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An ambassador for radio

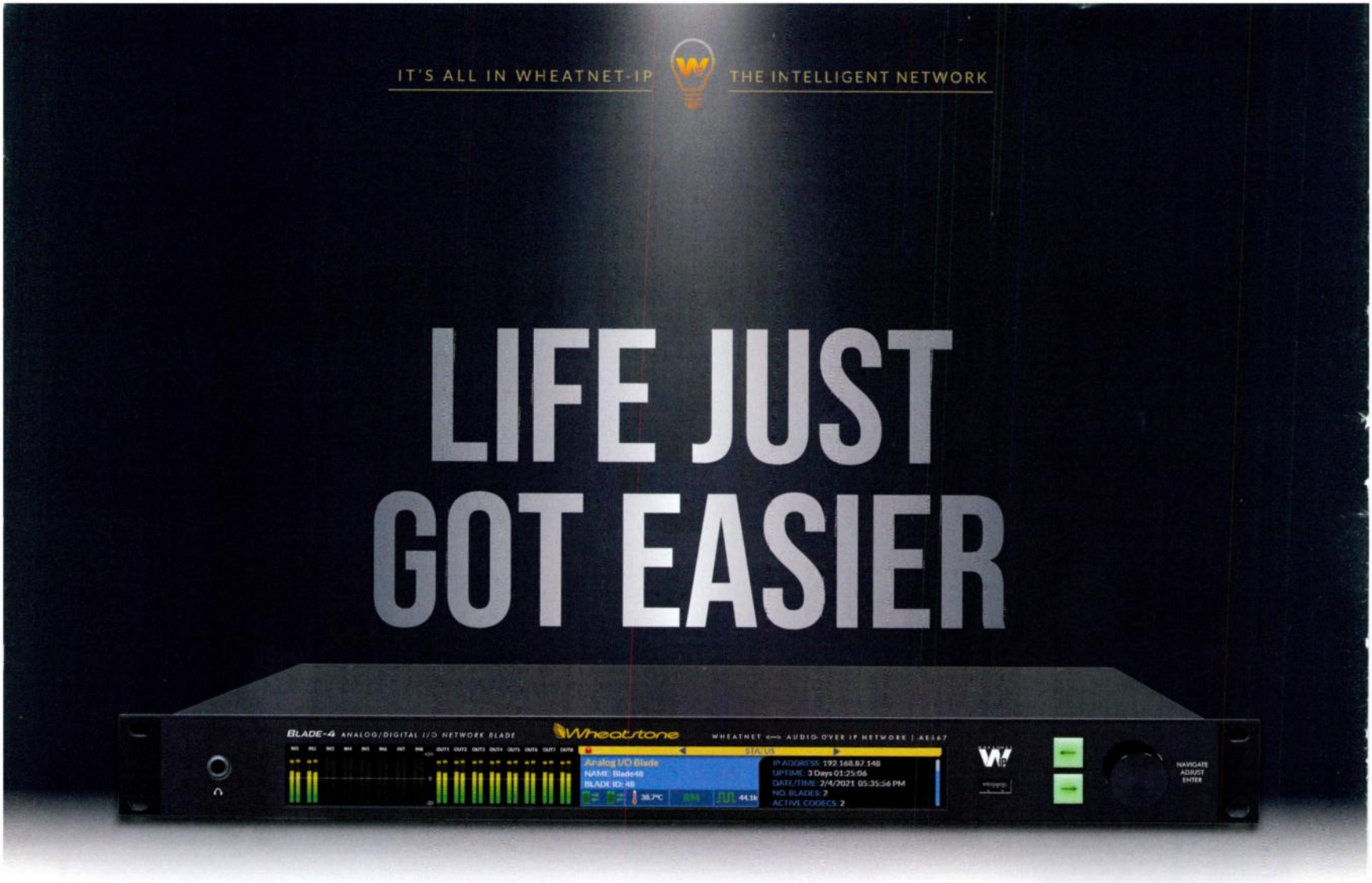
The business of broadcasting is in Will Payne's DNA.

A future in software

Scott Stiefel and Frank Foti of Telos Alliance talk trends with us.

Go get your gun

Tips for effective soldering.



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Share your expertise

SBE members with less seasoning need your help

Paul McLane
Editor in Chief

If you are a member of the Society of Broadcast Engineers and are active in the field, please consider becoming a mentor.

