providing broadcasters with new uses of their valuable spectrum." He didn't expand on that in his remarks.

WHERE'S THE RADIO BUTTON?

Radio's presence in the so-called connected car has been the subject of much speculation by observers familiar with development of the new connected car interface, the "digital dash." Some automakers already have models in production that lack buttons labeled radio, band or even audio, which makes the loss of a tuning knob on the dash seem minor, according to people familiar with these developments.

The challenge for radio, many observ-



John Ellis

ers believe, is maintaining a position of dominance in a dashboard environment. Part of that strategy will be delivering a uniform experience in a space now loaded with smart audio options from Apple CarPlay and Google Android Auto.

The radio industry and the auto industry have been associated with one another for so many years but have never really talked to each other, said John Ellis, founder and managing director of Ellis and Associates, which is consulting to NAB on digital dashboard strategy.

"The automotive initiative committee was created to bridge that communication gap and start the dialogue between the two industries. It's a unified voice from the radio industry out to the auto industry," he said.

Ellis, former global technologist for Ford's connected business as well as a former executive for Motorola, says the NAB's automotive initiative committee

*(continued on page 6)***NAB AND GENIVI**

NAB's dashboard effort includes the relationship with GENIVI Alliance. The two have partnered to help develop a set of collaborative technical projects that will determine the future of radio in the car in the United States.

"NAB has expressed an understanding of the space as the long relationship between radio and the car evolves. There are new possibilities in infotainment software that radio just hasn't brought into the automotive space yet," said Steve Crumb, executive director of the alliance.

GENIVI, a non-profit organization that provides standards and an open connectivity platform for in-vehicle infotainment systems, is working with the automakers and larger suppliers like Bosch and Harman audio on emerging technologies that could make radio more relevant in the car.

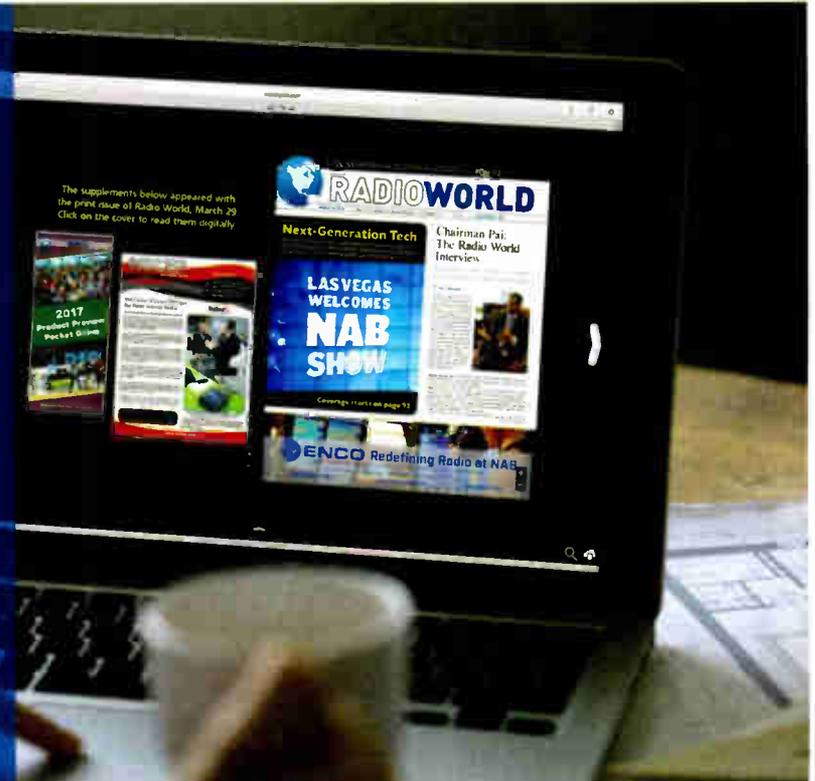
"Car makers think about their customers and how to improve the customer experience. They are always adjusting their dash offerings to fit the user. Radio has to provide a product just as good as the other components of the dash, one way to do that is to make radio more interactive," Crumb says. "The importance of that is elevated when you consider autonomous vehicles and the entertainment level that will be expected in the future."

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SECURE IT

(continued from page 1)

all hosts and users changing passwords regularly — are no longer quite enough. Successful attacks can cause dead air, lost revenue, public embarrassment, stolen personal data and huge liability problems for the victims.

Pecena's paper and presentation focus primarily on network security as the first line of defense against intruders. He identifies the key attributes that define a secure network and then provides a structured-but-practical approach for how to implement "best practices" for achieving real security. He concludes by demonstrating verification of the effectiveness of the various security measures deployed by "penetration testing" to make sure those measures are in fact correctly implemented.

Most of Pecena's presentation assumes a good understanding of IP and LAN operations, so some additional study and research with Mr. Google

Network Security Risks to the Broadcast Station

- Dead Air
- Impact Upon Resources
- Loss of Revenue
- Public Embarrassment
- Breach of Data
- Potential Liability
- Lost Trust



Courtesy: Chris Homer @PBS

may be necessary to be able to implement many of his recommendations. The first task in a structured approach for implementing network security is to consider a well-established cybersecurity model, such as used in larger

organizations like the CIA and Cisco.

Network security is often based upon three cornerstone goals: confidentiality, integrity and availability. These goals are often referred to as the "CIA Triad" — which, by the way, does not

refer to a governmental agency known by the same acronym.

A carefully defined security policy describes the attributes of a well-secured LAN with a layered design approach, including: user privileges and resource access limited to only those needed to perform assigned tasks, as well as LAN activities and transactions continuously monitored and logged as necessary with help desk support. The CIA triad structure balances the three goals of good network security.

THE OSI MODEL

Pecena uses the Open Systems Interconnection model as a guide to better organize the various layers of network security.

Layer One is the physical layer. We want to close off any and all possible physical "air gaps" to prevent LAN intrusion at this level, which controls physical access to the network

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DASHBOARD

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consists of executives from major groups along with smaller broadcasters. The committee reports to the NAB board and is led internally by Sam Matheny, chief technology officer for NAB, and Steve Newberry, the group's executive VP for strategic planning/special events and himself a veteran broadcaster.

NAB declined to identify others serving on the committee and how it plans to move forward.

"We started this effort back in April of 2017, so it's about a year old. We began by identifying the key players and decisionmakers in automotive. Then we started outreach," Ellis said.

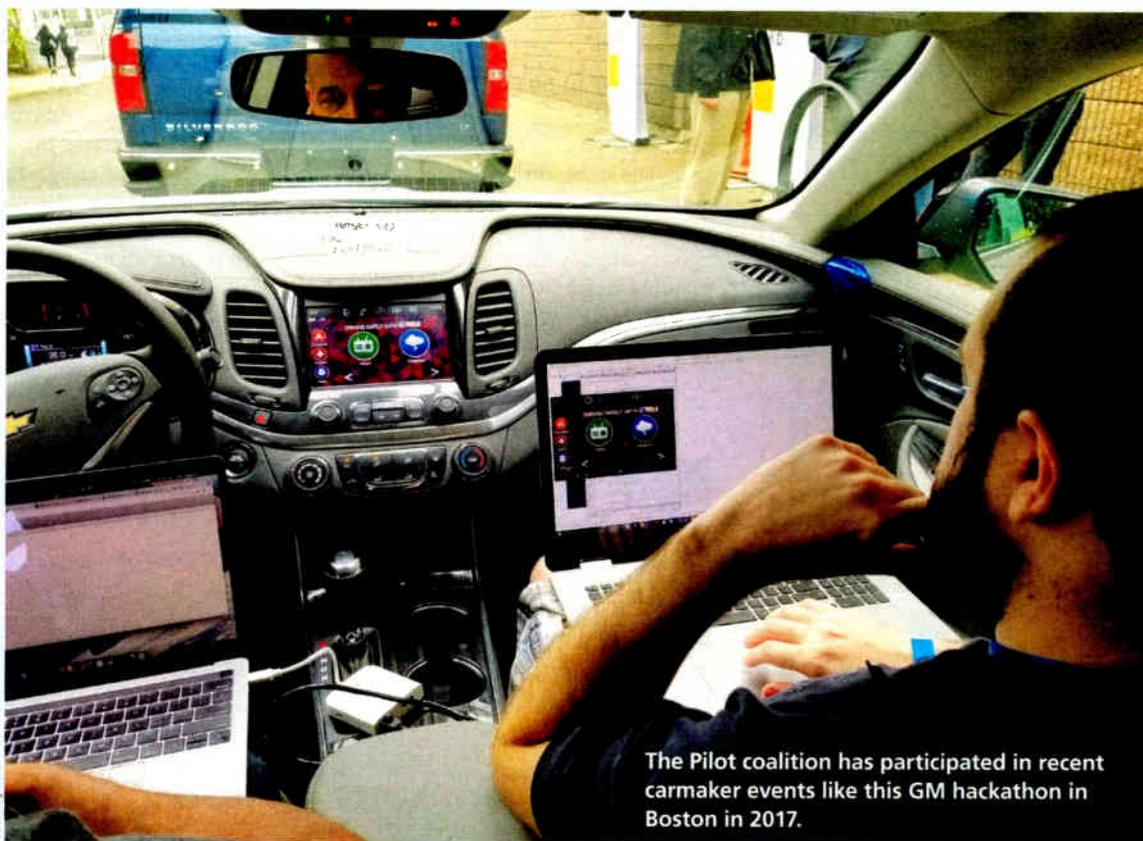
NAB made a big splash at CES in January this year by co-sponsoring a GENIVI networking event. GENIVI is a consortium of auto experts devoted to open software for infotainment systems in the automotive space.

