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A chat with a commissioner

Simington hopes regulators "take full stock of the realities facing broadcasters"

Paul McLane
Editor in chief

In this issue we give you a chance to get to know FCC Commissioner Nathan Simington.

He's been serving for a little more than a year since being nominated by President Trump, and is starting to take a higher profile in our industry, with speaking appearances to broadcast organizations.

In Washington, a town full of political culture warriors, Simington seems the opposite — going out of his way to compliment Chairwoman Jessica Rosenworcel, who is in the opposite party; praising his colleagues for bipartisanship; condemning the violence at the U.S. Capitol last year in one of his first actions as a commissioner; and remarking on his "appreciation for the traditions of vigorous, peaceful engagement that have characterized the nation's 230 years of constitutional governance." It seems we can expect him in general to take a light, business-friendly approach to regulation and to be empathetic to the business challenges of radio and TV.

I can't say whether he'll be a commissioner who always votes along party lines; should we ever get a fifth commissioner again we'll see how FCC bipartisanship holds up on more contentious issues than the commission has taken up lately.

Regardless, I'm grateful for the way he approaches the job. Maybe his particular appreciation of his role comes from the fact that he is a native of Canada who has since become a U.S. citizen. Sometimes people who come to our country from elsewhere have a better grasp of its aspirational values than we do.

The decisions taken by our regulators play a crucial role in our jobs, our careers and the business health of our employers. Radio World has sought over the years to air the views of regulators who have shown particular interest or understanding of radio issues, including leaders like Jim Quello, Mignon Clyburn, Ajit Pai, Geoffrey Starks and Michael O'Rielly. We've also had an open invitation to Chairwoman Jessica Rosenworcel and hope she'll oblige us.

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Terry Baun, Former SBE President, Dies

Terry Baun, an award-winning engineer who was deeply involved with the Society of Broadcast Engineers including two terms as president, died on Jan. 1 at age 74. He had vascular dementia and had suffered a series of strokes over four years.

His passing was announced by his wife Linda Baun.

He began in radio in 1967 at a classical station in Milwaukee, then held a series of corporate engineering jobs for Sudbrink Broadcasting, Multimedia Broadcasting and Cumulus Broadcasting. He also started his own company, Criterion Broadcast Services.

He finished his career at the Wisconsin Educational Communications Board, where he oversaw engineering and operations of the delivery system for Wisconsin Public Radio & Television. He retired in 2017.

During his presidency, SBE instituted a Leadership Development Course and worked to develop stronger ties with state broadcast associations. He was a proponent of the SBE Certification program, serving on the national Certification Committee for 21 years, three as chair.

Baun also was active in the Wisconsin Broadcasters Association, founding the WBA Media Technology Institute in 2011 and playing a key role in developing the self-inspection program within the broadcast industry.

For his full obituary, search "Terry Baun" at *radioworld.com*.

National EAS Test Showed Improvement, FCC Says

The national EAS test in August showed improvement over 2019, the FCC said. "Receipt and retransmission rates increased, while reported monitored source complications markedly decreased."

But glitches that did occur highlight the importance of those stations that are monitored by many others. "It is critically important that those EAS participants that are widely monitored use testing to ensure their EAS equipment is in reliable working order."

The percentage of participants reached and the overall retransmission success rate were both up, but radio station participation was down. Seven Primary Entry Point stations experienced technical complications compared to 12 last test. Participants overall reported roughly half as many complications with receipt and retransmission.

The FCC concluded: "As observed in 2019, the system would largely perform as designed, and it would reach the vast majority of the public, if activated without the availability of the internet."

Read a more detailed summary of the findings relevant to radio. At *radioworld.com*, search "EAS test" for the story "National EAS Test Shows Improvement."

World Radio History

Writer
Randy J. Stine
Radio World's lead news contributor

Getting to know Nathan Simington

Republican commissioner expresses empathy for broadcasters facing business challenges

Nathan Simington is still wondering how he got that first White House interview.

He was chosen for the Federal Communications Commission after President Trump abruptly pulled the renomination of Commissioner Michael O'Rielly. The latter had openly questioned whether the FCC had legal authority to issue new social media regulations.

Formerly senior advisor at the National Telecommunications and Information Administration, Simington was confirmed to the FCC by the Senate in December 2020 on a 49-46 party line vote, with GOP colleagues touting his light-touch regulatory approach.

Simington, 42 and a native of Saskatchewan, Canada, holds one of two current Republican seats on the commission. As 2022 dawned, almost a year after President Biden took office, the FCC still had two Democrats and two Republicans, with the nomination of Democrat Gigi Sohn for the remaining seat held up on Capitol Hill.

The commissioner's profile with broadcasters grew when he spoke in late autumn to state broadcast association events in Massachusetts and Ohio.

"The reality is: It's hard out there for broadcasters," he said at one event, expressing particular empathy for owners that have just one or a handful of stations.

"Can we seriously think, at this moment, with the arrows pointing in the directions that they are, that we should be making it harder for these small, regulated entities to operate? You are all already burdened by a raft of regulations designed for a bygone era while your insurgent online competitors have functionally none of the same constraints. Should we now turn the screw?"

He also said the FCC should wait rather than make more changes to media ownership rules just now, recommending a strategy of "purposeful nothingness."

Radio World interviewed Simington in December.

Describe your regulatory philosophy.
Nathan Simington: I did not come up through the Washington regulatory world, I came up through the private capital world. Before joining the NTIA I was at a very large cellphone distributor and services company, and before that I was in private [law] practice.

When I'm looking at regulatory questions I feel like you really can't divorce them from the questions about the effects on the markets and the capital market. So we need to put more of a premium on the question of regulatory certainty and stability.

Businesses can adapt to about any kind of stable environment, but what they can't adapt to is an environment they can't predict. Conveying certainty to the market, instead of constantly fiddling with regulations in order to reach some kind of imagined ideal state, is how we get to the overall public interest, necessity and convenience, and therefore fulfill our mission at the FCC.

This is especially important in broadcast and telecommunications because operators can't plan for long-range builds when they can't predict the operating environment they'll be in. If the degree of uncertainty becomes too much, companies will restrict themselves. If we take that approach we'll do more harm than good.

The power of local
The quote at the bottom of this page is taken from Commissioner Simington's remarks to the Massachusetts Broadcasters Association. Read his speech at *https://tinyurl.com/rw-simington.*

> **"Google and Facebook don't have stringers outside of city hall sniffing out corruption, hurricane evacuation routing, or staffing for informational access to local community resources anywhere in their product development path."**

World Radio History

If we maintain stability, that will better serve the public.

You've talked about challenges facing small radio broadcasters who must compete with mega online platforms. Broadcasters have argued that FCC regulations should acknowledge that radio and TV compete with less-regulated digital competitors.

Simington: There has always been a sense at the commission that broadcasting is special and that broadcasting occupies a different spot in the landscape than online video distribution. If you look at the materials coming out of the 2016 quad [quadrennial review], that was exactly the approach the commission took, saying that as of yet there is real no equivalency of service.

I think that discussion is going to continue to come under scrutiny.

The find of non-equivalence in 2016 was premised on the lack of adaptation that large online companies make to local conditions. I would turn that in its head and ask: "How much of broadcasting really was local prior?" Obviously there are elements of broadcasting that is very local. But a lot of broadcasting was nationally syndicated shows and in that world.

The FCC has always assumed that broadcast and online have been separate markets. But I think that decision grows less and less tenable and has to be justified by better and better fact finding. And if we can't satisfy the standard, we'll have to decide what it means when an entity we are regulating is competing with an entity that is almost totally unregulated — in some cases a small mom-and-pop scale versus a large international corporation.

Does this mean less regulation for radio and TV or more regulation for big tech?

Simington: Based on how the younger generation consumes media, the distinction between broadcasters and online video distributors is becoming increasingly hard to [describe as] different markets. At some point, we have to ask how the premise that has been explicit in the law — that broadcasters have a special mission and thus require the FCC to maintain them as viable private commercial enterprises — interacts with the increased presence of big tech in the space and in local advertising dollars.

Fact finding previously has found these are different markets. I would encourage the commission to place that assumption under intense scrutiny, because from my perspective and my interaction with broadcasters, it is becoming farther and farther from the actual state of play.

What is your view about the argument by the National Association of Broadcasters that radio and TV are unfairly burdened with regulatory fees, subsidizing FCC costs for oversight of entities that pay no fees?

Simington: The whole question of regulatory fees as a burden has been something my office has been on ever since I was confirmed. It is important to rethink the entire regulatory fee framework on a regular basis because the commission's traditional division into broadcasting, wireless and wireline, while still viable today, doesn't fully capture the reality of how media is consumed today.

As to whether regulatory fees should be accessed to online companies, that raises a bigger question: How are we going to regulate these online companies going forward?

Online companies is a grab-bag term. On the one hand, if Amazon is an online company, that's different than saying Google is an online business. These are highly diversified businesses, in one case a big delivery and logistics business, in another case a server business, and in yet another a business that primarily runs on data.

Finding a regulatory response has been difficult, not only for the FCC but for the Federal Trade Commission and Congress. I think a lot will depend on how Congress decides to treat the question of online companies and these new emerging categories in American business.

Whether it is fair to assess fees entirely on the back of broadcasters, when broadcasters are point of fact responsible for a much smaller portion of audio and video delivery, is really a question that answers itself. But the question of how to assess fees might turn on much larger questions before Congress.

Do you support changing or eliminating local "subcaps" on how many radio stations a given entity can own in a market?

Simington: There is some inertia to overcome at the regulatory and at the congressional level of where broadcast stands to the economy as a whole. The broadcast sector is under pressure that it will find difficult to recover from without more thoughtful broadcast regulation in this country.