"Now in its seventh year, the program aims to develop new broadcast engineers through relationships with more-seasoned professionals," the society wrote in an email in January.

"This relationship is mutually beneficial in that it offers less experienced SBE members to gain knowledge and experience, while the seasoned mentor gives back to their profession."

There are two ways you can take part.

"While regular mentors are paired with a mentee to provide guidance, there can be times where a mentee has questions in an area that may not be the mentor's main field of expertise," the society said.

"With this, the SBE Mentor Program also has Subject Matter Expert (SME) Mentors available. SMEs can be brought in as the need arises. Mentors can serve in one or both roles. There are separate application forms for the two areas of participation."

The pairing is for a year. Mentors and mentees can establish a schedule that works best for them, but the SBE asks that you connect by phone at least once every two weeks.

Radio World contributor Mark Persons wrote about the experience of mentoring awhile back.

"Mentor/mentee is a teacher/student relationship of, in this case, the practiced art of broadcast engineering," Mark wrote.

"I say art because it is more than electrons flowing through wires. The engineer needs to fit all the pieces together to make a station play. An expensive mistake makes for a hard lesson learned, but one that can be avoided again by passing the story along.

"Radio World contributor and friend Buc Fitch said it right: 'Mentoring is the transfer of the love and practice of the craft while internship is academically focused on learning the mechanics.' As a mentor, I try to convey the spirit of broadcast engineering."

Mark offered tips including this: "Be conscious of using buzz words, phrases and abbreviations that outsiders would not know, such as STL, ICR, AoIP, RF circular polarization, ground system, TPO, ERP, HAAT, composite audio and SCA. The list goes on. Explaining these is all a part of the teaching and learning process."

He added that his biggest problem is keeping his own hands off the equipment. "After all, the best approach is to explain how it is done and let the student learn by mistakes, just as I did years ago." (To read the article "Your Mentorship Matters," visit *http://radioworld.com* and type "Persons mentor" into the search field.)

The SBE Mentor Committee Chair is Pierre Jaspar, CSTE. For information about the program or to apply as either mentee or mentor, visit *sbe.org/mentor*.

SBE Mentor Program

THIS ISSUE

FCC Ponders Mandatory Disaster Reporting

The FCC is inching closer to a requirement that radio and TV broadcasters file updates on their operational status following disasters.

The commission, at its January meeting, updated rules for the use of its Disaster Information Reporting System. Until now, participation by communications providers, including broadcasters, has been voluntarily, but the FCC said this approach has led to gaps in reporting.

The adopted order now requires voice and cable providers to report their infrastructure status information daily when DIRS has been activated. Broadcasters, for now, are excluded, but an accompanying proposed rulemaking asks whether broadcasters should be required to participate. The FCC has said that broadcasters voluntarily provide information in DIRS for only 20% to 35% of stations in most activations.

The proposal also asks whether broadcasters should be required to enter any outages to the FCC's separate Network Outage Reporting System, or NORS.

A mandate for local broadcast stations to participate when a disaster hits a region is not a new idea. The NAB and broadcasters generally have opposed any mandate for participating in DIRS, saying it would be unnecessary and burdensome.

The FCC acknowledged those arguments in the proposed rulemaking. But it said it believes mandatory DIRS reporting for broadcasters "could ensure a standardized and coordinated approach among entities potentially impacted by disasters, allowing authorities to make informed decisions about emergency response activities and avenues to communicate with the public" during emergency situations.

"We believe this could be of particular significance given broadcasters' role in the EAS, as well as the continued reliance on broadcast communications by underserved and non-English-speaking communities for the dissemination of emergency and weather-related information."

It proposed requiring TV and radio broadcasters to report in both NORS and DIRS under a simplified reporting process based on "the type and modality of certain broadcast infrastructures," the FCC wrote.

— By Randy Stine

For Will Payne, radio truly is in his blood

This Oklahoman is an ambassador for radio

Writer

Randy J. Stine

Radio World's lead news contributor wrote in January about how to stay out of trouble with the FCC inspector.

Will Payne has the mannerisms you would expect from an Oklahoman raised in the 1970s: plenty of southern charm mixed with some Midwest grit. He's part tornado chaser and part youth soccer coach, a graduate of Southeastern Oklahoma State University and a proud dad. And he is a third-generation radio man.

The family's broadcasting tree is a tall one. Paynes have operated radio stations in the area since the 1950s, beginning with an AM in Cushing, Okla.