"That was a big deal and a big 'coming out' for radio. Too many people on the car side just don't spend much time thinking about (radio) and just slap it in the car. Well, there is a rich and deep relationship of radio being in the car, and now the new technology will only build that relationship," Ellis said. [For more coverage, see [radioworld.com](#), keyword "genivi."]

That event was followed by a dinner reception at CES, Ellis said, where radio and auto executives came together to begin the conversation. "That catapulted us into the NAB Show and the presence of the car companies there. We proved the NAB is a place where auto and radio can come together under this umbrella of technology."

Ellis said auto executives participated in a multi-day series of presentations in Las Vegas, led by the NAB's Newberry.

"It was automotive's largest presence ever. We can tell we are building some momentum. For the first time ever a car company (Audi) took floor space for a booth that showcased the implementation of Radio DNS, a very specific version of hybrid radio. (Radio



The Pilot coalition has participated in recent carmaker events like this GM hackathon in Boston in 2017.

DNS) is live in vehicles in Europe and soon coming to the United States," Ellis said. "Radio DNS marries a broadcast channel with an IP channel inside a vehicle, so you have the best of broadcast and the best of Internet merged together."

Ellis said Radio DNS is an open standards platform that pairs terrestrial radio, both analog and digital, with IP-delivered content and can interface with multiple aggregators. It's similar to the DTS Connected Radio system developed by Xperi.

Collaboration between radio and auto is just beginning, Ellis said, but already there has been a "great

discovery process."

"[The automotive sector] asked us, 'Oh, you're doing that. That's amazing. Well, here is what we are doing.' It's really sparked an excitement that if the two industries really came together, what could we accomplish together," Ellis said. "We can begin to build experiences that can elevate broadcast much higher than ever before, but it can only be done through collaboration."

Ellis said it comes down to a simple concept: "Who can build the best content experience for listeners inside the construct of a moving vehicle?"

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SECURE IT

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infrastructure. Those tools include locks, cages, access badges for authorized personnel, cyber locks and bio-recognition. This should include associated monitoring and logging of all access events.

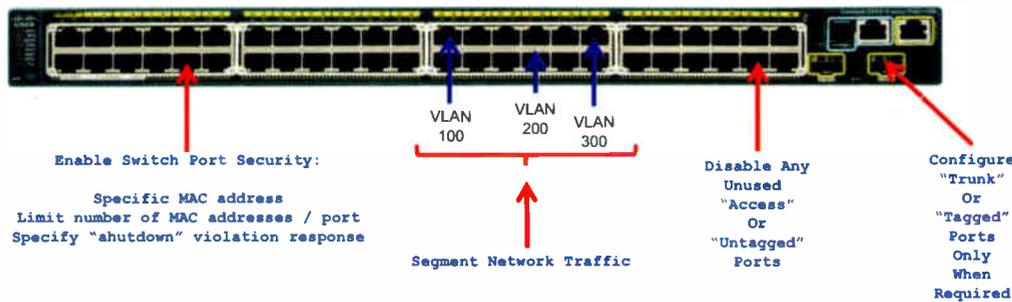
Beginning with Layer One or the physical layer, you simply protect the physical network components from tampering. This can be a wall-mounted locked equipment rack for network switches in a small station, caged racks in mid-size facility or a dedicated data center in a larger facility. Monitoring with recorded security cameras, security badge access and cyber locks fulfill the

Cybersecurity Attack Model



Layer 2 – Best Practices

- Implement Ethernet Switch Port Security
- Disable Unused Ports
- Enable “Trunk / Tagged” Ports With Caution



Cyberattack events typically follow a pattern.

OTHER CYBERSECURITY TOOLS

Pecena describes the use of encryption and cryptology as another available tool for keeping your LAN secure. Internet Security Protocol (IPSec) is a family of services commonly used to add better security against intruders. The simplified IPSec modes are Transport mode and Tunnel Mode. Many stations and groups now use a virtual private network — known commonly as a “VPN” — which is a tunnel mode application of encrypted communications across the internet into a protected LAN.

The final step needed to make sure your LAN is actually secure is verification penetration testing.

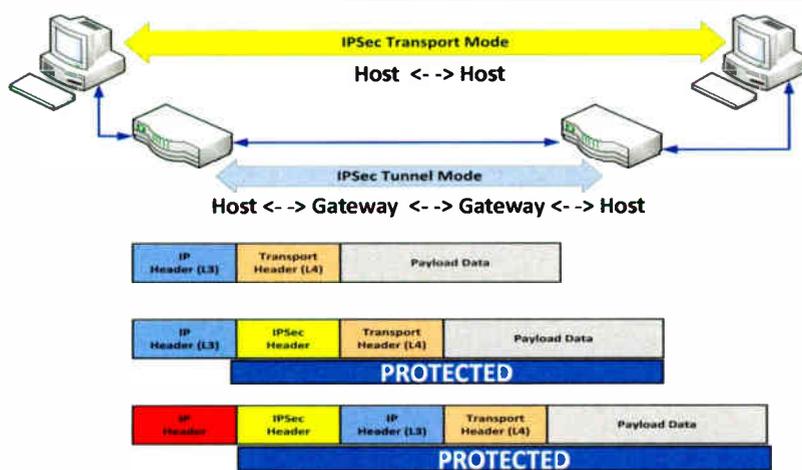
Pecena cites 10 popular IP/LAN scanning and “hacking” tools available to use for such testing, just as if you were an actual intruder. Wireshark and AngryIP scanner are perhaps the best known and can be downloaded and used for free. Nmap is also free and is one of Wayne’s favorites. Nmap/Zenmap uses scripts that probe host’s ports and reports running apps and services that can reveal where vulnerabilities may exist. Pecena suggests running *all* nMap scripts on a regular basis.

Pecena is one of the best-known IP education resources for broadcast engineers. He has offered this comprehensive presentation as a five-hour course/webinar available via *SBE.org*. It delves into all of the issues affecting and implementing better network security in detail.

After thinking about all of the layers we need to peel back and deal with regarding our IP operations, Pecena’s axiom about networks rings loud and clear: “There’s more to networking than just hooking things up.”

Tom McGinley is a technical advisor for Radio World. Comment on this or any story. Email radioworld@futurenet.com with “Letter to the Editor” in the subject field.

Simplified IPSec Modes



Two modes of IPSec are commonly used: transport and tunnel.

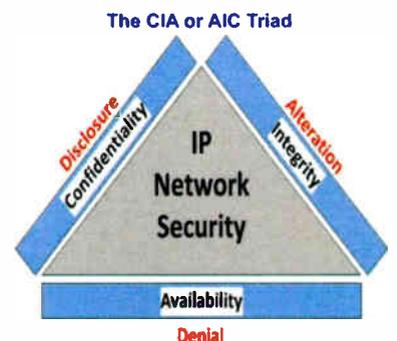
restricted access monitoring and logging need.

Layer Two is the Ethernet switch port programming for the LAN. Use VLANs to segment traffic for specific user groups or functions. Disable all unused ports. Only enable trunk or tagged ports with caution.

Layer Three is the network layer programming. This is the layer often neglected by smaller stations or those without significant corporate IT operations support. It includes firewall implementation that sets up access control lists with ACL “rule scripts,” packet Filtering and other Rule Lists. The effective use of firewalls, both hardware- and software-based, is the most common tool LAN and WAN administrators use to control which packets are allowed to enter and which are dropped.

Goals of Network Security

- **Provides Confidentiality**
 - Prevent Disclosure - Maintain Privacy
- **Maintains Data Integrity**
 - Prevent Data Alteration Thu Network
- **Provides Resource Availability**
 - Prevent Denial of Use of Network Resources



More than Just an IP Codec

Introducing Record and Playback on the ViA



The screenshot shows the ViA interface with the following details:

- Top status bar: May 10th 10:43 AM, 4G, 4G, 20%
- Header: Media
- Navigation: Record, Record Mix, Manage Recordings
- Track info: Track: Track001.mp3, Size: 1.3mb, Sample: 44.1kHz
- Recording progress: 00:00:18, Speed Remaining: 2.3 GB
- Buttons: Switch to Playback, Record (R), Play (▶)

Record

- Select & record any input, return audio or file playback
- Stream, Record & Play simultaneously
- Record to SD card
- View & manage recordings

Stream

Playback

- Create playlists of local & imported recordings
- Route file playback to any output or record media
- Offline Cue monitoring

((ViA))

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“The System Is Imperfect. There Will Be Other False Alerts”

EAS Insight: Q&A with Alaska's Dennis Bookey

BY SUSAN ASHWORTH

After releasing a report about the January false ballistic missile alert in Hawaii, the Federal Communications Commission hosted a public roundtable in May to discuss lessons learned. Individuals from various emergency communications organizations participated.

Among them was Dennis Bookey, broadcast co-chair of the Alaska State Emergency Communications Committee, which recently had its own experience with a false alarm.

Radio World: What specifically was the focus of discussion?

Dennis Bookey: I was told Alaska was chosen to be included in the roundtable because it was a good example of what strong working relationships between public safety and broadcasters should look like. As planning advanced, my role was to contribute to the broadcast end of the system. My contribution was going to be on the reporting of false alerts to the FCC and if that should happen.

Our position on notifying the FCC of false alerts is supportive, provided [that such a system] in no way burdens any broadcaster and the goal is sharing information to benefit all EAS participants.

We want the FCC to understand that public safety officials and the SECCs have a great deal of parties to answer to right after such an event, and that the call or report to Washington isn't at the top of the list. But just in the same way we learn from “best practices,” let's learn from the things that go wrong.

Radio World: What are the emergency issues that your state has had to address within its EAS State Plan that are unique to Alaska?