From my perspective, broadcasters have made a real commitment to build out local news and other local journalism. As such they have decided their market differentiator is localism.

So with that commitment to local content I'm less concerned about back-office function consolidation. Therefore I'd like to see liberalization of the ownership rules.

On the other hand, liberalization is widely perceived by many as allowing a single voice to dominate. But I would ask the obvious question that if we are concerned about a single voice dominating here, why are do we not care in other venues of media distribution?

I'm not sure if there is a coherent answer to that, other than this is just the way we have always done it.

The FM band has become more crowded, most recently thanks to a huge increase in the number of translators. Is the commission concerned?

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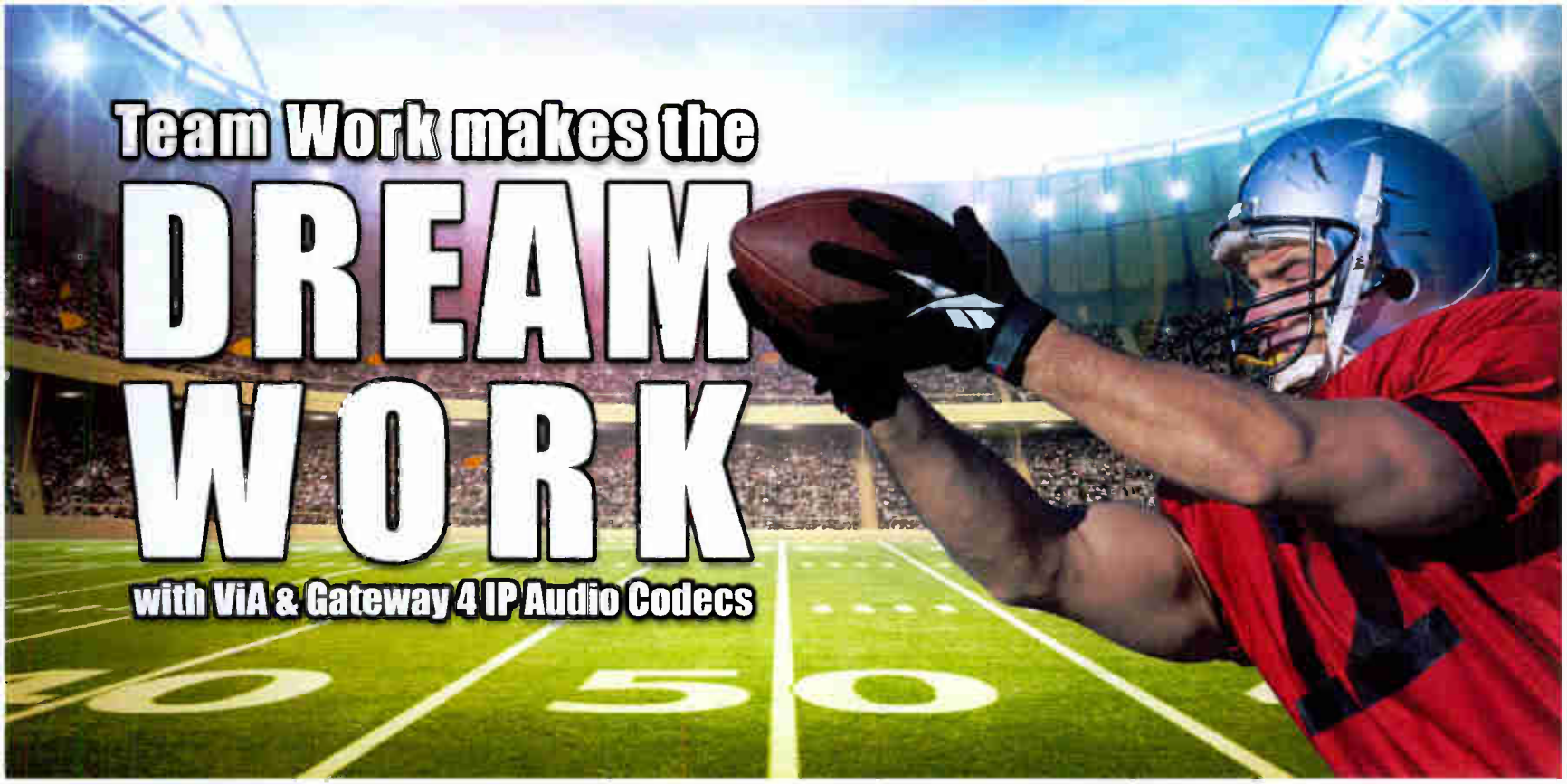

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Above
Commissioner Simington is shown in a segment for an online event of the Massachusetts Broadcasters Association.

Simington: I really haven't heard anything within the commission focusing on this issue right now. That could be a problem since the airwaves in general are coming under further pressure. I think the commission should take this up combined with my concern over receiver standards and the general question of how do we get a more efficient utilization of the bandwidth, which we can't change. But there is no current item focusing on FM crowding.

Many broadcasters say the commission let them down by cutting deeply into the number of enforcement personnel and field offices, and that the result is even less attention to pirate radio and harmful interference.

Simington: FCC personnel is growing again. It should bring a renewed focus on field enforcement. And one thing I'm working on — though I do not have details yet — is looking at delegating some type of enforcement powers outside the media sphere to local law enforcement, provided we can get across the necessary tech challenges. If that is the case hopefully more Enforcement Bureau resources will be available for this question.

What are your thoughts about the FCC's AM revitalization efforts?

Simington: It's been a very valuable effort. I think it is a mistake to assume, as some people do, that other channels of media distribution will supersede the importance of AM radio.

Revitalization was pushed by former Chairman Ajit Pai. What are your thoughts on his accomplishments?

Simington: I wish I'd had the chance to serve with him longer. I think he accomplished a lot.

Getting outside the world of radio for a second, he was massively instrumental in expanding broadband access in the United States. He did a lot of ensure that broadband quality got better. I'm proud of his work on spectrum auctions and COVID relief.

Something that doesn't get much play in the media are infrastructure initiatives to make it faster and easier to deploy and launch.

Most important for radio might have been winning the Prometheus case, even though that happened after he had left the commission. Winning that paves the way for potential media liberalization on a number of fronts. The FCC now has more freedom of operation in this area than we have had in 17 or 18 years.

The Senate recently confirmed Chairwoman Rosenworcel. What has it been like working with her?

Simington: I think she has done a fantastic job under sometimes trying circumstances throughout 2021. There is no doubt she has delivered successfully on a number of time-sensitive programs that Congress has given us, in some cases without real precedent. She has been bipartisan. We've gotten a lot done in the public interest. There have been a lot of 4–0 votes. We have had a wonderful collegial relationship.

Nonetheless, as acting chair there were maybe some items you wouldn't take up that you would once you are full chair. She and I have been working on a number of long-term in initiatives. So my hope is that in 2022 that — despite the virtual assurance that the commission will emerge with a partisan majority, as it should — I nonetheless expect us to have many forward-looking partisan and non-partisan issues to take up in order to strengthen American competitiveness, improve security, improve efficiency and advance technology.

What is your view on the nomination of Gigi Sohn?

Simington: When I've spoken to Gigi Sohn I've been very impressed. She is known for being very tough and very smart, and also has this rare quality where she is personally liked by those she has disagreements with. There is no question she knows the issues backwards and forwards. If she is confirmed I'm sure there are any number of issues where we can work in the public interest. I'm sure we'll disagree on a few things, but that is politics.

What is your personal experience with radio?

Simington: I grew up in rural southern Saskatchewan. My family homesteaded there in the early 1900s. So radio has been a very important part of my grandparent's lives, my parent's lives and my life. AM radio was the best mass media we had. We had a few snowy TV channels when I was young but that was it. I grew up with the radio always on.

You recently made some warm remarks about the role of radio. Can you expand on those?

Simington: The historical role of radio in American life cannot be overstated as the first national medium. My background before I became a lawyer was in classical music. For me and a lot of people their first exposure to many kinds of music have been through the radio.

As for radio's role today, before coming to Washington I spent a number of years in Florida, which has an extremely vibrant local radio culture. I was surprised by the relationship between radio stations and listeners and how loyal those relationships became. Radio was a big part of civic participation.

The thing about radio is that it is not just a technology but its own medium with its own culture and audience. And it has

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always been defined by being local. People make a conscious decision to tune to radio for critical information.

When the Trump administration put your name forth you expressed some surprise that you'd been nominated. What do you think drew the president or his staff to you at the time?

Simington: Well I think the administration was even surprised by the situation it found itself in. I'm not going to speculate on exactly how my name ended up in the hat. I know the administration made a very broad appeal for potential commissioners. When I went to the White House to speak to the presidential personnel office for the first time I didn't know what to tell them, so I told them what I had observed in my time in private industry about certain negative effects of capital management practices that I thought might impede the buildout of 5G. Maybe that was just nerdy enough to get it over the line.

But it was a process that involved building credibility. Frankly, it was a lot of learning, but I realized that the mandate of the FCC is so broad it just isn't possible to know it all from the outside. I've had the opportunity to learn from some of the best on my way up so maybe that helped me get across the line.

How does the FCC differ from the NTIA in its culture or inner workings?

Simington: The NTIA is one of the most underappreciated agencies in the federal government, though that is likely to change since it has been given the responsibility of disbursing so many funds during the broadband buildout.

The NTIA is a much smaller agency, about 250 people versus about 1,500 at the FCC, and as an executive branch agency it is not politically independent the way the FCC is. Instead the director reports directly to the president despite the agency being in Commerce.

As far as internal culture, the FCC has a much broader mandate because commercial and private use of spectrum is much greater than at the NTIA. The stakeholders are very different. Accountability is different.