His father, the late Bill Payne, launched one of the first FM stations in the state, in his hometown of Edmond, and was inducted into the Country Radio Hall of Fame. Grandfather William Howard Payne founded the family broadcasting business and was an attorney who represented tribal nations in their efforts to gain reparations.

In fact, the listening area of Payne's radio stations cover much of the Choctaw, Cherokee and Chickasaw Nations of eastern Oklahoma.

Will Payne has built on the success of his father and grandfather. Payne Media Group LLC, of which he is president, operates seven FMs that serve southeastern Oklahoma and northeast Texas, while Payne's mother, Gail, still owns the stations her late husband held across the region.

The 50-year-old Payne also holds a seat on the radio board of the National Association of Broadcasters and is in his second stint as chairman of the Oklahoma Association of Broadcasters. And he hosts a morning radio show with Barry Diamond on a regional network of four FM stations.

Radio World talked with Payne about the family's broadcast legacy, challenges faced by broadcasters in small markets, and his life as a radio ambassador.

Right
Will Payne addresses graduates at commencement at Southeastern Oklahoma State University. He is president of its alumni association.

RW You're not kidding when you say radio is literally in your blood. What is it like to be raised in a radio family?

Will Payne: It's all I know. There are challenges, but in our family it's a lifestyle. On Christmas mornings, before we had all this fancy technology, we were the ones working so the staff could have the day off. I remember taking road trips with my dad in the station van out to transmitter sites that needed work. We would chase tornados, too.

My dad never pushed us in the direction of radio, but he allowed us to be hands-on if we wished. I was a music programmer by 17 and a GM by 21. In 2006, I got my first construction permit and built my first radio station, so there were definitely great opportunities as well.

RW Sounds like it was a great learning environment.

Payne: We were able to be a part of every facet of the radio business. My dad was that way. He was on air, programming, engineering and management. I'm that way myself, and that's something great about being a part of a radio family.

RW Do you handle your own engineering work, then?

Payne: I handle the day-to-day and routine maintenance and any tech support. Richard Hardy has built all of my stations; I call on him when we have major or catastrophic issues. He comes in from Tulsa 2-1/2 hours away. Richard used to pick me up at daycare and bring me to my father's station in Tulsa. He has worked for the family since the 1980s.

RW What challenges do you face as a small-market radio broadcaster?

Payne: Same as the big groups. We compete now with not only other radio stations, but goliaths like Facebook, Google

and YouTube. And social media. There is more competition than ever before.

We tell our clients we are in the media business, so we've acknowledged that we are in the media business, too, by live streaming events, video ads, pre-roll banners and website ads. We really make sure that when we talk to clients, we let them know we are in the media business, not just AM or FM or HD Radio business.

You mention HD Radio. Is it the cost of the initial investment that has kept more small radio broadcasters from adopting it?

Payne: I think that was the case 10 years ago, but now I think Xperi has done a good job of offering payment plans to do it. I'm hoping more small broadcasters adopt.

And the transmitters are much more reliable now. When we went HD, I went from an old tube-type transmitter to a Nautel solid-state. Now I don't need to maintain that new transmitter like I used to. I feel with the electricity I'm saving, along with the cost I'm saving in tubes and engineering, that I can afford HD.

You call yourself an ambassador for radio. How so?

Payne: I don't think we do enough to promote our wins. We are diversifying as an industry and we need to promote that more than ever. I tell other broadcasters to get out there and tell their story because it's a great story to tell.

Can you expand on that? What aspects of radio, or of their own stories, would you like other broadcasters to be more vocal about?

Above
Young Will Payne on the "Bill and Will Show," KTFX(FM) in Tulsa.

Payne: Rural radio moves the needle and the cash register every day. And it is a lifeline. In a time of need, radio is there. We spring into action, we report, we raise money. We need to promote ourselves.

Tell the story of how you did it. What you do. Use any means necessary to recap and be vocal on how to make a difference. Show numbers, show man-hours dedicated. Yes! We create transactions every day with local businesses. That's an amazing story. We need to share it with everyone in the community.

What's it like serving on the NAB Radio Board as owner of a small-market group?

Payne: There are a few of us, I'm not alone. I'm not sure that I bring a unique perspective. We are similar in a lot of ways.

One of the things I can say is this. In a small market we do it all. From engineering, to sales, to programming, we have a familiarity with it. Those who work for larger groups might have higher proficiency in one area or another, so in that sense we can come up with ideas and find solutions for the whole of radio.