Bookey: It's all about tsunamis. We have an occasional Amber Alert and some local weather alerts the same as any other state, but our focus at the state level is all about tsunamis. It isn't just a code listed in the plan. There are detailed



Dennis Bookey

explanations and diagrams for how that part of the system works.

We're in an extremely active seismic region of the world. The National Tsunami Warning System is located just outside of Anchorage. The major cause of death from the '64 earthquake was from the tsunami that followed.

Radio World: Did you learn anything in the discussions that might be useful to implement for Alaska?

Bookey: Yes. After Hawaii and our own recent false alert, I think it's good that we have a part of our plan that addresses false alerts.

I don't believe that necessarily means another EAS automatically goes out. Interrupting broadcasters' airtime needs to be part of the evaluation. That should be [decided on] a case-by-case basis; but the plan should have the procedure documented and who is involved. We had actually started discussion of that process in our first meeting after the Hawaii FCC report came out.

Radio World: Alaska had its own false EAS alert recently surrounding a tsunami warning. There's been some discussion that the problem lay with the message that was sent from a vendor in Florida to the state's emergency communications network. Can you shed additional light on what happened?

Bookey: No one pushed the wrong button. On the morning of May 11, Alaska broadcast stations and cable systems carried one, and in some cases two, tsunami warnings that were actually a test sent by the National Tsunami Warning Center in Palmer.

So what happened? Because lives are at stake and every second counts, parts of the Alaska EAS system for tsunami warnings are automated. The Alaska EAS system uses a commercial vendor to supply an additional relay primarily for tsunami and Amber EAS activations. This system, EMNet, is hooked up to our 22 LP-1 stations, Alaska Rural Communications Service, Alaska Public Radio Network and some other key input points across the state. EMNet in turn is hooked up to the National Weather Service Weather Wire, which carries all the warnings and has to filter out the test.

In short, there was some coding contained within the vendor's weather processing server that failed to recognize the tsunami warning as a test. This allowed the test to pass through to the LP-1s and be carried over the air and daisy-chained to all the stations and systems monitoring their LP-1s in the warned areas. This issue has been rectified.

job of setting monitoring points especially with our coastal stations. We've also learned the timelines for wireless carrier's plans for bringing WEA online, which we didn't know prior to the event. Because WEA testing hasn't officially been authorized yet, our activation revealed varying results with message distribution. We all need to learn where and on what devices a WEA alert is going to show up.

The public is hungry for this feedback; and we have limited information to give them at this point. WEA testing is critical. We hope to include WEA testing in our annual live code tsunami test next March.

Radio World: Why are roundtables like this important?

Bookey: There are different approaches to EAS across the country. It's always beneficial when you're exposed to different procedures, and it's reassuring when you hear from areas that match your experiences.

In broadcasting, we're all pretty well connected, and keep track of what everybody in our industry is doing; but our public safety exposure is most likely

Public safety officials and the SECCs have a great deal of parties to answer to right after such an event.

Radio World: What has your organization learned that you might apply for future tests and alerts?

Bookey: The test that took place happens on a regular basis and is not intended for the EAS system. It's for the NWS and many of the other components of a tsunami warning outside of the EAS environment. We did learn that our EMNet relay system can successfully send out a tsunami alert and warn the proper areas as a backup to NOAA weather radio. This reinforces the importance of the system in Alaska's EAS plan. As stated before, we need to formalize the action steps in the case of a false alert.

We've learned a great deal from our most recent actual activation in January that has given us a wealth of information. All of the EAS partners involved in the tsunami warning took away lessons that are effecting changes. We learned how important it is to have multiple streams to broadcast and cable operators of the tsunami activation. NOAA weather radio is great. But it's not enough. Weather alerts aren't passed through IPAWS, so you need additional sources.

Our EMNet relay system takes on a more critical role as a redundancy. In addition we need to do a more detailed

limited to those in our locality and state. I greatly appreciated hearing from the public safety officials involved in emergency planning on the panel, as they work well outside of our day-to-day world.

And let's admit it. Those are the guys activating our transmitters. Hearing frank conversation from Patrick Sheehan of the Tennessee Emergency Management Agency was very enlightening. He was honest enough to admit what we already know: The system is imperfect and it involves humans and humans makes mistakes. There will be other false alerts.

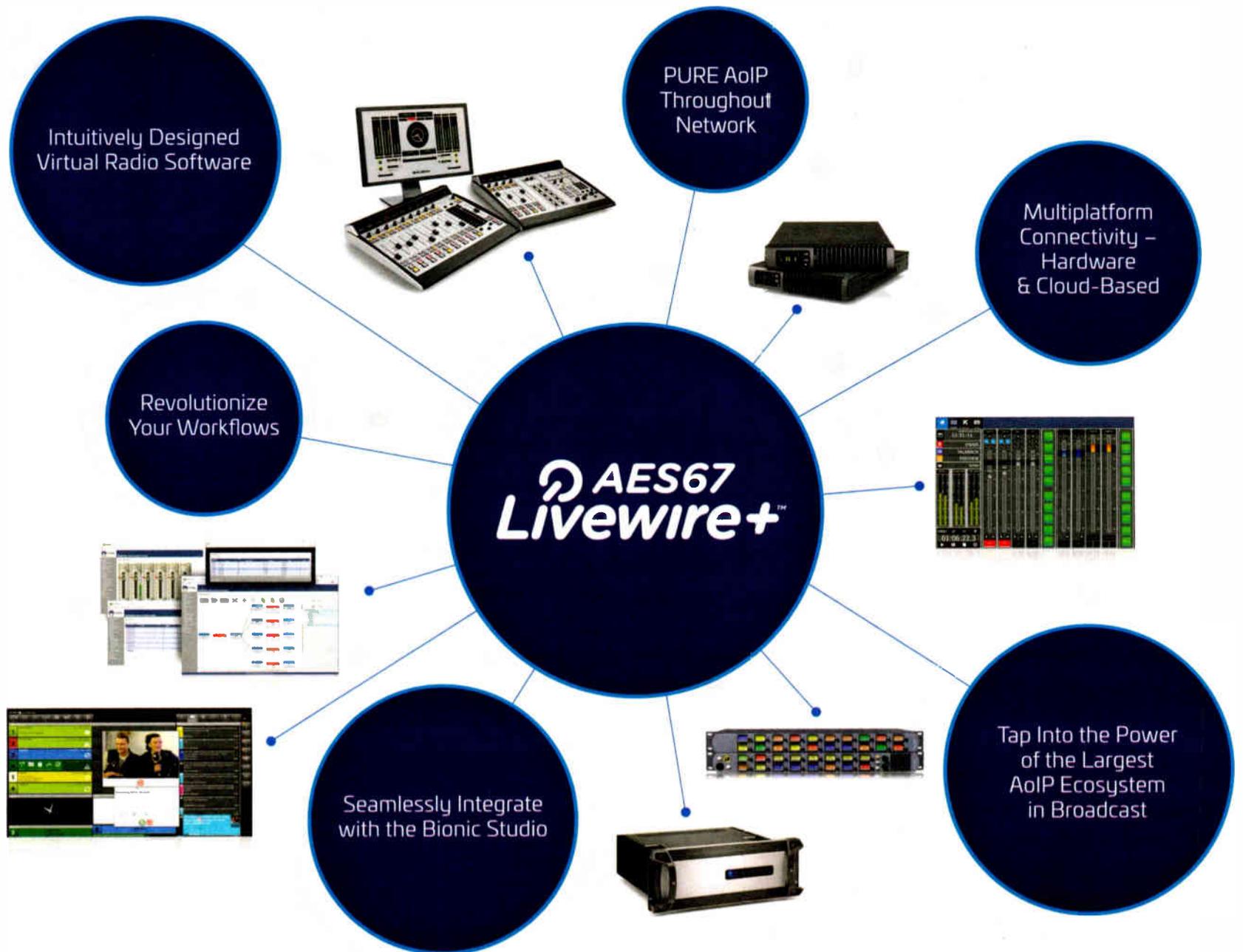
Radio World: What else should we know?

Bookey: We're all stuck with the technical restrictions of the EAS format. We have to find ways to make it work as best we can. This is one of the areas we rightfully take credit for serving the public good. I hear the line “EAS is broke” quite often. If you think EAS is broke, then get involved and make it better where you live.

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



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Let's Continue Our Site Inspection

Put your legs to use and take a walk around your site

WORKBENCH

by John Bisset

Email Workbench tips to johnpbisset@gmail.com

New Hampshire Public Radio's Steven Donnell replied to our recent site inspection column by suggesting that before you go inside the transmitter building, you should inspect your towers.

As soon as the snow is gone, one of the first things that Steven does is "take a walk." He goes out to the guy wire anchor points and makes an inspection. Check for loose ground jumper connections, and visually inspect the condition of the anchors and ground rods. Steven tries to do this in the short period after the snow melts and before the ticks arrive.

If you have an old lawnmower, you can reduce the tick issue by mowing a path through the brush to the anchor points. Be sure to check any other station grounds around the building.

The list of less glamorous tasks that Steven performs each spring includes clearing drainage culverts and checking for dead trees/limbs that could damage phone or electrical lines.

Spring is also a good time to replace air conditioning filters, so that things inside stay cool. If you're not using pleated air filters (Fig. 1), pay the extra money and watch how clean they keep your site!

Inside, Steven suggests you check the



Fig. 1: A demonstration of the pleated air filter's efficiency.

electrical panels. As we described last issue, put multiple senses to work. Feel the outside of the panel cover and the breakers themselves for any unusually warm breakers. Just like the rigid transmission line, warm is usually OK, hot is not.