Common qualities include engineering excellence and the commitment to the public mission. At the FCC we always try to be engineering-forward and fact-serving.

How would you characterize your interaction with the Biden administration?

Simington: It's actually been somewhat limited. Not any of it in a negative way. I tend to face industry more than I tend to face the administration. As far as politicization of the commission, I haven't seen many signs of it. The administration has expressed views on issues related to the commission's mission and our long-term activities. It really hasn't impacted our deliberations or practices.

It's only natural for an administration to have views on policy that intersect with our mission. External relations with the White House are more the province of Chairwoman Rosenworcel's office. That's not to say there isn't any contact, but I would most likely go through her office to communicate with the White House.

Typically the FCC has had a very strong relationship with Congress. That has been more important for what I have been working on.

The chairwoman has said that the latest data about broadcast ownership makes clear that women and people of color are underrepresented. What if anything should the FCC do? And do you support legislation to revive a tax certificate program

Continued on page 22

"Music was my first love"

Nathan Simington originally pursued a career in classical music and violin performance. He hoped to turn pro as a violinist or pursue a Ph.D. in music theory.

Simington started studying violin seriously at age 11 while growing up in Canada. He moved to the United States to train on the instrument at Lawrence University.

"In music, my three areas of focus were in more effective means of training violinists, including the convertible counterpoint theories of the Russian musicologist Sergey Taneyev, and the unpublished works of Romanian composer George Enescu. I received a Presser Foundation grant in 2005 to research Enescu's manuscripts with experts in Cluj, Romania and Bucharest," he said.

A native of Saskatchewan, Canada, Simington he received a green card in 2007, allowing him to work in the United States outside his area of training. He became interested in law school while working in pharmaceutical market research.

The commissioner is a graduate of the University of Michigan Law School and also holds degrees from the University of Rochester and Lawrence University. Simington earned a Masters of Music Theory from Eastman School of Music.

Prior to joining the NTIA, he was senior counsel to Brightstar Corp., an international mobile device services company. The Republican commissioner at the time led and negotiated telecommunications equipment and services transactions with leading providers in over twenty countries. Even earlier, prior to joining Brightstar, he worked as an attorney in private practice.

Prior to joining the FCC he was senior advisor at the National Telecommunications and Information Administration, where he worked on various aspects of telecommunications policy, including spectrum allocation and planning, broadband access and the U.S. government's role in the internet.

Simington is now a U.S. citizen and lives in Virginia with his wife and three children.

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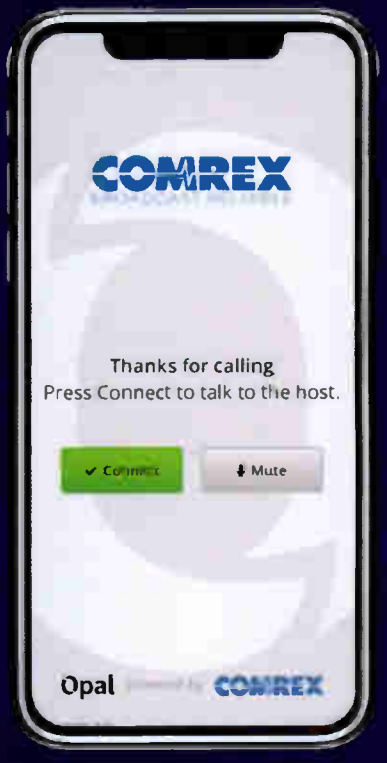

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John Bisset
CPBE
With more than 50 years in broadcasting, the author is in his 31st year writing Workbench. He handles western U.S. radio sales for the Telos Alliance and is a past recipient of the SBE's Educator of the Year Award.

It's always the right season to check your backups

Consider the case of this non-functioning RF amplifier

It's the sign of a good engineer to design facilities with backup systems.

We all know it's just a matter of time before the "main" whatever will fail, requiring full dependence on the backup gear.

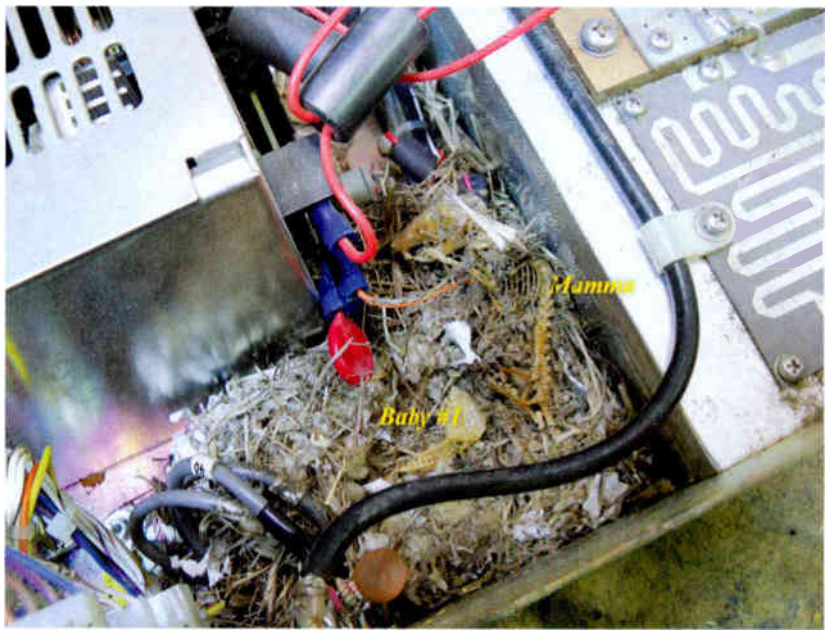
But don't be lulled into a sense of false security just because you have a backup — whatever it may be. For best reliability, these backup systems need to be tested periodically.

In the old days many of us performed Sunday night maintenance, from midnight to 6 a.m., during which studios and transmitters were cleaned, and backup systems were tested on the air. Few of today's broadcast engineers have that luxury, yet the backups still need testing to ensure reliability.

Case in point, a backup RF amplifier. For the purposes of this column, it was a 500-watt backup RF amplifier drawer that sat on a shelf at the transmitter site until it was needed in an emergency. Fortunately, a wise engineer decided to check out the relic. When it didn't fire up, he sent it to a nearby contract engineer for repairs.

The first clue was a missing Sub-D connector on the rear panel. This hole was factory-punched, and not a modification. But perhaps a hole for an option that should have been covered — it was not. The missing connector left about a half-inch hole as seen in the first image. The text label gives you some idea of what was awaiting the engineer investigating the unit.

The second iamge shows the nest and mess that field mice made of the inside. What is amazing is that after opening the top of the transmitter, the contract engineer inspected the top, bottom and sides carefully to see if there was any other way in. There was not. So, takeaway number 1 is that mice don't need more than a half inch, and maybe less, to infest our gear.



Right top
Suspicions started with the back panel hole.

Right bottom
The skeletonized remains of mature mouse and baby are visible among the litter.

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

World Radio History

NEW

MODEL 551

HD Radio Mod. Monitor

ADVANCED
FM & HD RADIO
SIGNAL MONITORING

MODEL 551 - HD Radio Modulation Monitor

BEST IN MARKET 2021 WINNER

ADVANCED FEATURES:

- Monitor off-air analog FM and HD Radio signals (HD1-HD8) on the Front Panel Touch Display and via the Web from anywhere in the world. The 3U package features a 9-inch hi-res graphic touch screen display, wide-range LED level meters with rear-panel tallies.
- The 551 collects histograms of signal parameters and displays HD Radio™ album artwork, station logos and similar visuals on the front panel display and remote Web interface.
- Front-panel alarms and/or rear-panel 'tallies' indicate Audio Loss, Low Signal, RDS Errors, HD Loss, HD Power, FM/HD1 Alignment, HD Artist Experience, and many others.
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INOVONICS BROADCAST