What are your thoughts on AI and what it means for radio?

Payne: As a small-market guy, we'll be able to offer goods and service more quickly. The other part of it is that AI offers a way to check your work.

If I can get bullet points from a client, I can throw it into CreativeReady SpecMate and ChatGPT to get the beginnings of a script. Usually it's pretty good already, but then we customize it a bit to the client. This is especially helpful to young AEs who can take spec spots to clients.

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Above
Payne, rear, was part of an NAB State Leadership Conference delegation to Capitol Hill. He's with Brent Hensley of KOCO(TV); Vance Harrison, CEO of the Oklahoma Association of Broadcasters; Will's mother Gail Payne; and Heston Wright of Wright Media.

Right
Live at the studios of KDOE(FM) before the Antlers, Okla., Homecoming Parade.

That's just on the creative copy side. We are not using any AI on the audio creative side, but I'm very curious and continue to look at it. Imagine if you could choose from some good voices and create the commercial. You then have a pretty good commercial to start with. Better than you would without using AI. I think we will pick something like that up eventually.

What do you think of the FCC and the current climate of regulation?
Payne: First, props to the NAB for getting our regulatory fees reduced. They went in and were able to show the FCC how to allocate the fees more fairly.

In our market, we are the only media paying fees to the FCC. It puts us at a disadvantage. I will say this, we have direct competitors that are not regulated and operate as they please. That's to their advantage.

The commission recently declined to remove or raise the subcaps that limit how many radio stations one company can own in a market on each band. What's your opinion of that?
Payne: I am in favor of helping local radio owners in the rural market. I think the strong need to be able to get stronger. Clearly the competition has changed. Many owners are ready to sell due to age or finances. Broadcasters need flexibility.

AM radio still means a lot to you and your family?
Payne: Absolutely, I remain a fan of AM. Our first station was an AM station and my mother still owns an AM station. There are still standalone AMs, without the help of translators, doing great things for their community in this country.

You're considered a pioneer in video streaming of high school sports in Oklahoma. How did that come about?
Payne: We started streaming high school sports around 2011. My heart is in radio, but if you're not streaming high school sports and you only rely on the radio broadcast, you are doing your listeners a disservice. The public is demanding that we stream local sports.

We worked together with the Oklahoma Association of Broadcasters to get a bill passed into law in 2021 that helps radio stations secure the rights to stream the football and basketball games of their local high schools. The law really levels the playing field and eliminates out-of-state companies from enforcing exclusive media rights deals that deny access.

Radio broadcasters doing broadcasts of local sports really need to focus on streaming the games and take advantage of the revenue possibilities. It's a real growth area for us.

Are any of your children following in your radio footsteps?
Payne: That's to be determined. Jarred, 28, is working in Kansas City. McKinley, 23, will finish occupational therapy school in May at Oklahoma University. Hayes, 13, is very active with live streaming broadcasts of high school sports.

You say you can sometimes be found on the prowl in your 1974 canary yellow De Tomaso Pantera. Are you a car guy?
Payne: That's what I do in my free time. I love working on old cars. I'd been chasing that very Pantera for nearly 25 years and finally caught it. It was sitting behind an old barn with no engine when I found it.

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Bag it, stash it, grab it quick

More thoughts on part organization from Binmeister Dave Morgan

John Bisset
CPBE

The author is in his 33rd year of 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.

Send your tips

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

In the previous issue I outlined the thorough organization process used by Dave Morgan, director of engineering for Sinclair Telecable. Dave told how he has allocated space at one of his transmitter locations to assemble and organize a "parts depot" to support all of his sites. And he expressed surprise at the discoveries he has made during this consolidation and sorting process.