Steven also suggests a quick visual scan. Not only may the visual inspection identify a breaker that may have tripped on seldom used equipment, but a tripped breaker may not always be evident.

Breakers that feed GFI (ground fault) outlets are a good example, seen in Fig. 2. Steven noticed that one of the HVAC units at a remote side was off. But since it was early spring in northern New Hamp-

shire, the second HVAC unit kept the equipment room cool.

Steven found the circuit breaker for one of the HVACs had tripped. After resetting it and checking the HVAC unit,

Yearly electrical maintenance will more than pay for itself, should you have a burnout.



Fig. 2: Breakers can and do go bad.

he determined the breaker itself was bad. Steven de-energized the entire panel, and though the transmitter was off for about 20 minutes, he replaced the breaker safely. After re-energizing the panel, the transmitter came back up, as did the HVAC unit. There were no further issues.

At several recent SBE programs sponsored by my employer Telos, we've discussed electrical boxes. At least once a year, it's good insurance to bring in an electrician to tighten all wiring connections in your disconnects. Loose wires generate heat and eventually will burn and fail. The yearly electrical maintenance will more than pay for itself, should you have a burnout.

As you make a list of tasks for your transmitter sites, don't forget to include copies of FCC licenses. Yes, even though Chairman Pai is proposing the elimination of the rule requiring the display of broadcast licenses, it's not a bad idea to have copies of this information at the transmitter site — just make sure the information is correct.

Also laminate a page that shows typical operating parameters. Not only is this useful for you, but it can help your fill-in when you are on vacation.

You are taking a vacation now and then, right?

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Author John Bisset has spent 48 years in the broadcasting industry and is still learning. He handles western U.S. radio sales for the Telos Alliance.

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Saudi Arabia Puts Radio to Work in Yemeni Conflict

AM, FM and shortwave radio all play roles in these military broadcasts

RADIO AROUND THE WORLD

BY HANS JOHNSON

Saudi Arabia opened a new front in the civil war in Yemen with the launch of Determination Radio (Itha' Huna Al-Azm) last September. The troop-supporting station is the latest initiative in a cross-border conflict taking place on air, sea and land.

Determination Radio is a service of the country's Ministry of Culture and Information and is implemented by the Saudi Broadcasting Corporation, or SBC. Coming on the air with the slogan, "The Voice of Truth," opening ceremonies included a cake-cutting attended by various dignitaries. The director of the station is Ayman Al-Radadi.

The station's audience is the Saudi military deployed in the country's southern border provinces of Jizan and Najran, according to Saudi media reports.

Determination Radio airs both recorded and live programs in Arabic, with at least some of the shows originating from studios in Jizan. The station started out with 12 hours of daily pro-

gramming, but expanded it to 24 hours after a few months.

Programs include "Southern Shield," "Southern Pulse," "The Homeland Unites Us," "Peaceful Kingdom" and "Yemen Through the Eyes of Its Sons." At least two programs are devoted to explaining whom the troops are fighting: "Pirates" and "The Spider's Web."

Determination Radio is an all-band radio station. On AM, they transmit on 549 kHz from the seaside border town of Jizan



The opening ceremony for the station's launch.

with 1 kW and from Najran with 747 kHz with 10 kW. These outlets previously carried the SBC's General Program.

The station announces a number of FM frequencies. There are two in Jizan province, one on 107 MHz in Farsan, a town in a group of islands in the Red



Sea, and another in the mountain resort of Fifa on 99 MHz. In Najran province, they are on 107 MHz in Khubash. The previous status and transmitter powers for these outlets is not known. An additional transmitter on 94.9 MHz broadcasts from South Dhahran with 100 kW and previously carried Radio Jeddah.

SHORTWAVE TRANSMISSIONS

Shortwave is transmitted on 11745 kHz in the 25 meter band. The shortwave frequency is apparently for those outside the coverage of the AM and FM frequencies. Depending upon the time of day, either the site at Riyadh or the Al-Khumra site in Jeddah is used, but which site is used at which time is not public knowledge.

The most likely transmitter to be



A map of Yemen

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RADIO SANA'A: THE WAR'S OTHER MYSTERIOUS SHORTWAVE STATION

Radio Sana'a is the shortwave station of the Saudi-backed Yemeni government, but the capital city is no longer controlled by the government. It is the only shortwave outlet connected to Yemen that is on the air.

The station started broadcasting in November 2015. Programs are produced in Aden, according to a press report. The country's only known high-powered shortwave site near Sana'a is also not under government control. There are also severe power shortages in Yemen, so setting up a shortwave station from another location in the country would be extremely difficult.

So where is this mysterious station coming from? Whoever is carrying the

programs has spare shortwave transmitter capacity and the funds to operate it 24 hours a day. The Saudis have both. The pattern of frequency management is similar to Determination Radio with a single frequency in the middle of the 25 meter band (11860 kHz) for the entire 24 hour schedule.

Radio Sana'a was also reported in the press as being on the Badr 4 satellite in addition to shortwave. An examination of programmers on Badr 4 shows a listing for SBC with "Yemen Radio" as one of the sub-channels. There would not be much of an audience for Badr 4 in power-starved Yemen, but it would be an excellent way to feed programs produced in Aden to a transmitter site in Saudi Arabia. And if the Saudis are willing to carry them on satellite, then why not the shortwave as well?

All indications are that the secretive Radio Sana'a is coming from Saudi Arabia.



Station Director Ayman Al-Radadi

used at Al-Khumra would be one of the 250 kW Continental transmitters installed in 2011. At Riyadh, there are a number of high-powered transmitters that could be used with powers up to 500 kW. Directional curtain antennas are used at both sites.

Determination Radio's shortwave setup has advantages and disadvantages. A single shortwave frequency in use 24 hours per day certainly makes for easier branding.

It can also be easier for listeners who will never have to re-tune their radios. Choosing a frequency in the middle of a broadcast band ensures that all shortwave sets will be able to tune into the frequency. Having said that, a shortwave station employing a single transmitter will typically use different frequencies depending upon the time of day and year in order to optimize reception in the target area. Some stations use multiple transmitters operating on different frequencies to maximize coverage.

Stations using shortwave for international broadcasting also ideally coordinate their frequency selection through the High Frequency Coordinating Conference. Working through the HFCC can minimize possible interference from other stations that might want to use the same or adjacent channels.

When Determination Radio started in late 2017, 11745 kHz was an excellent selection, coordination-wise. The

(continued on page 16)

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The Sturgeon Resurfaces in Nevada



Back in the day, KFRC mobile studio was a mainstay promotional vehicle for the San Francisco AM

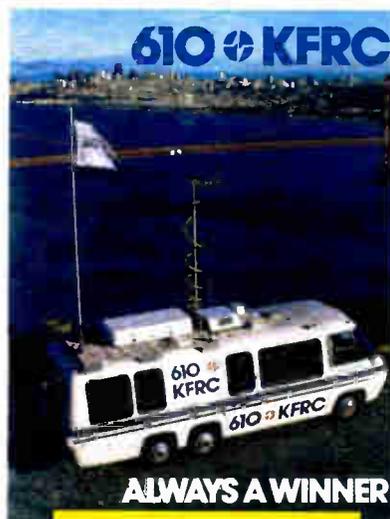
BY KEN DEUTSCH

At some point in our lives, most of us have taken on a project for the sheer love of doing it, regardless of any financial consequence. Such was the case with radio veteran Bill Shakespeare and the resurrection of the original San Francisco KFRC(AM) mobile studio, a fully equipped 1975 GMC Coach nicknamed The Sturgeon.

"KFRC inspired me to get into radio," said Shakespeare, who began working there in late 1985 and eventually became the mobile studio coordinator.

"KFRC was owned by RKO, and it was a time when all those big AM flamethrowers were trying to figure out how to remain competitive with FM. The program director at the time, Gerry Cagle, said that The Sturgeon helped keep KFRC viable in the top 40 format, due to its visibility and presence at events all over northern California."

When the station finally switched



KFRC promotional flyer featuring The Sturgeon.



Bill Shakespeare poses with The Sturgeon at its then home in 2014.

SHORTWAVE

(continued from page 15)

frequency was an open channel, that is, no other stations were using it. Although the Saudis register their other services, they did not do so with Determination Radio. This left the impression that the frequency was not in use. Now some other stations have started to use the frequency at certain hours, resulting in potential co-channel interference to Determination Radio.

The station also announces that they are on Arabsat 5, a

satellite used extensively by Saudi Arabia for television and radio services.

Saudi Arabia is supporting its troops with this new service. With long-broadcast hours, much original programming, and a massive all-band effort, this is an extensive and expensive operation. Even though we are almost a quarter into the 21st century, radio broadcasts can remain the most important means of communication in a crisis.

Hans Johnson wrote in 2012 about Robert Williams and his Cuba-based broadcasts in the 1960s targeting blacks in the U.S. south.



Courtesy ajel.sa

to a big band format in August 1986, Shakespeare left to pursue a new radio opportunity, but he never forgot about the vehicle that had carried air personalities like Bobby Ocean, Bill Lee, Harry Nelson and Dr. Don Rose, morning man at KFRC from 1973 to 1986.

Shakespeare remained in radio in other markets until 2015 before taking a break after 30 years.

"Radio has changed quite a bit," he said. "It's computerized, homogenized and the creativity is gone, unfortunately. I hate saying that, and I keep giving it a chance. But I'm not 20 anymore, and I don't plan on moving my family around in a U-Haul at this point in my life."

THE STURGEON RESURFACES

Many years after leaving KFRC, Shakespeare became curious about what had happened to the mobile studio. He discovered that KFRC had been sold to Family Radio, and the mobile studio was a part of that sale. Not long after that, Family Radio sold the station to KUSP(FM) in Santa Cruz, Calif.