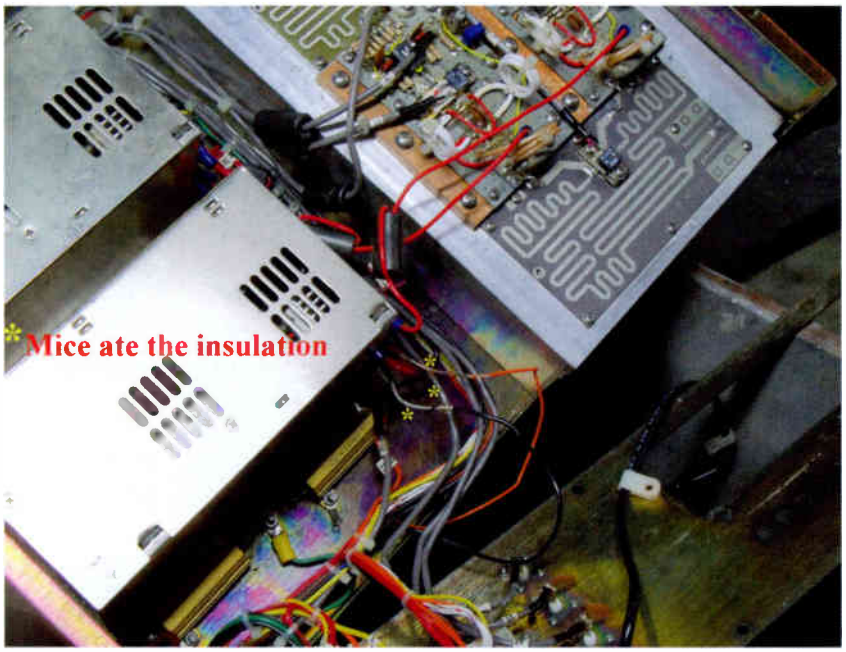
World Radio History

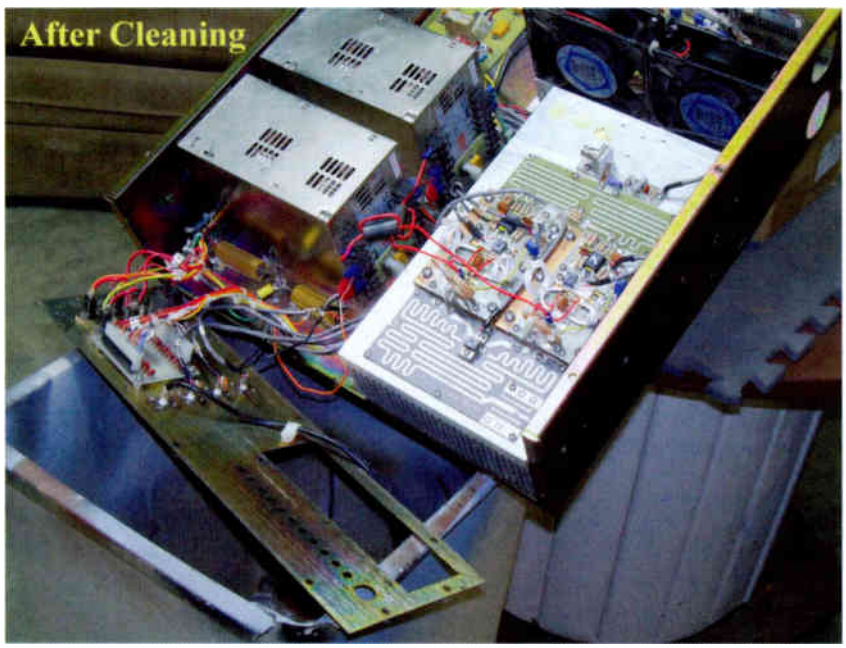
The top was replaced and the contract engineer developed a cleaning plan, starting with purchasing a high-filtration full-face mask. Mouse urine, feces and litter can harbor dangerous (and possibly deadly) bacteria — mice are filthy animals. Because of the contamination hazard, do not use a vacuum to suction the debris; its exhaust will only contaminate the air and your shop.

This job called for several toothbrushes, wooden cotton applicators, Clorox or similar brand wipes, and bottles of at least 70% denatured alcohol, along with latex gloves. A large plastic trash bag was placed on the workbench and the amplifier was placed inside. The bag edges were folded up around the equipment to prevent any liquids from contaminating the workbench. The oversize bag also provided room to discard waste as it was removed, lessening the chance that the discarded debris would miss a garbage can.

Using a combination of wooden cotton applicators saturated in alcohol, needle-nose pliers (for removing larger pieces of debris), and the wipes, the painstakingly slow job of removing the nesting materials, feces and mouse skeletons began.

Yes, apparently both the momma mouse and two offspring died inside the equipment. In one of the accompanying photos you can see the spines, ribs and skulls of momma and one of the offspring.





Right top
The destructive nature of mice includes their penchant for chewing wire insulation.

Right bottom
The cleaning is complete.

In addition to using the chassis as a toilet, the mice chewed the insulation off several wires. The missing insulation can be seen on the red wire in the third image. As a part of the repairs, the damaged wires needed to be replaced. Cable ties that secured bundles of wires had to be cut; the wires separated, and individually cleaned. The cleaning process was tediously slow, to avoid creating any airborne dust, while thoroughly cleaning.

After scrubbing with the swabs and toothbrush, and saturating the boards with the alcohol, the chassis was moved to a clean trash bag and left for 48 hours so all liquid cleaning fluids evaporated. If you're doing work like this, seal the used bag with cable ties and dispose. Do NOT compress the bag as you seal it — the escaping air may have the bacteria you are trying to avoid.

The fourth image shows the sanitized unit. To complete the cleaning, the rear panel was dismounted from the enclosure, showing the "innards" of the RF amplifier. Note that the large aluminum heat sink to which the RF combiner circuit card is mounted (with the squiggly lines) made its way back to shining once again.

So inspect your backup gear — and especially any welcome holes, no matter how small.

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MARC-15-15: $7,375

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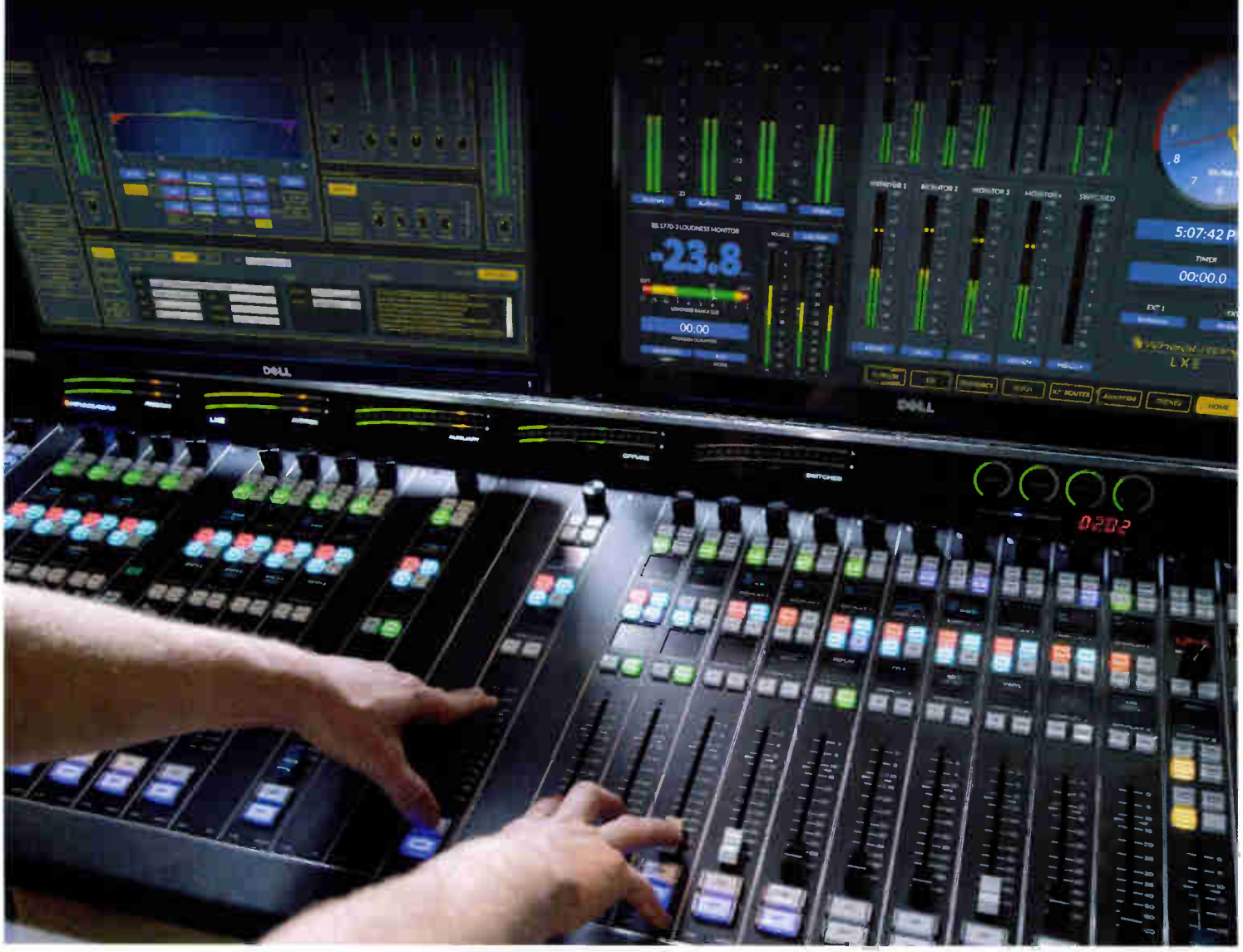
IT'S ALL IN WHEATNET-IP THE INTELLIGENT NETWORK

LXE: Software Configured



ConsoleBuilder Customize your buttons, knobs & motorized faders
ScreenBuilder Create custom touchscreens
Layers Set up and run multiple layered input sets simultaneously
Automix & Live Presets Enjoy coffee while LXE does the work

wheatstone.com/lxe-rw21a

BLADE-4 COMPATIBLE

Wheatstone

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Cost Effective The power of LXE, trimmed down, ready to go
Turnkey Preconfigured buttons, knobs & faders
Options Add ScreenBuilder, ConsoleBuilder, Layers, Automix, & more

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BLADE-4 COMPATIBLE

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BEST IN MARKET 2021

RADIOWORLD

WINNERS

The products on this page are the winners of Radio World's "Best of 2021" Award. The program was open to manufacturers of professional radio, TV and AV products and solutions. It was conducted in place of the "Best of Show" program that would normally have been held at the IBC show, which was postponed first to December and then cancelled.

Adthos Platform

Adthos, part of Wedel Software, says its platform expands boundaries for audio advertising and puts control "back in the hands of broadcasters and advertisers, creating a more even playing field within the digital advertising space."

Ad-Server is a free ad-serving technology that can be added to existing traffic or playout systems without multiple integrations or downtime. It helps stations sell, schedule and execute multi-platform campaigns with little intervention. Features include instant reconciliation and customer interfaces that provide campaign updates and insights, as well as the ability to replace spots in real time.