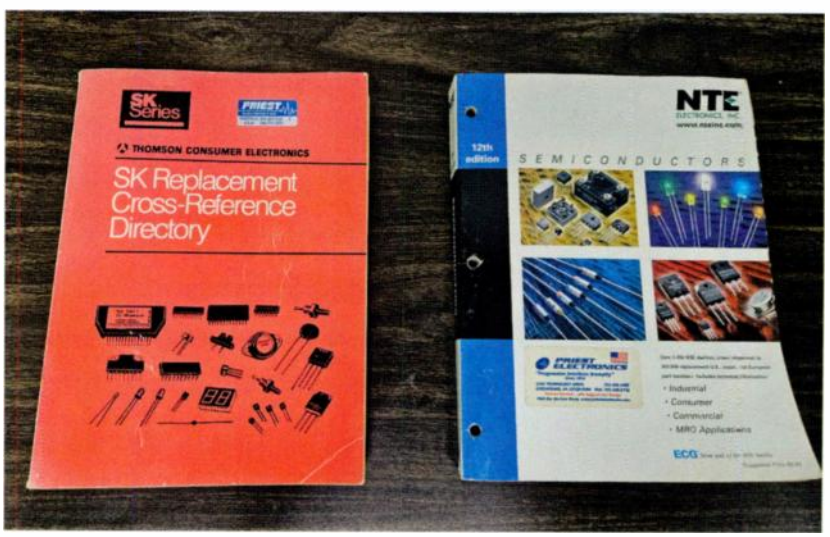
We left off with a suggestion that you store small components in the plastic bags (Ziploc or similar brands) that you get when you order parts from supply houses. As you can see in the first image, the bags fit perfectly in an Akro-Mils shelf bin (part number 30150). It measures 7 inches wide, 4 inches tall and 12 inches deep and is available in various colors. Don't forget to buy the plastic dividers (part number 40150).

In addition to keeping things organized, these bins are easy to transport from one site to another.

Semiconductors pose a sorting challenge because of their various numbering schemes. Dave's approach has been to sort by NTE/ECG numbers and use a cross-reference directory to find the matching NTE/ECG number, with the caveat that datasheets must be consulted whenever an NTE/ECG or SK component might need to be used as a substitute.

This is because there are differences. Data sheets are also available on the internet, but nothing takes the place of the cross-reference directories.

Top
Use Ziploc or similar brands of resealable bags to help organize resistors.



Right
These reference books are useful when substituting semiconductors.

For semiconductors, Dave uses the original factory, supply house or new anti-static bagging, but the SK and NTE/ECG pouches will also fit nicely inside the Akro-Mils bins.

Dave cautions that there is a disadvantage to open-top bins: Dust and dead bugs can accumulate in them if your building is not sealed tightly or relies on outside air circulation. Of course your sealed bags will keep out dirt, bugs and moisture, but the bins can get dirty.

Dave and his staff express amazement at how often they solve a problem or save time and money by pulling parts from their consolidated depot. The loss of their last local electronics store may have been unfortunate, but its closure, combined with their need to tidy up transmitter

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buildings and studio closets, have produced benefits for their stations.

Sharpie suggestions

Northern New England contract engineer Stephanie Donnell commented on our discussion about marking and labeling circuit breakers.

To identify particularly important ones, like the one feeding the dish heater or a UPS, she uses a red Sharpie or similar brand marker. In the case of a UPS breaker, this makes for easy identification for a load test.

Stephanie also uses labels from a Brother P-Touch or other label maker to highlight the location of connectors on the back of a Burk remote control. These boxes have a tight confluence of wires; labeling the connectors makes it easier to find which connectors are for which function groups.

The label maker can also be a big help in labeling wall-wart power supplies with the name of the equipment being fed power. Stephanie has also used labels or Sharpies to label telco "biscuit boxes" with their assigned phone or circuit numbers.

Above
The system makes it easy to identify transistors.

Below
An oldie but a goodie. This box helped Ken Lundgren earn lots of of spending money as a kid.

Ken's toolbox

We also asked about your favorite toolboxes and what you kept in them.

In 1955, Ken Lundgren gave up his paper route and passed out business cards for "Ken's Radio & TV Service." He charged $5 for a house call plus the price of tubes.

Ken made friends with the local TV parts shop and bought tubes for 50% off. Most tubes ranged from $1.50 to $5. He fixed nearly every TV by replacing a tube or cleaning the tuner. Sometimes he only needed to tweak the Horizontal- or Vertical-Hold controls.

Ken's toolbox, shown at left, contained a 1/4-inch "spin tite" nut driver to remove the back of the television; an AC cheater cord, to power the television when the back was removed; a couple of receiving tubes; tuner spray; and a CRT booster. Most of the time, Ken would have to go to the parts store to get a tube, so that was two visits or $10!

One neighbor with a Zenith TV needed tuner cleaning once a month. Ken asked the tech at the parts store, who recommended Lubriplate brand grease on the tuner contacts. After application, his visits were cut down to once every three months.

Ken kept his original toolbox until about a year ago. It served him well.