On a whim, Shakespeare called the new general manager, who said that he had the mobile studio. The next

(continued on page 18)

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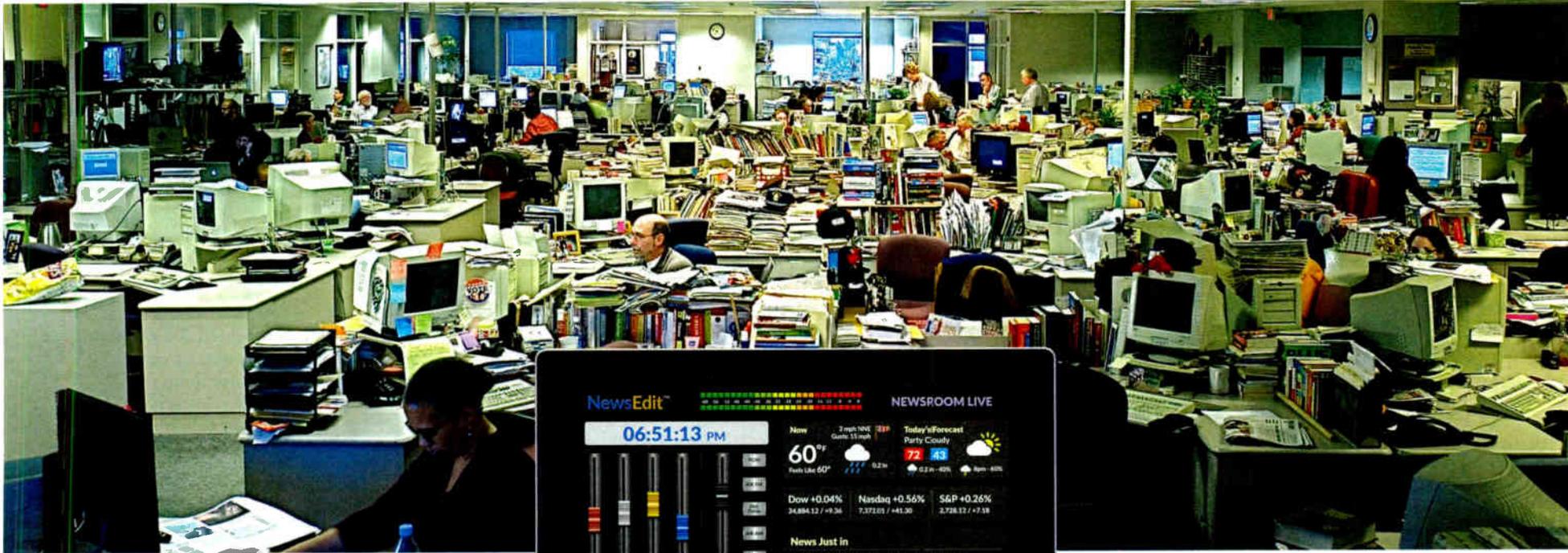
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The clean up begins with the help of Shakespeare's son, Sean. Years of black debris had to be repeatedly scrubbed off.

THE STURGEON

(continued from page 16)

summer, after a family weekend trip to the Santa Cruz beach boardwalk, Shakespeare decided to stop at the station on the way out of town. And there it was at last: The Sturgeon.

"It was parked under a couple of trees, and it didn't look very good," he said. "There was no logo on it, and the window frames had been painted white. I went into the station and asked the GM if I could take a look inside. Permission was granted, and when I opened the door the smell of mold was overwhelming. I saw that the interior was all original, but some of the rack equipment had been removed. Wires were hanging out everywhere and duct tape was stuck all over the place. The old board was still there, a Pacific Recorders BMX-14, and an additional mixer had been added to the back counter for jazz concerts.

"Sad to say, this once proud vehicle was dying a slow death, rotting away in a back parking lot. I went back into the station and asked the GM if he was interested in selling it. He turned me down."

In 2014, two-and-a-half years later, Shakespeare decided to call the station again. Luckily, his timing was better. The new GM was open to selling the vehicle. A deal was struck, and the mobile studio was nominally fixed up to the point where it could make the trip from Santa Cruz back to Shakespeare's home in Reno, Nev., under its own power.

Shakespeare got on a plane to San Jose, Calif., and

took a shuttle to Santa Cruz.

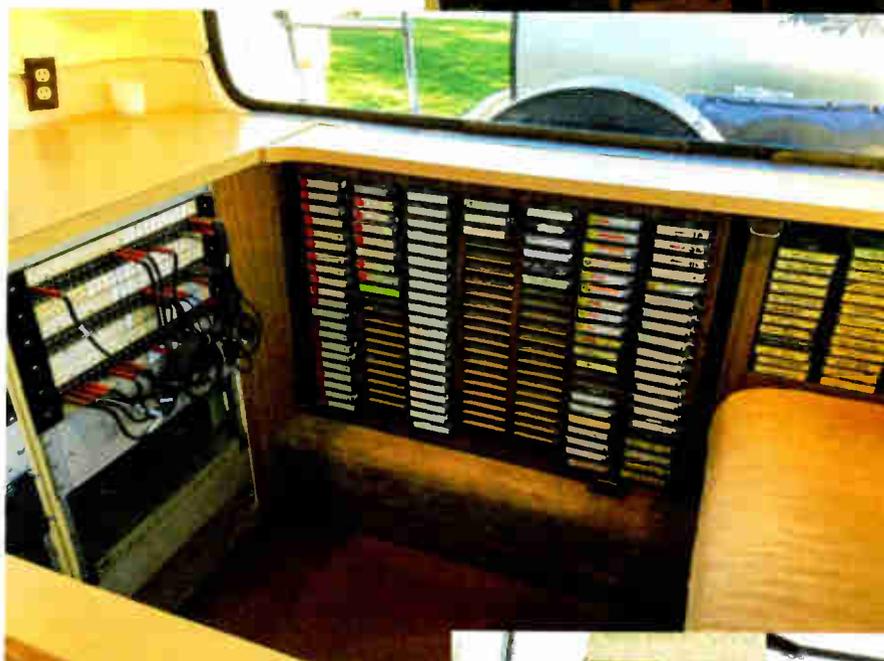
"I remember giving the GM a cashier check, and that was great," said Shakespeare. "But the damp, musty mold smell was still apparent on that rainy January day, and DAMP-X packages were in every corner to absorb the moisture. The drive back was scary at times. There was lots of wind that day. It took me about eight hours to get home because there was snow in the mountains, but I made it!"

But what do you *do* with a 33-year-old station promotional vehicle?

"The word was that RKO had spent around \$250,000 purchasing and outfitting it," said Shakespeare. "Back in Reno, my sons and I cleaned off the rack on top because there was black



Above: Former Sturgeon engineer Kent Hedberg provided the wooden sign among other interior items. It's shown hanging in its original location.



Left: Sturgeon fan and Shakespeare's friend Ralph Koal rebuilt the below-counter cart racks, even matching the wood grain.

residue and leaves all over it.

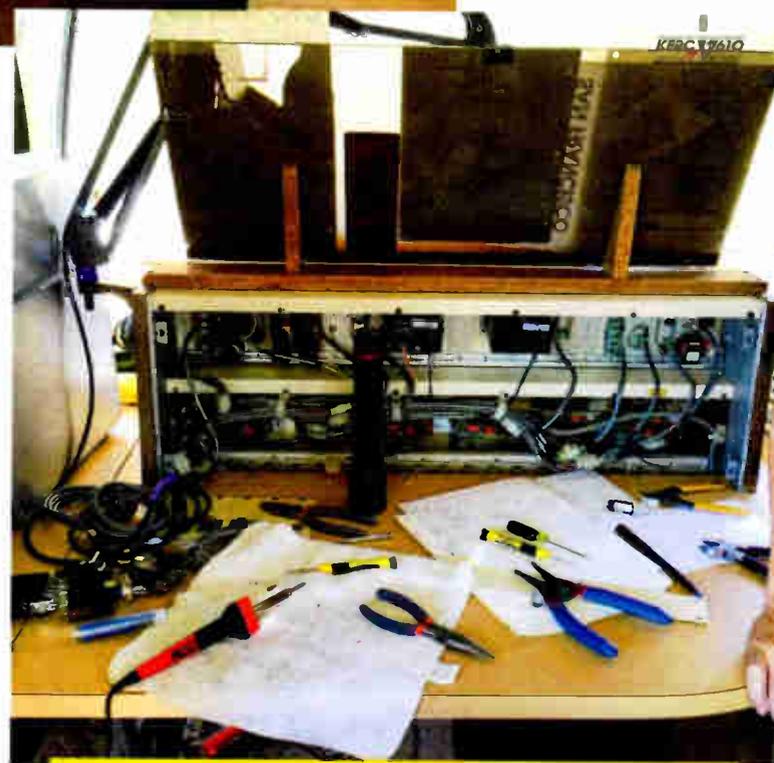
"The Sturgeon was filthy inside. We had to figure out what to do with the countless cut or unhooked wires, and then we had to figure out how to get the console working. Many of the interior lights were missing, but I wanted to keep the original style, which featured track lights in black and white cylindrical fixtures. I had to buy some specialized four-track adapters from a guy in Chicago.

"The good news was that one of the original engineers who used to be responsible for the vehicle, 'Captain' Kent Hedberg, was in the process of moving just five minutes away from me in Reno, and he became a great help. He had some of the old equipment, promotional items and memorabilia in his garage, and he even had the original wooden nameplate," Shakespeare said.