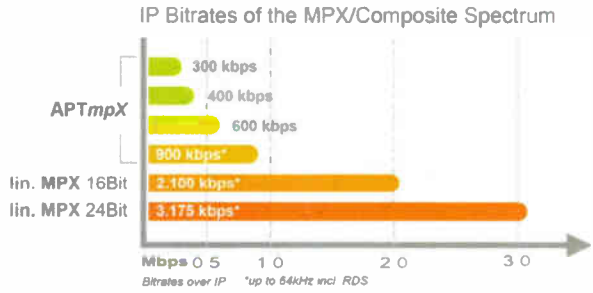
Adthos®

Adthos Creative Studio is a browser-based multitrack editor that allows broadcasters and advertisers to collaborate online, combining music, human and synthetic voice to produce real-time audio advertising. Users can create targeted audio ads using human and synthetic voices, for instance generating thousands of creatives for a multi-national campaign. It uses AI to produce natural-sounding audio based on a voice library of 40 U.S./English voices, brought to life by controlling intonation, speed and applying reading rules for content such as phone numbers or emails. Pricing starts at $49.95

Info: adthos.com

WorldCast Systems APTmpX

APTmpX



WorldCast Systems calls APTmpX "the world's first and only non-destructive MPX/composite algorithm helping broadcasters to save network bandwidth (<900 kbps) while keeping the highest broadcasting quality." It has launched three new versions, allowing stations to lower transmission costs with bandwidths from <600 kbps down to <300.

The latest version "requires an impressively low bandwidth allowing to transmit the final MPX/composite signal, including over narrowband DSL connections, at <900 kbps, but also <600, <400 and <300 kbps."

Besides network savings, the company says some users have saved on hardware because the majority of composite equipment at transmitter sites is eliminated when using a centrally generated MPX/composite signal.

"Furthermore, APTmpX combines signal fidelity with the best latency performance and makes it easier than ever to guarantee a consistent sonic signature across the transmitter network."

WorldCast cites APTmpX for its resilience to packet loss. With non-framed compression, it said, a packet loss only affects the signal during a very short, unnoticeable time instead of having to wait for the next keyframe. Also, APTmpX includes OMC mechanism to lower the impact on the signal.

For FM-SFN applications, APTmpX high signal transparency across multiple transmitter sites and is compatible with the company's SynchroStream technology.

Info: worldcastsystems.com

World Radio History

Movo Has MA5L Lightning Microphone

Movo, purveyor of inexpensive microphone solutions, recently introduced the MA5L, a miniature condenser mic for Lightning port devices such iPhones, iPads and iPods.

Radio World contributor Dan Slentz tried it out and wrote: "Plug it in and use your favorite software to record or use it as a live mic for CleanFeed or other live streaming services."

He found that it sounds better than what is built-in and provides a bit more control over the pickup. Frequency response is listed at 50 Hz to 18 kHz. The mic can be pivoted, has a foam windscreen and includes a hard-shell carrying case.

"On testing it," Slentz wrote, "the pattern was clearly an omni, and it sounded like a decent inexpensive microphone. For just under $45 street price, it probably would work nicely for a reporter using an iPhone for capturing live sound and events. Remember, that since the pattern is omnidirectional, it's probably not best used in a noisy environment."

The design of the base of the mic (closest to the Lightning connection) is a little larger, so some phone cases may prevent a snug fit.

Info: www.movophoto.com

Benztown Distributes AudioLogger in U.S.

Benztown recently announced that it was named U.S. distributor of the AudioLogger app from Tracy Johnson Media Group.

The app makes it easier for stations to repurpose audio for various applications.

"With AudioLogger, all station staff can instantly access, manage and share audio for any station in the world," the companies said in a release.

"Broadcasters can access audio for airchecks. The sales team can send proof of performance audio and live reads to advertisers without filling out a production request. And stations can even convert any audio segment into attention-getting videos to post online with just a couple of clicks."

They highlight the app's dashboard and the fact that it can monitor other stations in their market or company or elsewhere. Users can also export music logs and playlists, which, the companies said, "could replace expensive music monitoring services."

Info: https://benztown.com/

World Radio History

Two worthy, affordable SW portables

A choice between C.Crane and Sangean! Why not both?

Writer
James Careless

More info
ccrane.com and *sangean.com*.

The challenges of precision-tuning analog radios, plus the reliance of international SW broadcasters on switching between multiple frequencies and bands to reach global audiences 24/7, explains why direct-entry pushbutton digital radios came into this hobby almost 40 years ago.

The flag-bearer for SW radios that were as easy to use as a pushbutton telephone was the iconic (and still respected) Sony ICF-2001/ICF 2010. Released to the world in the mid-1980s, the ICF 2001D/2010D even had an LCD display!

Today, digital radios with direct pushbutton entry are commonplace in the portable SW portable receiver market.

I recently tested two such portables, the pocket-sized C.Crane CC Skywave SSB and the new tablet-sized Sangean ATS-909X2.

In addition to offering pushbutton tuning and automatic frequency scanning, both come with manual tuning dials, back-lit LCD displays, the ability to tune to the full SW bands (1.711–29.999 MHz) plus AM, FM (stereo in headsets) and the AIR (aeronautical 118–137 MHz) band. (The ATS909X2 can also tune to longwave.)

They also offer a range of bandwidth filters to improve audio clarity on SW, the ability to preset station memories, and built-in SSB (single sideband tuners) for tuning in amateur radio transmissions heard within the SW bands.

As well, both portables come with long extendable whip antennas and windup external wire antennas for pulling in weaker and rarer SW stations, along with signal strength meters, stereo earbuds and even radio cases.

How to choose

So how can one pick between them?

Well, a diehard SW hobbyist would solve this problem by simply owning both, because the CC Skywave SSB and ATS909X2 are fine additions to any radio listening shack.

But for those only planning to buy one SW portable, here are some differences that may guide your decision.

At $169.99, the CC Skywave SSB is the less expensive of these two SW radios. It is also smaller, measuring just 4.8 inches wide by 3 inches high and 1 inch deep.

Although the CC Skywave SSB is the size of a vintage AM transistor, the similarities stop there. With a full range of features including 400 memory presets — so that you can prestore your favorite SW stations and call them easily afterwards — the CC Skywave SSB is the ultimate pocket radio.

This SW radio is also great for long-time listening with great selectivity (choosing between stations) and sensitivity, both of which are aided by the CC Skywave SSB's range of audio filters.

As well, the CC Skywave SSB is a great performer on the AM band — especially at night — and delivers excellent stereo audio on FM when you use earbuds/headsets. C.Crane is proud of the fact that this radio can run up to 70 hours on earbuds/60 hours on its built-in speaker using pair of AA Alkaline batteries.

Below
The CC Skywave from C.Crane.

World Radio History

Sangean's ATS-909X2.

At $265 on Amazon, the Sangean ATS-909X2 costs considerably more than the CC Skywave SSB, but there are good reasons for this price difference.

For example, the ATS-909X2 comes with a much larger LCD screen that is also in color, and capable of displaying all kinds of information including RDS station data on FM. It also has 1,674 station presets, with the ability to program in station names for each that appear on the radio's display.

The ATS-909X2's rotary-style tuning dial (in addition to its direct-entry keypad) is front-mounted, as opposed to the CC Skywave SSB's side-mounted (and smaller) tuning dial. This provides an analog-style experience for those SW fans like myself who still enjoy tuning across the bands manually to see what happens to pop up.

Meanwhile, the ATS-909X2's built-in speaker is twice the size of the CC Skywave SSB's 1-inch unit, which delivers fuller, more listenable sound.

This unit's FM headset audio is also better. To be precise, listening to FM stereo on the CC Skywave SSB is excellent, but the ATS-909X2's FM Stereo audio has extra depth and definition, rivalling that of a standalone Hi-Fi amplifier.

One feature that I particularly love in this radio is its pair of clocks, one for local time and one for Universal Coordinated Time (UTA aka Greenwich Mean Time), which is the time zone in which SW stations list their broadcast/frequency schedules.

This spares me the mental gymnastics of converting 12- to 24-hour time and then adding four or five hours to that number, depending on the season in eastern North America, to get the right time for UTC.

These are just some of the many features found on the Sangean ATS-909X2, which is truly an astounding SW portable radio. But this fact does not take away from the superbness of the CC Skywave SSB, whose price is less than 40% of the ATS-909X2's.

These radios are aimed at different parts of the SW portable market. The CCrane CC Skywave SSB is a solid all-round performer in a go-anywhere package slighting bigger than a pack of playing cards, while the Sangean ATS-909X2 is a technophile's dream in a larger but still streamlined piece of practical yet beautiful radio engineering. This is why this reporter cannot choose between the two of them — and fortunately does not have to.

> **“Both portables come with long extendable whip antennas as well as separate, windup external wire antennas for pulling in weaker and rarer SW stations.”**

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Continued from page 10

for socially disadvantaged individuals?

Simington: The numbers are hard to argue with. As far as what we can do about it though ... I would also note that women, people of color, and people who are both have a variety of other instruments [available] to invest their money in; so the question of whether broadcast is where they want to place their money, rather than some other business, is in part a question of how attractive broadcasting is.

I see no shortage of grassroots interest from women or people of color wanting to participate in broadcasting. But there is always a question of making a return.

Anything that conditions licenses on, for example, ownership demographics is "push," where what we probably need is "pull." The pull I would like to see is a more stable business environment, greater opportunity for growth and return, and the ability to finance licenses, if we can figure out ways to work around the problems of the past.

She also has reconstituted the Communications Security, Reliability and Interoperability Council. Are you supportive of redirecting its focus?

Simington: The FCC has a pretty clear mandate to work on questions of signal security that bleed into questions of IT security. So I welcome increased involvement in this area.

There has always been a question of the degree to which the commission should involve itself in cybersecurity matters because it does not traditionally have a staff of cybersecurity experts, and it would require big changes to the commission and probably substantial growth to fill out a fully fledged cybersecurity arm.