Soldering tips for beginners

The skill remains helpful even in the age of AoIP

Writer

Karl Zuk

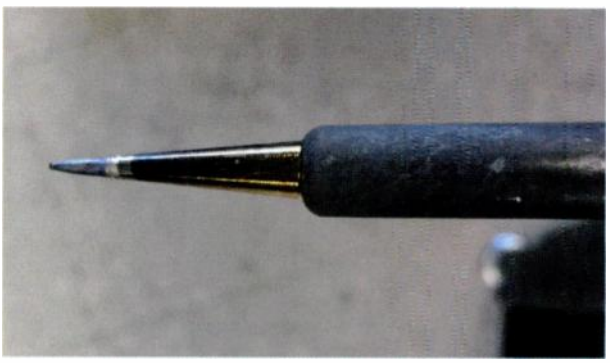
Now retired from a 52-year career in broadcast engineering & management, Karl Zuk is enjoying journaling best practices as well as new technologies and advances.

There is one skill that everyone should know: How to solder!

First we should offer this advice: Every job is so much easier when using the proper tools.

Over the years I have created a short list of basic hand tools that I carry that fulfill nearly every need in electronic work and repair:

- Cable TV F-connector removal tool
- Medium-sized Philips screwdriver
- Medium-sized straight screwdriver
- Small tongue-and-groove plier for removing stripped-out screws (Channellock 426)
- Slip-joint "gas" plier (Diamond P27)
- Adjustable wrench (Crescent AC16C)
- Small combination screwdriver and nut driver (Xcelite 600)
- Medium-sized wire cutter
- Adjustable wire stripper
- Three Xcelite miniature adjustment screwdrivers: R3322 "greenie." P12S "bluey," R181 "reddie"
- Miniature nut wrench for tightening computer posts (Xcelite P6 3/16)
- Needle-nose plier
- Two fine wire cutters
- Pencil, pen and computer memory stick



Top
Useful hand tools for electronic work

Middle
Soldering iron with needle tip

Bottom
The Weller WE1010NA comes with a one-channel soldering station, a WEP 70 electric soldering iron and a PH 70 safety rest.

A set of tools like this can literally last a lifetime. They fit into a convenient pouch like a Klein Tools 5139. You can conquer the world with this kit!

Everybody has individual tools that they like to have and use, and certain tasks will dictate your list. Can anyone survive without a Dremel tool and a set of metric and standard ratchet nut wrenches?

The Big Melt

The main tool you need for soldering is a soldering iron. Today's electronics usually require a 25- or 40-watt iron with a needle or small spade tip. Make sure your iron has an adjustable thermostat to hold it at the hot temperature; otherwise your joints will not be consistent. Runaway heat can eat up your soldering tips and end their life prematurely.

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A few accessories are in order. I recommend three small plastic squirt bottles.

To aid in difficult soldering, keep a needle-nose bottle containing rosin flux; this will allow the solder to flow with ease when you need extra help.

A similar bottle should be at hand with water to keep your station sponge moist. Wipe the tip of your soldering iron along the sponge after each action for a clean start every time.

The third bottle should contain 99% alcohol. Moisten a cotton swab with it and scrub your work lightly to remove brown and sticky left-over flux from completed joints.

Finally, purchase a set of 2CYX5 hole cleaner tools to clean PC board component holes. These are long and thin miniature files that will prepare the holes before inserting a replacement part.

Here is the cardinal rule: When soldering components or wires to a PC board or chassis, cut the lead before you solder the joint! If you cut it after you solder, the snip action will shatter the joint. Dissimilar metals (the solder and the wire) will be exposed to oxidation. It will not be a sealed joint.

The correct method is to position the component, bend the leads that come through the board in the direction of the PC board "pads" and "lands" and snip both before soldering. This makes a good physical connection before you seal your work with solder.

Place the hot iron tip at the hole for a second or two to heat the joint. With your other hand, touch the solder to the tip and turn the tip very slightly as the solder melts over the joint. Use just enough solder to fill the PC board hole without making a bead of solder apparent.

Similarly, when you are working on a chassis, wrap the wire once around the terminal strip or post to make a solid physical connection and snip it to fit. Then seal the exposed wire to the post with just enough solder to make a good joint. Cut first, then solder!

If you are making connections with stranded wire, strip its insulation to bare enough wire to make the connection with a wire stripper. Twist the wire gently in your fingers until the wrap is tight, then seal the wire threads by melting a small amount of solder along the wire to "tin" them in place.