BACK TO SHIPSHAPE

"The Sturgeon" name is credited to KFRC personalities Bill Lee and Harry Nelson, who came up with it after watching an old movie that featured a ship

(continued on page 20)



Shakespeare and fellow volunteers tackled the challenge of making the studio and its miles of wiring functional again.



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World Radio History

THE STURGEON

(continued from page 18)

with lots of windows called — you guessed it — “The Sturgeon,” according to Shakespeare.

“Not only did Hedberg have that old sign, but also many KFRC carts including all those morning show drops from Dr. Don Rose. Today The Sturgeon has both cart machines and a computer to playback un-scoped KFRC airchecks from the early '80s. It was a slow process of reconstruction and restoration to bring The Sturgeon back to life in an authentic way.”

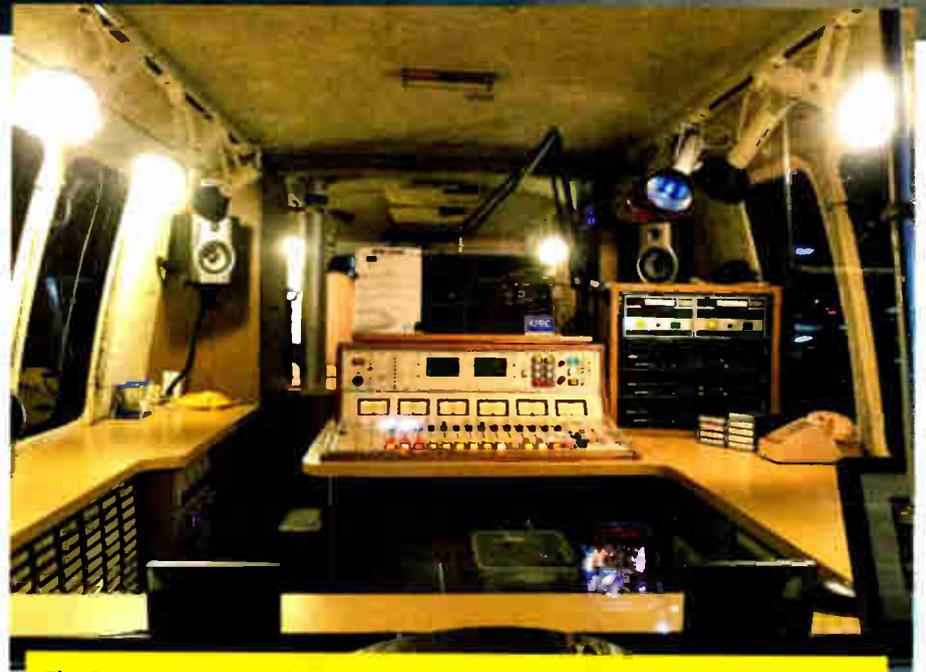
From the time he acquired the mobile studio, Shakespeare has invested more than \$10,000 on restoration, and now he displays the OB vehicle at several venues, including the second biggest classic car shows in the US, Hot August Nights in Reno.

“I promoted this event on Facebook, and a lot of people showed up,” said Shakespeare. “A woman came up to me when we were blasting a KFRC aircheck from 1982 on our speakers. She thought we were on the air, and she began to cry because she grew up in San Francisco, listening to 610 KFRC.”

“That radio station impacted a lot of lives. It was really cutting-edge for the time, and the station was responsible for



Slowly, but surely, The Sturgeon's exterior was returned to its former glory, down to the graphics and black window frames.



The Sturgeon once again is ready to get back in business and now resembles a functional mobile broadcast studio.

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inspiring so many people I know who got into the radio business. I couldn't bear to see The Sturgeon chopped up or scrapped, but that's what someone had been planning to do with it before I rescued and saved it.”

Oldies fans will be glad to learn that the KFRC call letters survive on FM in San Francisco, and the station is streamed at kfrcfm.radio.net.

While someone else now owns those call letters, Bill Shakespeare owns The

Sturgeon, and he's not giving it up. But as he told Radio World, “I didn't save it for myself. I saved it for everyone to see, remember and enjoy.”

Donations and help can be offered by visiting www.facebook.com/KFRCMobileSturgeon.

Ken Deutsch is a former radio personality who plied his trade in Toledo, Ohio and Ann Arbor, Michigan until he realized that perhaps he ought to find another line of work.

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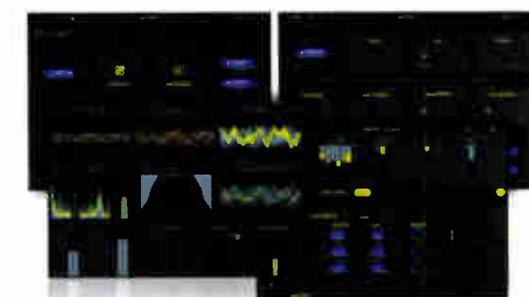
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Enterprising Remotes With Tieline Report-IT

Simplicity and signal quality please Illinois broadcaster

USERREPORT

BY SCOTT SIVERS
Chief Engineer
SJ Broadcasting LLC

CHAMPAIGN, ILL. — I have worked as a radio and/or TV engineer for more than 25 years, based in the Champaign/Urbana region the entire time. Working in broadcasting I have worn many hats; but I have always been an engineer first.

I first heard about Tieline's Report-IT Enterprise smartphone codec app in Radio World magazine and was intrigued about trying it for live remotes. We already owned a Tieline Commander G3 field and rackmount codec but required another option for our reporters to go live, particularly nontechnical users. I sought more information on how it works, then purchased 10 TieServer subscription licenses to use on any of the four radio stations we own and operate in east central Illinois.



So far we have used Report-IT to go live on WSJK(FM), WGKC(FM) and WQQB(FM).

I use the Android TieServer Console app to configure Report-IT user accounts and have found it very easy to set up. Since setting up the user accounts, I haven't needed to make any last-minute changes; but if I did, it's nice to know that I have the convenience to do it any time I like using my phone and the TieServer Console app in the field.

With Report-IT Enterprise we connect back to our Tieline Commander G3 rack unit using the Tieline Music algorithm; and from a compatibility perspective the Report-IT app is able to connect to any Tieline IP codec.

There are a few key reasons why I really like Report-IT:

- It is so simple for anyone to use;
- The audio quality is far and above the quality of a standard phone line;
- Portability: You can do remotes from anywhere with a cellphone or Wi-Fi connection.

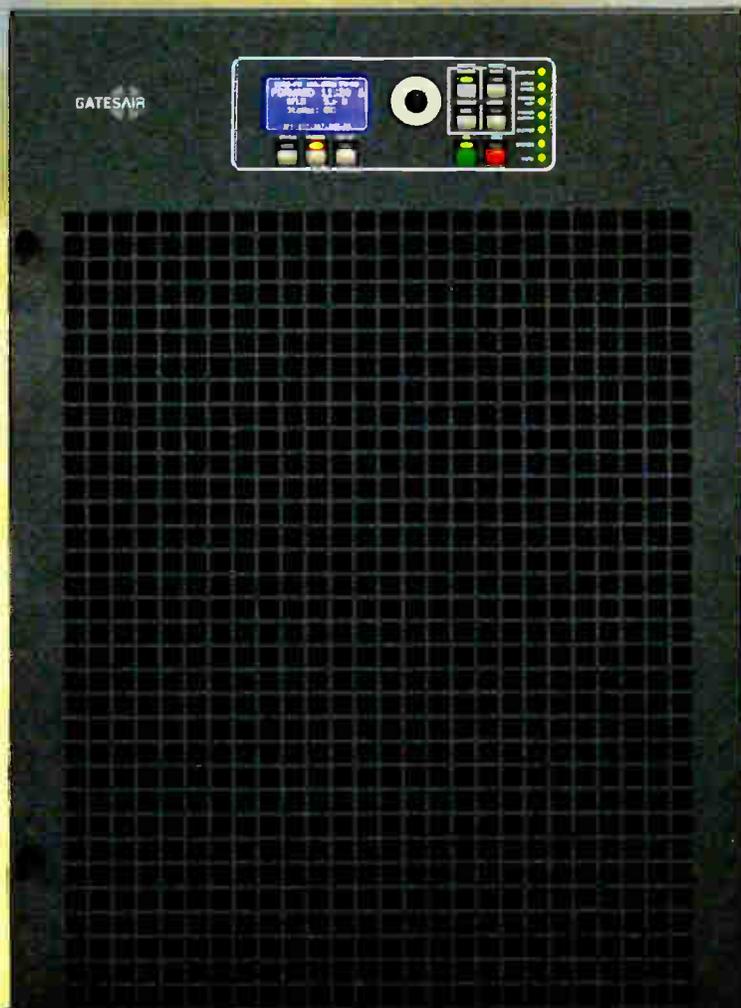
(continued on page 26)

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The Axia IP-Tablet Experience