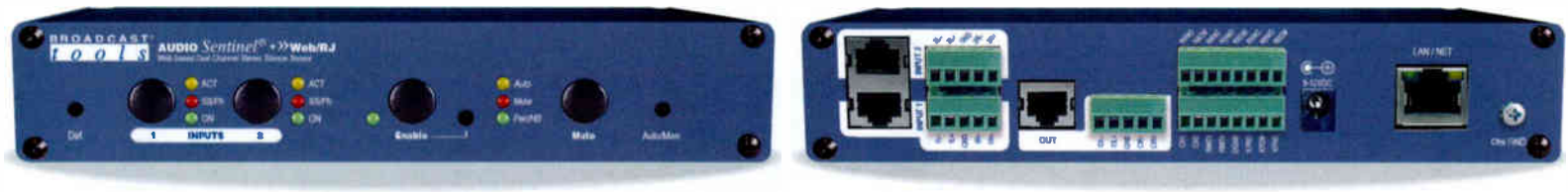
As I noted in my comments about tech companies, it's not even clear what our regulatory mandate is when it comes to cybersecurity. I view the chairwoman's position as a thoughtful balance between prior muted attempts to turn us into a fully fledged cybersecurity agency on the one hand, and the renunciation of jurisdiction in areas where I think we should exercise it on the other.

Any final thoughts as we enter 2022?

Simington: I certainly wish broadcasters the best. I think now is a fine time for us to look back at the developments of the past few years, including both pressure and recovery in the broadcast sector, and continue to recognize the vital importance of broadcast and local journalism in American life.

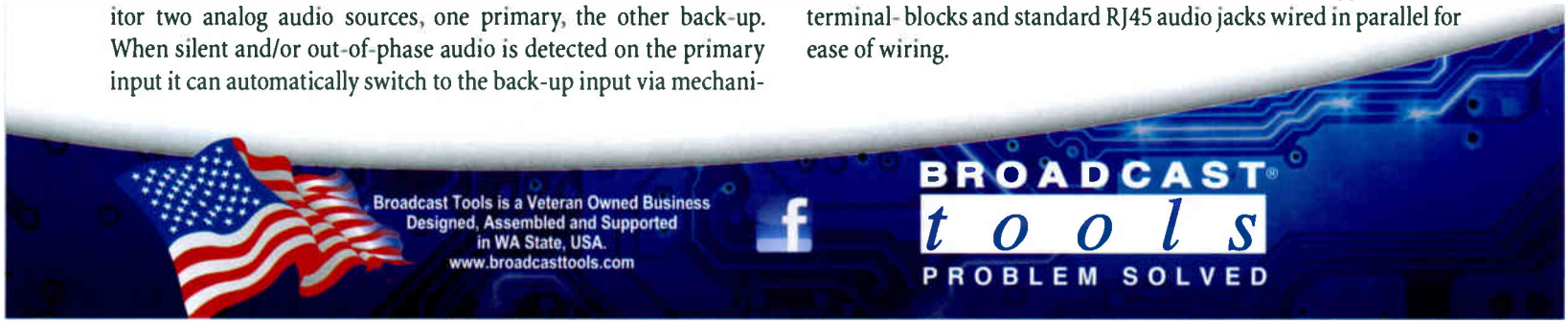
If there is one thing that has become clear in my discussions with broadcasters, it is their strong sense of mission. And you can't buy that or teach it. People really feel a passion for broadcasting and their communities, and that is why they work in the field.

Next Generation Monitoring



Audio *Sentinel*® + Web/RJ Web-based Dual Channel Stereo Silence Sensor

The Audio Sentinel®+» Web/RJ is Broadcast Tools' next-generation web-enabled two channel stereo silence and phase monitor with an integrated, transparent, 2×1 switcher. It is designed to monitor two analog audio sources, one primary, the other back-up. When silent and/or out-of-phase audio is detected on the primary input it can automatically switch to the back-up input via mechanical latching relays. It includes a browser-based HTML5 web interface and supports SSL/TLS email (Gmail, etc.), SMS-email notification, as well as SNMP. Its audio I/O features both pluggable screw terminal-blocks and standard RJ45 audio jacks wired in parallel for ease of wiring.



World Radio History

Diverse Skill Sets More Important Than Ever

Josh Bohn at WAPR(FM) in Selma, Ala., with the station's modified Continental 816R-3C.

Josh Bohn says most radio clients of The MaxxKonnect Group are operating their businesses in person again but will continue to employ a significant level of remote services as a result of the pandemic.

"Real-time voicetracking is showing up in places it previously hadn't, as well as pre-produced shows being loaded remotely in near-real time," said Bohn, who spoke to Radio World for our ebook "After the Masks Come Off."

"Radio broadcasters ... have discovered that you don't need salespeople sitting around a bullpen at the station when they can do the same thing from home, or their vehicle."

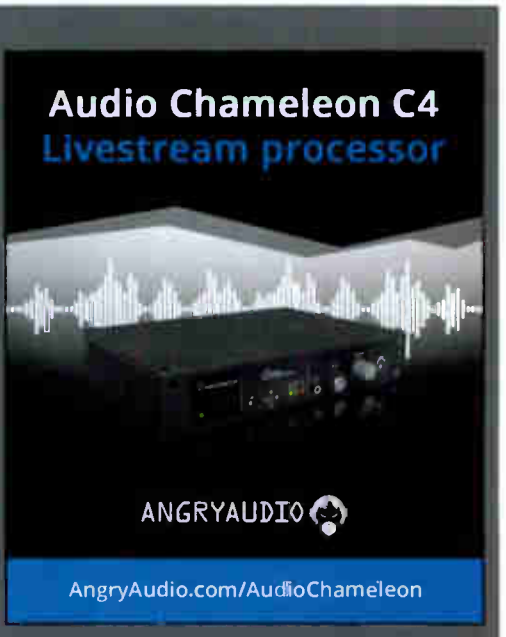
MaxxKonnect is a technical services company that offers wireless connectivity and high-speed internet services, and does broadcast integration work. Bohn is president/CEO.

"I don't see companies dismantling remote studios for talent that they built, or talent themselves getting rid of their home studios. It adds a layer of versatility ... It's also allowing broadcasters to downsize studios to save on real estate costs, and put more critical functions in the cloud."

MaxxKonnect has quite a few integration projects in the pipeline. "A lot of capital dollars were put on hold during the throes of the pandemic, and companies are reinvesting in their infrastructure."

For this free ebook, Radio World asked engineers to talk about how their own organizations have been affected; whether they are applying cloud solutions or other types of virtualization; and what constitutes a typical "hybrid" radio operation now. It features comments from technical leaders at Audacy, Salem Media Group, Alpha Media, VPM, Cogeco Media, Educational Media Foundation, Second Opinion Communications, Burk and Shively.

Find "After the Masks Come Off" at *radioworld.com/ebooks*.



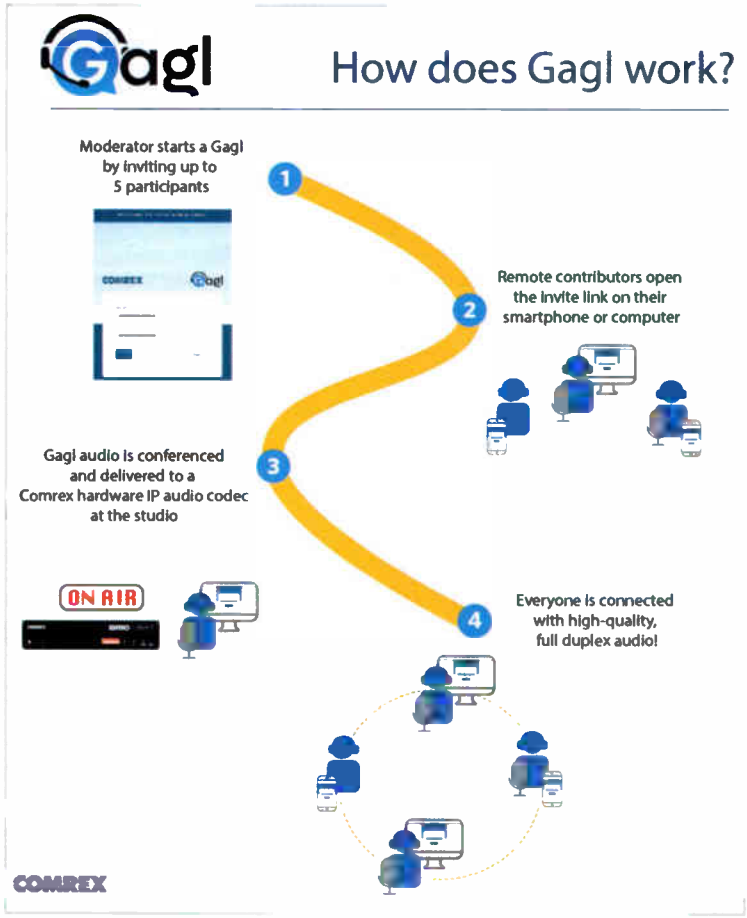
World Radio History

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.

Comrex Gagl is a new remote contribution solution

It allows one to five users to send and receive audio from computers and smartphones

In the fall of 2021 Comrex announced a new service that will deliver conferenced audio from multiple contributors to the company's hardware codecs in high quality. We asked Chris Crump, senior director of sales and marketing, for details.



RW What is Gagl and what is its main application?

Chris Crump: Gagl is a new cloud-based remote contribution service from Comrex. For those familiar with Opal, it works in a similar manner using a common web browser for remote guests to connect. However, it connects to a Comrex ACCESS or BRIC-Link codec in the studio instead of dedicated Opal hardware.