This approach makes the ends of your stranded wires just like a solid conductor. It also aids eventual soldering to the PC board or terminal connection.

The term "tin" comes from the composition of the solder itself. Most electronic solders are a combined alloy of 60% tin and 40% lead, or 63% tin and 37% lead. Examine a piece of solder cut with a wire cutter and you may see an amazing part of its formulation. Most solders have built-in "multicores" of rosin flux made from pine sap. Brown or golden in color, the rosin aids the solder to melt and adhere to metal joints known as "wetting." Having the flux built into the solder saves you from applying the flux separately and will save you a lot of time as you build your project.

How do you know you have made a good solder connection? A fine solder joint should look shiny and smooth without creating a bead from too much applied solder.

If you remove your solder tip too slowly, you may create an unsightly "icicle." If you move your component or wire before the joint has cooled it will look porous, cracked or dull gray. These "cold" solder joints make a miserable connection and will just cause trouble. Remember: Shiny and smooth = good!

Top
Isopropyl alcohol

Above
Paladin heat gun.

Tips for a professional look

When you build a circuit board or chassis, position all of your components in the same direction. Resistor color codes should run up to down with the tolerance band towards the bottom of the chassis, or consecutive left to

right. Similarly, capacitor positive side bands should be at the top or at the left with all the numbers (100uf 25VDC or whatever) all facing the same way and easily readable.

When positioning components vertically, make a squared-off bend at the top. This makes for a professional look and provides a nice place to grasp the lead with a meter or test probe if necessary. Quick rounded-off ends are never the same twice and don't look like they were made formally. In all cases, try to position components uniformly across your project in a neat and thoughtful manner.

Should there ever be a point where component leads come too close to each other and may possibly touch, a piece of plastic tubing can provide insulation that may save you from catastrophe. If you don't have factory-made tubing available, a leftover piece of wire insulation may suffice. A piece of tubing can also cover points where wires have been spliced or otherwise repaired.

Also available is "heat shrink" tubing, the deluxe material for insulating wires and splices. Heat shrink has a rubbery plastic feel and will conform to the shape of whatever is inside it. Cut an appropriate length to cover your wires or repair, then apply heat using a heat gun — like a hair dryer but higher in air temperature — and watch the tubing shrink a wrap itself tightly around your work.

Construction hints

Repairing circuit boards requires more advanced skills. If you need to remove and replace a component — maybe a burnt resistor or a shorted capacitor — you'll need to remove the solder from the solder joint as part of your "rework."

There are three ways to skin this cat.

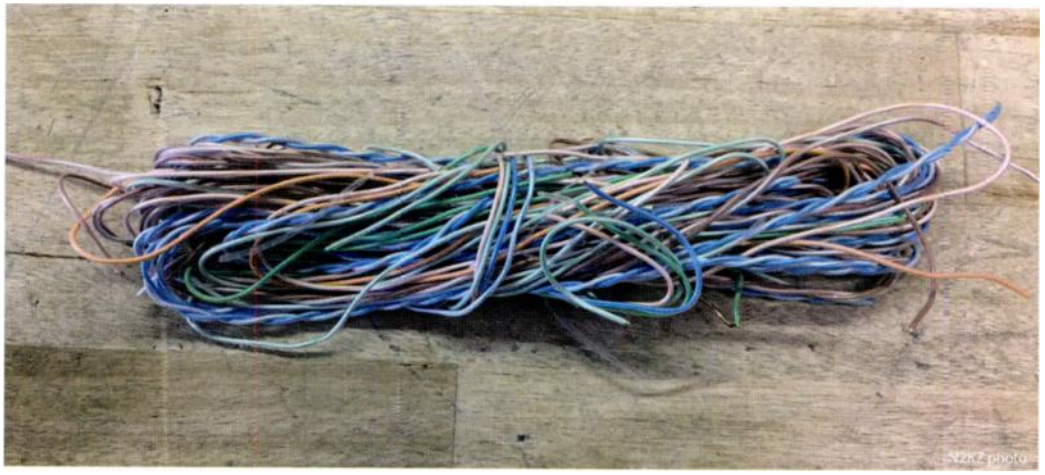
Some people prefer to use a weaved braid of fine wire called solderwick. When a solder joint is reheated, you can place a piece of solderwick on the joint and hope the molten solder will migrate to the wick, pulling it away from the joint. This is troublesome because the wick adds a lot of surface area and the solder will require a great deal of heat to become molten. The PC board and

> **"Today's electronics usually require a 25- or 40-watt iron with a needle or small spade tip."**

the etched wiring lands and pads can also become overheated and come off the board. This isn't fun and it's difficult to do.