Moving the radio studio into the future

USERREPORT

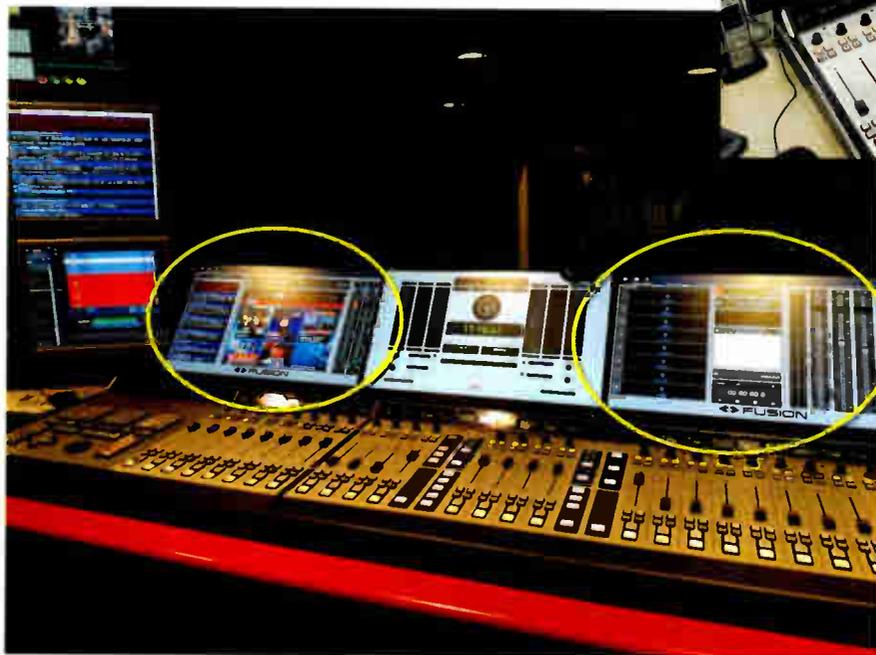
BY JÉRÔME GAHERY**Owner
IP-Studio**

PARIS — Moving the radio studio forward into the future — that's what RTL Reunion Island and a famous rap format radio station in Paris, who would like to remain nameless, are aiming to do by using the Axia IP-Tablet Virtual Radio Software. IP-Studio is a Telos Alliance Livewire partner and broadcast solutions provider. When they came to us, these two stations both wanted to build new studios with Axia Fusion and were also interested in using all the technology available to them to make the studios of their dreams. In the end, they both decided to use two types of consoles — the traditional hardware one and a new virtual one. Mixing the virtual and physical is a solid step forward to a next-generation studio.

Powered by an Axia StudioEngine, the configurations are based on sharing the console's resources and features with more than one operator or at more than one location in the studio. In the case of the rap radio station, the goal was to allow access to a virtual fader for the console for simultaneous microphone switching and hybrid control. The system was set up so that the speaker could control the guest microphone and hybrids from their seat with a touchscreen directly in front of them. There can be a real advantage when studio talent has the ability to see everything that they need for doing their job right at their fingertips.

For RTL, there was a desire to remove the traditional large main console screen in order to reduce the amount of screens

in the studio and display only the information that they needed. There are three tablets integrated into the studio for this project running Axia IP-Tablet virtual radio. The first one in the hardware console is a tablet module used to access a virtual fader, hybrid control and Omnia VOCO preset control. The second tablet has replaced the original large HD screen to display console information and optimize the space in the studio. The third tablet was put in for displaying console information (VU meters) and hybrid control for doing



game shows, and sits directly in front of the main talent.

REUNION ISLAND

In addition, we worked with Reunion Island to build four news booths with a consoleless concept by displaying the virtual mixer on the editing work sta-

Below: At the Parisian rap radio station the center screen is a standard display for conveying information while the touchscreens on each side provide information and control via software.



Above: At RTL Reunion tablet-based touchscreens can be seen in several roles, circled. One is in the studio itself giving the host access to certain controls. Two others are in the control room — one on top of the console and another embedded within it providing the engineer with flexible control options that do not necessarily have to be hard-wired in.

tion. These configurations just need a Telos Alliance Mixed Signal xNode (microphone input, speaker and headphone outputs). In these four booths the IP-Tablet software is running on a PC that includes the VX hybrid for conducting interviews.

At the rap radio station in Paris

they are using two large touchscreens in front of the console. These display virtual faders, hybrids control and more in a new "open console" concept. They can display external information from sources such as the station's website, SMS stream from the listeners and video streams from back of the studio cameras. On these larger displays, the user can control and supervise all the information they need for the show directly. In addition, the main host has a Surface PRO tablet for controlling the hybrids, switching the guest microphone and displaying console information as they see needed.

These two configuration examples demonstrate how the hardware devices (console, hybrids, voice processing, codecs, etc.) can be controlled in a number of new ways, based on sharing the resources throughout the studio in order to provide unique broadcast workflows. Increased connectivity, reducing console size and studio costs, and improving the access to the studio resources are just a few ways that the IP-Tablet Virtual Software is pushing the envelope forward.

For more information, contact Cam Eicher at The Telos Alliance in Ohio 1-216-241-7225 or visit www.telosalliance.com.



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Comrex Opal Opens Doors for New Life Radio

Hardware box brings quality audio to smartphones

USERREPORT

BY JOE EMERT
President
Life Radio Ministries

GRIFFIN, GA. — New Life Radio is a Christian format station that plays a mixture of music and syndicated programming from different parts of the country. We have two nonprofit, noncommercial FM stations in Atlanta (90.7 and 91.7 MHz). As part of our nonprofit model, we also help build radio stations in other countries. We've built nine stations in Papua, New Guinea, and we helped build a station on the island of Bonaire with Trans World Radio that covers a lot of South and Central America.

to use Opal for those. All they have to do is click a link to get connected. Even if they use it on their smartphone, it's going to be a much better connection than a standard telephone connection.

We've been using Comrex equipment for a long time. We started out years ago with one of the early devices that came out, then purchased an Access hardware codec. We have a broadcast trailer, effectively a fancy RV that lets us connect back to the studio. We take it out to county fairs and concerts and various events and set it up and use our Access to broadcast live.

But the Opal gives us another option. We'll be able to be on the air with the Access unit from a county fair, and have two of our staff members somewhere else in the fairgrounds on Opal, all linked together back in the main studio.



Jim Stewart, operations director, with Opal in hand. Access and Opal rackmounts can be seen in the rack behind him.

Opal fits right into our tight nonprofit budget. We're excited about it; it's going to open up a lot of doors for our programming.

Because we do so much work internationally, we were interested in Comrex's Opal for overseas call-ins. Initially, we tested Opal in our studio for two weeks through Comrex's demo program. We tested it locally, and it performed well enough that we decided to buy our own.

We installed it right before I went on a trip to Israel, which provided an opportunity to test it internationally. I tried it from the iPhone on a boat on the Sea of Galilee. The network we had access to on the water was patchy, but we still managed to get some good quality audio. Then, from the hotel room near Tiberius, using the hotel's wireless, the connection and audio was spot-on. Studio quality, with no perceptible delay whatsoever!

So far we're very pleased with performance. From hotel rooms and places with 4G services, the audio sounds excellent. We do a lot of interviews with authors and artists, and we hope

We can use Opal as a tool to let staff members report in from an event. This gives us the option to be able to have staff mingling with the crowd on their smartphone through Opal.

One of the other things we're planning to do is to use it in studio. We host events from our studio, like our annual fund-raisers called Sharathons. We often have staff members who will be in the telephone room rather than in the primary studio, and we'll want to check in with them live. Opal will let them do drop-ins without any fuss, live from our own office building.

We were pleased to learn that when we set up our Opal, there's a way to put our station logo into Opal. So when our guests click our link through their iPhone or computer, they see our logo on the Opal home page. It's really helpful for artists and authors who are doing press tours and don't know much about us — they can look at their screen while talking and the name of our radio station, which will make it easier for them to name drop us.

Opal fits right into our tight nonprofit budget. We're excited about it; it's going to open up a lot of doors for our programming.

For information, contact Chris Crump at Comrex in Massachusetts at 1-978-784-1776 or visit www.comrex.com.

TIELINE

(continued from page 22)

For us Report-IT is extremely flexible. It is primarily used for live remotes like news; we also broadcast high school football and basketball games for a variety of towns in the area. It is also frequently used for cut-ins during remote broadcasts. Sometimes we use it when our Commander G3 field codec is in use elsewhere, or if it is not feasible to use the Commander G3 in a particular situation; for example, in a car while driving. I have also used Report-IT while away from the area just to check a station's audio.

Since switching to Report-IT, our reporters and station staff have commented that the audio quality is so much better than using a phone call for studio cut-ins. The audio quality is far superior in comparison with a regular phone call. Plus the transition to Report-IT was simple because it

is so easy to use. Our staff doesn't need any technical expertise whatsoever. All settings are configured by an engineer, usually me, and they simply open the app, log in and go live.

Verizon is the main carrier in our region and connections are usually pretty reliable; however, you do need to be a bit wary at large events in case there is cellular network overcrowding. In fact we often prioritize using Wi-Fi instead of cellular connections if it is available.

The best thing about using IP is the ability to do remotes further away from the station with exceptional audio quality. Report-IT Enterprise affordably delivers the flexibility we require with a simple user interface, which is also an important consideration when it is used by non-technical personnel.

For information, contact Dawn Shewmaker at Tieline USA in Indiana at 1-317-845-8000 or visit www.tieline.com.

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TECHUPDATES



NEOGROUPE PUTS USERS IN CONTROL

Software developer NeoGroupe has released two new mobile apps — NeoScreenerSmart and NBSSmart.

The NeoScreenerSmart app is designed to operate with the NeoScreener talkshow call management solution and allows remote radio hosts to visualize and broadcast calls that are presented on the NeoScreener call screening system in the studio.

NeoGroupe says NeoScreenerSmart offers comprehensive user control, rights and action logging, allowing users to know who has access to their phones at all times.

The company has also introduced the NBSSmart application, which works with NeoGroupe's asset tracking system, NBS. NBSSmart allows a technician at a transmitter site to, for example, easily carry out an inventory check or scan an item and immediately access its historical information, including details about the vendor as well as scanned documents such as an invoice, manual or a configuration file.

The applications run on smartphones and tablets and are available for IOS and Android.

For information, contact NGI Software/NeoGroupe in New York at 1-917-732-1009 or visit www.neogroupe.com.