We created Gagl for morning shows, reporters and guest interview situations where high-quality, low-delay audio is required and interaction between up to five participants is needed.

Wherever there is election coverage round-robin reporting, a Friday Night Football live scoreboard roundup, a highly interactive afternoon drive sports show with remote hosts, a charity telethon with presenters at multiple remote locations, podcasts or just simple one-on-one guest interviews, Gagl is a great solution.

To connect, the guest/contributor just needs a computer or smartphone with one of the commonly available web browsers, a decent quality headset and a good Internet connection.

RW What sets this apart from services someone might currently use for this application?

Crump: There are several free services and some paid that broadcasters and podcasters are using but one thing that stuck out to us was that audio quality tends to be an afterthought with apps like Zoom and Skype where video is the primary focus. As a result, audio tends to suffer. Automatic gain control and echo cancellation make the audio quality even worse.

So we decided to really focus on clean, low-delay, high quality audio. It is something that we've been doing for over 60 years now and where we think Gagl will excel.

Customers that already use our ACCESS and BRIC-Link codecs are very familiar with the dependability and superior audio quality these provide. Gagl combines a very simple-to-

World Radio History

use guest contributor interface with the broadcast reliable hardware that our customers depend on every day.

Is it available now? What does it cost?
Crump: Gagl will be available about the time this article goes to press. People will be able to sign up for a trial period prior to purchasing a monthly or yearly subscription. Current details on Gagl and a link to the subscription site can be found at *www.comrex.com*.

> **Audio quality tends to be an afterthought with apps like Zoom and Skype where video is the primary focus. ... Automatic Gain Control and echo cancellation make the audio quality even worse.**

After a free 14-day trial period, Gagl customers will be billed at an introductory rate of $35 USD per month or $350 per year.

Amazon Web Services had some technical issue that may be fresh in people's minds. Is the cloud-based Gagl safe from problems like that?
Crump: A cloud service is basically an application running on someone else's computer that uses the public internet. Given the litany of "blackhat" attacks, connectivity issues and power outages suffered by major service providers that we constantly read about, it is clear that no cloud service is immune from service interruptions.

We will certainly do our best to ensure the best results for our customers within the scope of what we can control. We've had very good results with our SwitchBoard Traversal Server over the years. As long as the power companies and ISPs hold up their end, we should be in good shape.

What else should we know?
Crump: Comrex customers have overwhelmingly given our support team rave reviews. Technical support is free of charge and available in both English and Spanish. Gagl customers will enjoy access to our world-class support team to help them with hardware and platform-related issues.

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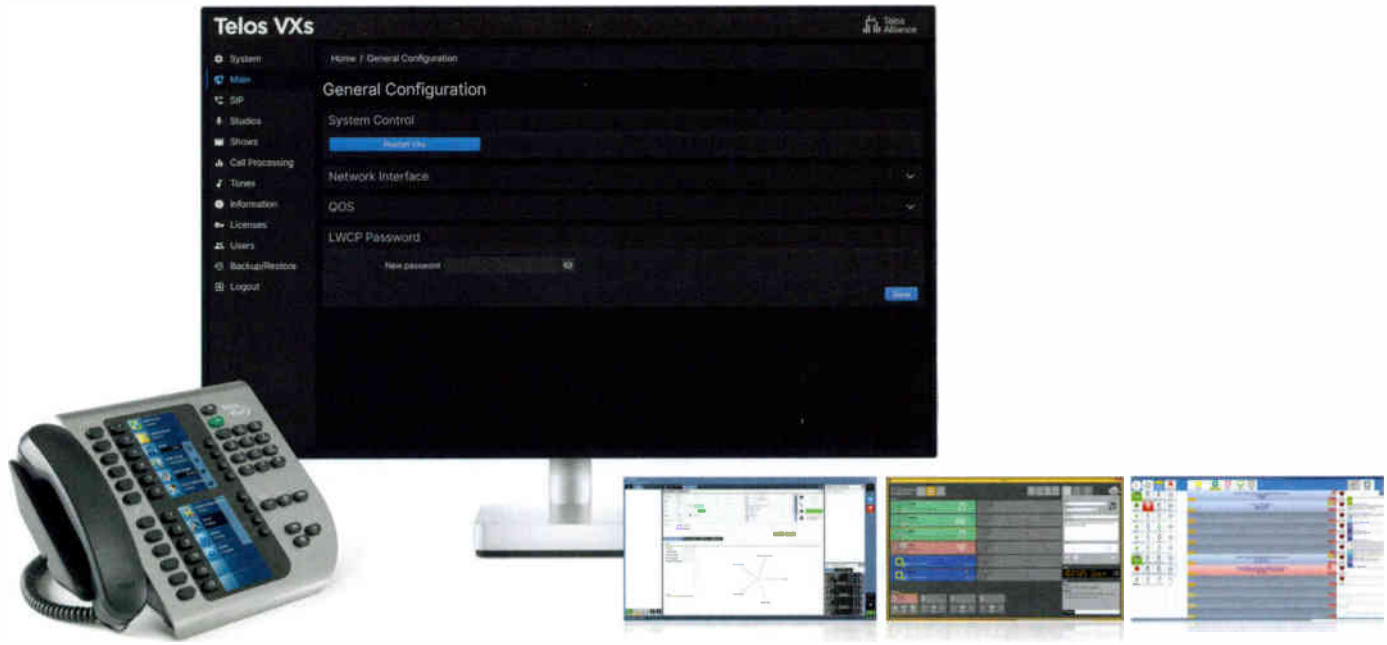


Telos virtualizes VX VoIP System

Users can deploy it on local or centralized servers, or in the cloud

Telos Alliance recently introduced the Telos VXs, describing it as a virtualized version of its VX VoIP talk show phone system. Bryan Jones is VX product manager and senior support engineer.

What exactly makes the VXs "virtualized"?

Bryan Jones: The term has become somewhat ubiquitous to mean a number of different things.

All previous iterations of the Telos VX were delivered as some piece of hardware that required on-premise installation that often limits its use to that installation location. Telos VXs is virtualized to the extent that it's delivered as software only, allowing the customer to define what virtualized really means.

"Virtualized" could mean the customer already has some on-premise solution, or it could mean that it's fully virtualized and running on servers that are in the cloud and that there is no on-premise hardware. A cloud-virtualized solution might mean the VXs could be used across multiple markets from a single install.

Telos VXs is delivered as an OCI-compliant container deployed in the customer's environment using products like Docker.

More Info

www.telosalliance.com or +1 (216) 241-7225

What are the key benefits to a radio station of this design approach?

Jones: In short, VXs offers unprecedented scalability and flexibility. To some extent, in hardware-based iterations of ANY product, total capacity is gated by the hardware platform it's delivered on. A smaller hardware platform means a product might not scale to the desired level, whereas a larger more robust platform might mean overpaying for hardware that will never be used or never needed. Virtualization allows the hardware to scale along with the needs of the facility.

What about compatibility with existing AoIP networks, from Telos or other vendors?

Jones: Telos VXs fully supports Livewire and AES67, the same as our hardware-based VX products.

What else should we know?

Jones: Other benefits of virtualization allow us to support a product for potentially longer periods of time because we're not encumbered by the hardware the product is delivered on. The hardware is abstracted by the virtualization layer, allowing for future platform flexibility.

World Radio History

Caller One goes for the Glory

Talk show software from Broadcast Bionics serves inspirational station and network

Glory Communications has been using the Broadcast Bionics Caller One talk show system since 2020 at urban inspirational station WFMV(AM) in Cayce, S.C., and the Worship and Word Network, which serves a large portion of South Carolina.

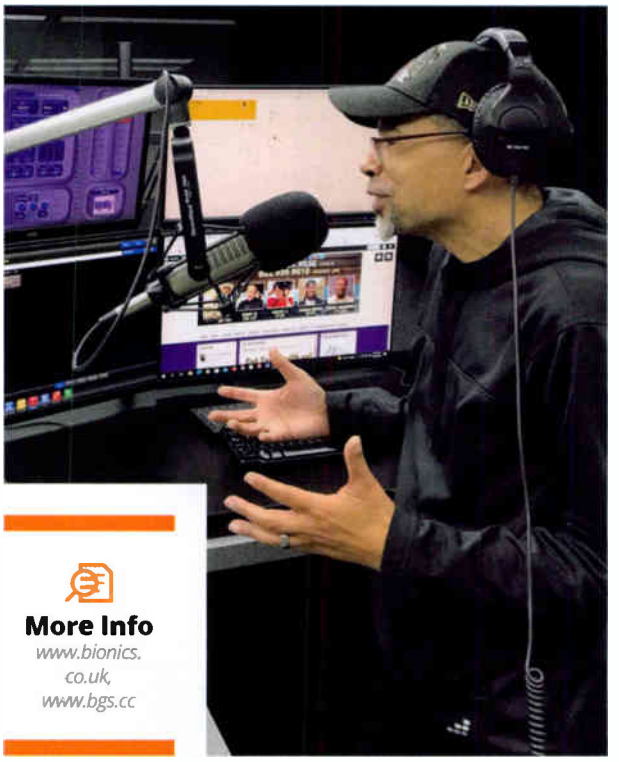
Caller One is a software talkshow system that runs on a PC, webRTC and SIP Voice over IP technology to route calls to air without dedicated hardware. It was designed with smaller studios in mind.

Tony "Gee" Green, program director of WFMV and vice president of programming for Glory Communications, said installation and integration was easy. "It's also a telephone interface that is very easy to learn and use."

For WFMV, Caller One is used in a variety of ways, he said. "Since it's a digital application, it has a superior sound for on-site remote broadcast. It's also used, now more than ever due to COVID-19, as a platform for advertisers both for recording commercial content as well as live programs."

It's used to provide audio for artist interviews and for daily interactions with the station's listening audience.

"As for the Worship and Word Network, its primary use is for talk show interviews and listener interactions. It's an excellent application for the talk format because it offers you the opportunity to use more than one line at a time. Callers can not only call in to the host but they can hold conversations with each other or a remote host." Broadcasters General Store is the U.S. dealer for the product.



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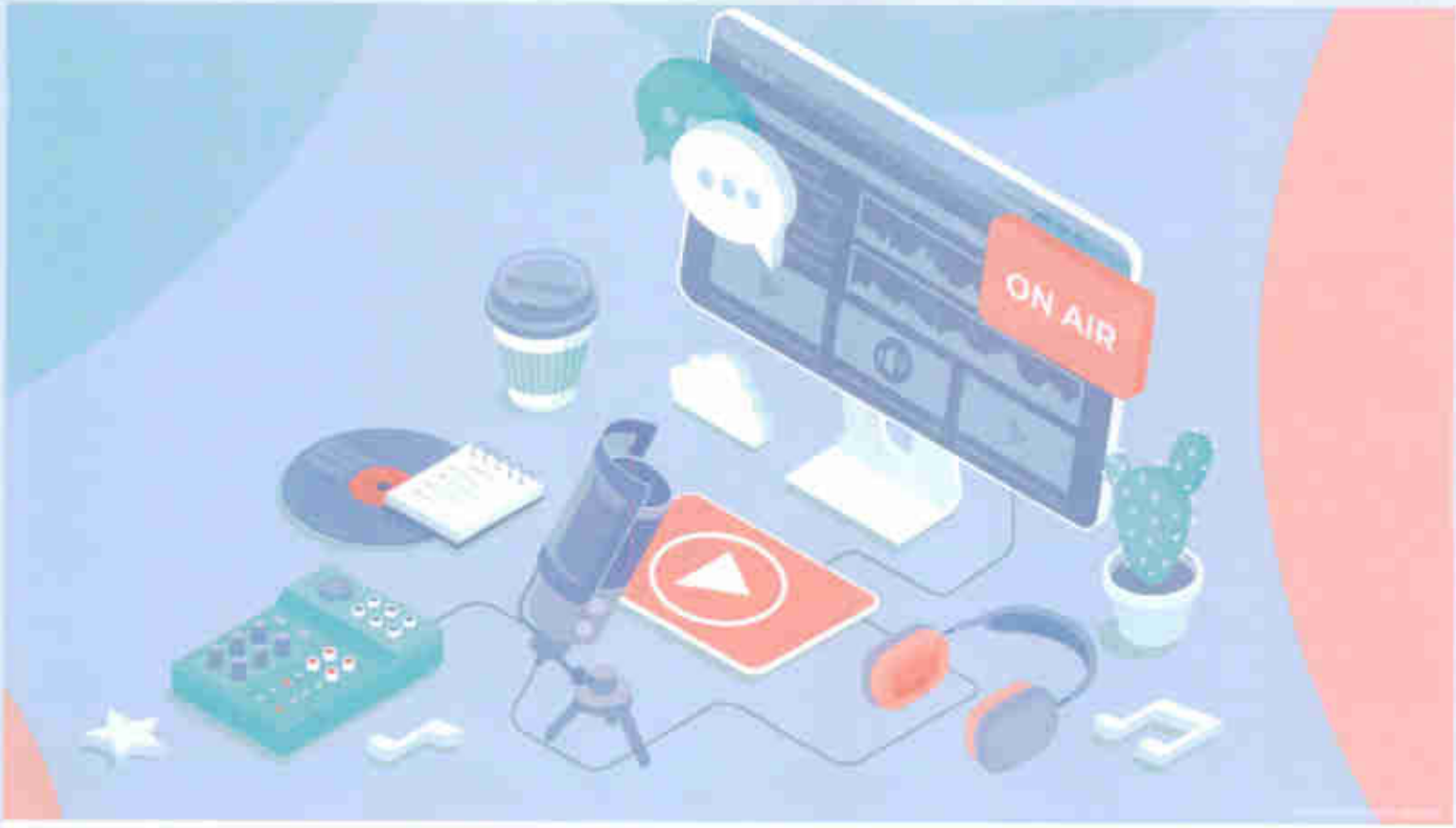

Key considerations in streaming monitoring

Consider these four primary layers of your signal chain

Writers

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Every engineer and station manager knows that actively monitoring their broadcast operations is critical. Techniques for monitoring over-the-air broadcast signal chains have been honed over many decades and may be well understood.

But streaming distribution brings with it a new set of potential points of failure that must be monitored in different ways. Understanding each step of how your streamed content goes from point A to point B, and how you can monitor each of those steps, is essential to fixing problems if they occur.

Stream monitoring for radio broadcasters starts with source production in the studio and extends all the way out to the audience consuming the content. At StreamGuys, we talk in terms of four primary layers of the signal chain: content production; the facility network that connects the production to a streaming service provider or CDN; the service layer that hosts and streams the content to the world; and the application layer where listeners access the content.

The content layer

Streaming radio content essentially takes one of two forms: on-demand content such as podcasts, or live streams as a corollary of traditional linear broadcasts.

Verifying on-demand content is fairly straightforward, as you're only really worried about whether the media file is "good" — for example, whether it is encoded in the correct codec and bitrate, with proper metadata, and normalized correctly for its purpose (such as the TD1008 spec for speech-centric content).

Validating live content is more complicated as it requires multiple facets to be verified in near real time, starting with playout from the automation system. Normalization and digital signal processing may occur prior to the encoder, and you need to ensure the encoder receives a valid audio signal that is true to the

World Radio History

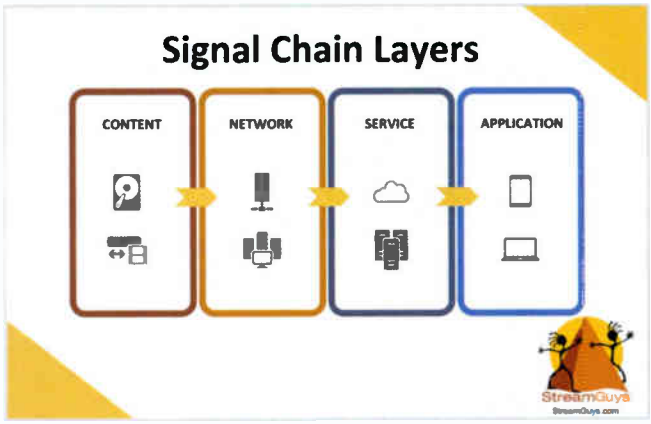
producer's intent. The output of the encoder itself — MP3, AAC, or even HLS — must also be validated.

The network layer

The network is how your signal is transported to your streaming media provider or CDN, which in turn reflects that signal out to the world. The network comprises the switches, routers and gateways that make up your local area network (LAN) at the origination source, and also interacts with a dedicated internet service provider (ISP) connection for uploading streams from the encoder.

Tools like Ping, Traceroute and PingPlotter should be used constantly to monitor the consistency of the network and ensure connectivity to the outside world. You should be monitoring against the points of presence where your CDN is ingesting your streams. Generic speed tests don't offer useful perspective, as they don't accurately represent the path between your network and the service layer to which you're broadcasting.

Persistent tracing provides the operational visibility necessary to identify intermittent issues. This long-term approach to monitoring the health of your network enables you to correlate issues reported by listeners — such as stream buffering at specific times of day — against network events such as packet loss or jitter on the link between the studio and CDN. Such data can help when working with your ISP to resolve such issues.



> **Validating live content is more complicated as it requires multiple facets to be verified in near real time, starting with playout from the automation system.**

The service layer

After the live feed reaches your CDN or you have uploaded file-based media file to your CMS, the service layer is the delivery mechanism that distributes your content to your audience. It consists of multiple purpose-built streaming servers and usually is operated by a CDN or streaming media company, spanning multiple points of presence globally.

For monitoring purposes, look at the service layer as if you are part of your audience. First, ensure you can connect to the stream from your location, like a listener in your own DMA. From there, cast a wider net to ensure the stream is available from other parts of the country, or even globally. Automated monitoring agents can be set up in different geographic areas and even on specific consumer networks to help narrow down issues affecting only specific groups of listeners.

In addition to verifying that streams are accessible, you also want to ensure listeners are correctly receiving your audio. Silence monitoring is an important aspect of that, and can help detect issues with the automation system or encoder. The silence detector "listens" to the stream, and if it falls below a particular audio level for longer than a specified time threshold, triggers an alert. Audience measurement can also help identify issues, as sudden dips in traffic can correlate to technical issues with your streams.

The application layer

The application layer is essentially any mechanism the audience can use to interact with your content. This could be via your website using various browsers; it could be a dedicated mobile app; or it could be through increasingly popular smart speakers.

Monitoring the application layer comes down to verifying proper playback of your content. Are there any audio issues that weren't present in the source, but are audible through the player? Such problems may be platform specific. For example, the audio specifications you're delivering might be fine in one browser but not in another.

Analyzing the user experience is also important, as how people interact with your content — such as voice commands — can impact their engagement.

There isn't yet a great, automated way of testing the human experience. Manual testing is still the best way to verify that your player is outputting the right content properly in various locations, and that commands are fulfilling the interactions you want your consumers to have.

While you should obviously perform your own testing, you can supplement it with feedback from people who are essentially constantly monitoring the application layer for you — your audience! Pay close attention to their feedback, even unique problems you haven't heard of elsewhere. They may be the clues you need to track down problems elsewhere in the chain.

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