BURK TECHNOLOGY ARC PLUS TOUCH FOR PHONE OR TABLET

The Burk ARC Plus Touch is intended to bring remote facility management to the smartphone or tablet. It uses a combination of distributed I/O units and an integrated SNMP manager, offering what the company calls comprehensive transmitter site monitoring and control.



Each ARC Plus Touch unit connects up to 256 channels of metering, status and commands. In addition to physical I/O and SNMP connections, virtual meter channels can be used to monitor calculated parameters such as heat rise, efficiency or VSWR, allowing early detection of degraded performance before failures can occur.

User access to the ARC Plus Touch is available via PC, smartphone or tablet. User-defined message templates and email lists enable customization of email and SMS text alarm reporting. Alert messages can include hyperlinks to the alarmed site for one-click smartphone response. Burk says ARC Plus Touch is "bandwidth-friendly," optimized for real-world broadcast links and reducing communications cost.

Burk's AutoPilot software helps operators monitor and control remote equipment at multiple sites, manage alarms and organize data into custom reports. Multiple ARC Plus and ARC Solo remote controls can be managed from one AutoPilot interface. Warp Engine in AutoPilot makes it possible to monitor hundreds of sites at a rate of 100 sites per second, using tiny, efficient data packets. Intelligent automatic site control is available using Jet Active Flowcharts with easy drag-and-drop flowchart design.

For users of legacy Burk remote control systems, upgrading is facilitated by Plus-X Dual IP8 and GSC adapters.

For information, contact Burk Technology in Massachusetts at 1-978-486-0086 or visit www.burk.com.

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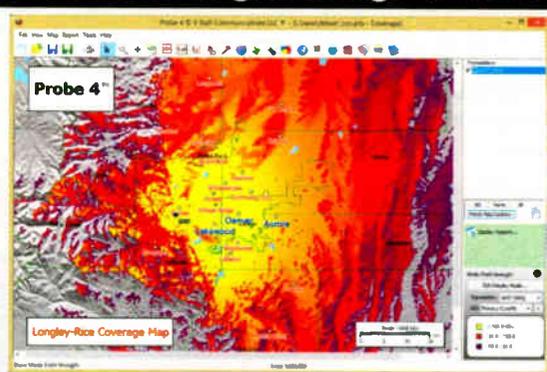
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I'm looking for KFRC radio special of Elvis Presley which aired on January 8, 1978. I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for the Ed Brady radio show in which he did a tribute to Duke Ellington, the station was KNBR, I'd be willing to pay for a digital copy. Ron, 925-284-5428.

I'm looking for KTIM, AM, FM radio shows from 1971-1988. The stations were located in San Rafael, Ca. Ron, 925-284-5428.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSF, KOB, KCBS, KQW, KRE,

KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@yahoo.com.

Looking for a broadcast excerpt of a San Francisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KSF radio shows, Disco 104 FM, 1975-1978. R Tamm, 925-284-5428.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@yahoo.com.

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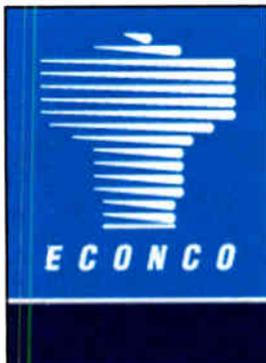
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PIRATE Act Misses the Mark

Try targeting the illegal equipment, rather than the operators

COMMENTARY

BY BILL DEFELICE

Pirate radio was an anomaly when I became involved in broadcast radio. These days, with people upset over the perceived monopoly stranglehold on the dial, you have everybody from format fanatics to members of underserved minority demographics resorting to pirate activity, most often apparent on the FM broadcast band.

The biggest problem is that the vast majority of these illegal pirates lack engineering skills, not only creating interference to licensed broadcasters but also creating havoc to adjacent radio spectrum, due to poorly constructed transmission equipment.

In my duties as a broadcast engineer, I've chased a few pirates, when they were creating interference to a licensed FM broadcaster or another station's EAS monitoring reception.

There's a flood of poorly designed, cheap and illegal FM transmitters being imported and offered on venues such as Amazon or eBay, with power levels from 1.2 up to 15 watts or more. Besides the fact that these transmitters will grossly exceed the field intensity allowed under Part 15.239, many of them generate spurious emissions that can interfere with aeronautics and other public safety radio services.

The commission continues to play Whac-a-Mole with enforcement actions, shuttering pirates as they are discovered. How much are taxpayers on the hook to fund these tiger team romps and enforcement agent visits, especially in locales where regional FCC offices previously were closed due to budgetary concerns? In spite of anti-pirate laws in Florida, New York and New Jersey, there's still plenty of pirate activity going on.

Obtaining a non-Part 15 compliant FM transmitter is no more difficult than a few clicks of the mouse, so should anyone be surprised by number of ille-

gal signals on the air? Perhaps a William Shatner line from the movie "Star Trek II: The Wrath of Khan" can sum it up, "But like a poor marksman you keep missing the target."

I brought my concerns in a variety of communications to Chairman Ajit Pai, Commissioner Michael O'Rielly and more recently Reps. Leonard Lance of New Jersey and Paul Tonko of New York, authors of the PIRATE Act. Unfortunately, not one could be bothered to provide a response.

I would think it would be better to cut the radio pirate community off en masse instead of the one-at-a-time approach. While Congress and the FCC are busy writing new laws like the PIRATE Act there's at least one on the books that would be the Achilles heel to prevent any illegal transmitter from entering the country and being sold by any merchant, if enforced.

STOP ILLEGAL SALES

Located in the text of The Communications Act of 1934 in Section 302, titled "Devices Which Interfere with Radio Reception," Section 302(b) states "No person shall manufacture, import, sell, offer for sale or ship devices or home electronic equipment and systems, or use devices, which fail to comply with regulations promulgated pursuant to this section."

I personally know of one manufacturer and an online merchant deliberately misrepresenting transmitters and making them available to the public. I made queries through several suppliers regarding an FM transmitter masquerading as Part 15-compliant, even though there's no FCC certification. When asked, they informed their retailers that they don't have to be FCC certified because they are below the "specified wattage."

An online retailer, under the guise of being a "hobby FM transmitter," sells a transmitter allegedly certified under Title 47, Part 73 subpart G. They believe a simple disclaimer statement on their webpage is enough to avoid FCC action against them. Why hasn't the FCC done anything about this?

CLEARLY DIFFERENTIATE BETWEEN PIRATES AND HAMS

I find another area of the PIRATE Act troubling, as it lacks any sort of written differentiation between a blatant pirate operator, likely pushing an effective radiated power of tens or hundreds of watts, from a Part 15 AM hobby or



school radio enthusiast who might have gone slightly astray of the regulations. Many of these broadcast radio enthusiasts purchase FCC-certified transmitters costing many times more than the illegally imported junk transmitters but, perhaps through a misunderstanding of the regulations or installation requirements, may have a signal which may be out of compliance for a Part 15.219 certified transmitter.

Nothing in the PIRATE Act distinguishes between the two, potentially opening up a large liability to someone who is genuinely attempting a goodwill effort in complying with Part 15 regulations at a monetary outlay many times more than a typical radio pirate. When I posed this question to Commissioner O'Rielly and Chairman Pai, they again failed to respond.

I saw an unfair enforcement action several years ago against a law-abiding Part 15 hobbyist using an unmodified, certified AM transmitter that at the time was being sold by a major broadcast equipment manufacturer. If a similar circumstance were to take place after implementation of the PIRATE Act, will it come down to a lawsuit before the commission will recognize and place in writing how field inspectors should distinguish between the two?

Believe me, I'm in favor of preventing pirates from interfering with legitimate users of the broadcast bands. Removing the avenue of easily obtainable, illegal transmitters would greatly lessen the chance of pirates taking on the air in the first place. There also needs to be a differentiation between blatant pirate operators and those involved in legal, license-free low-power broadcasting afforded under FCC Part 15 regulations.

DeFelice is former chief engineer of WMMM(AM)/WCFS(AM) and a freelance engineer-for-hire. He also serves as webmaster for the History of Westport Connecticut Radio.

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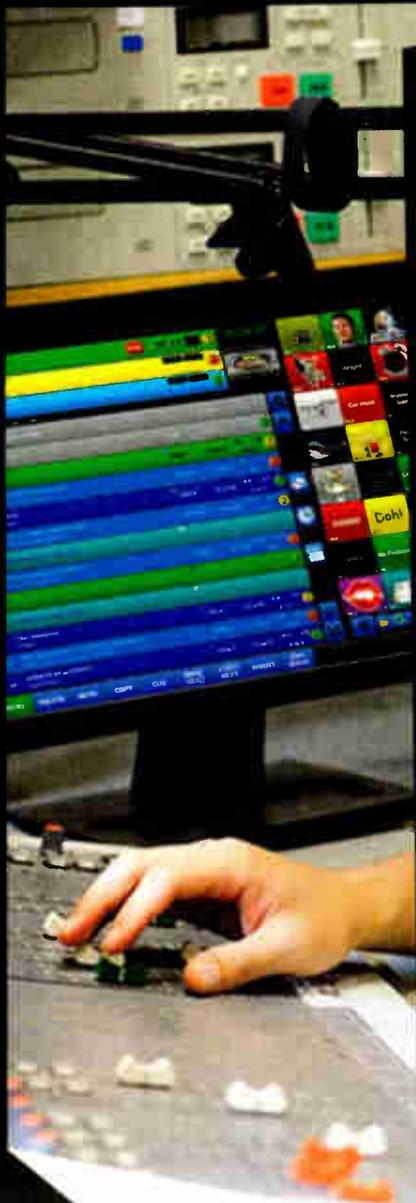
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