You can also use a "solder sucker" such as the Edsyn Soldapullt. This is a long cylindrical pumped suction device. You press a plunger down into the cylinder. Heat the joint with your soldering iron until it becomes molten. Place the Soldapullt's point over the solder joint, then quickly press the round button in the middle of the tool and you will create a powerful momentary suction that instantly removes the molten solder with grace and style. I prefer this method.

An expensive version of this concept is seen in professional rework stations. A hand-held metal nozzle heats to solder-melting temperature. Place the nozzle over your joint and press down on a foot pedal switch. The nozzle will apply suction and discreetly clean the joint. You have to keep the nozzle clean to continue having good suction.



Above
Scrap telecom wire is suitable for small projects.

Conspire to wire

While I am at it, let me please include some wiring tips.

I have seen all sorts of ways, simple and complex, of holding wiring in place as you attempt to solder wires to a connector or whatever. People use desk vises, vises with alligator clip attachments, expensive pivoting frames and lots of other things.

Having spent a long time on the road, I developed simple methods of getting repairs and wiring done with simplicity.

One trick I like is to make a needle-nose or other plier into a locking plier by wrapping a rubber band around the handles. It will hold anything with a gentle touch so you can solder it without effort.

I have developed a similar technique by resting heavier tools like my large wire cutter over a wire or cable to hold it in place. It works like a charm! When you get the hang of this, wiring can become quite rapid and easy. I use this for soldering all sorts of things especially audio XLR connectors or multi-pin "mult" cables for connecting multiple audio circuits with one large cable.

Speaking of soldering cables that require multiple connections: Always slide the collar or shell of the connector onto the cable before you do all your painstaking soldering. Nothing is sadder than a beautifully built connector without its cover. The agony!

Prepare the multi-wire end by stripping and tinning the ends before soldering. Remember the wires that go to the outside pins need to be slightly shorter than the inside pins. Start by soldering the inside pins first and work your way out to the outside to finalize your job. It is much easier to do when your work is in the clear instead of trying to solder around wires you have already completed!

Learn to use just the right amount of solder to make a good connection. Don't overload a "cup" with too much solder so it beads up and expands over the connection point.

Also, get to know the place to adjust your iron for the correct temperature. Too hot melts plastic and ruins connectors. Too cold makes for crystalized cold solder joints, lousy connections and peril!

Be very careful with PC boards that have connections inside the board layers. Multi-layer boards are best repaired at the factory and not at your bench. Professional PC boards are often made by a process called wave soldering, where all the components are placed perfectly by automation before soldering. The boards then go precisely through a carefully heated and prepared bath of solder for pristine results. Similarly, surface-mount technology boards are fragile and require great care. Sophisticated expensive workstations and advanced skills are needed to enter the land of SMTs! High-tech boards are hard to repair in the field. Beware!

Also useful: Consider using the single-conductor wire found in either Cat-5 and Cat-6 cable and/or wiring used for old-fashioned telephone "telco" connections. These are fine-gauge single-conductor solid wires with a variety of color codes. Grab this kind of wire whenever you can. It makes excellent wiring for your projects or PC board land and pad repairs. Very useful and usually free. Scraps can be gifts!

Finally, keep in mind that my experiences are my own and not to be thought of as universal. We all have developed habits and procedures for soldering and construction that are comfortable for us. I would love to hear your hints.

Comment to *radioworld@futurenet.com*. This article was published in PCARA Update, the journal of the Peekskill Cortlandt Amateur Radio Association. Used with permission.

H10 Hybrid Console

The best of both worlds.

The H-10 Console offers the best of both worlds, combining the simplicity, reliability, performance, and ease of operation of analog with the flexibility and power of digital technologies. It is a perfect blend of traditional and modern features, providing an exceptional experience for any studio.

HSeries Controller The H-Series Controller software is included as a standard feature with the H-10 studio console mixer, empowering users to control the console remotely from anywhere in the world.

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USB
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Mix-
For connecting your phone hybrid

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Bluetooth Enabled
Connect Bluetooth enabled devices

Inputs / Outputs
Includes balanced and unbalanced, inputs and outpus

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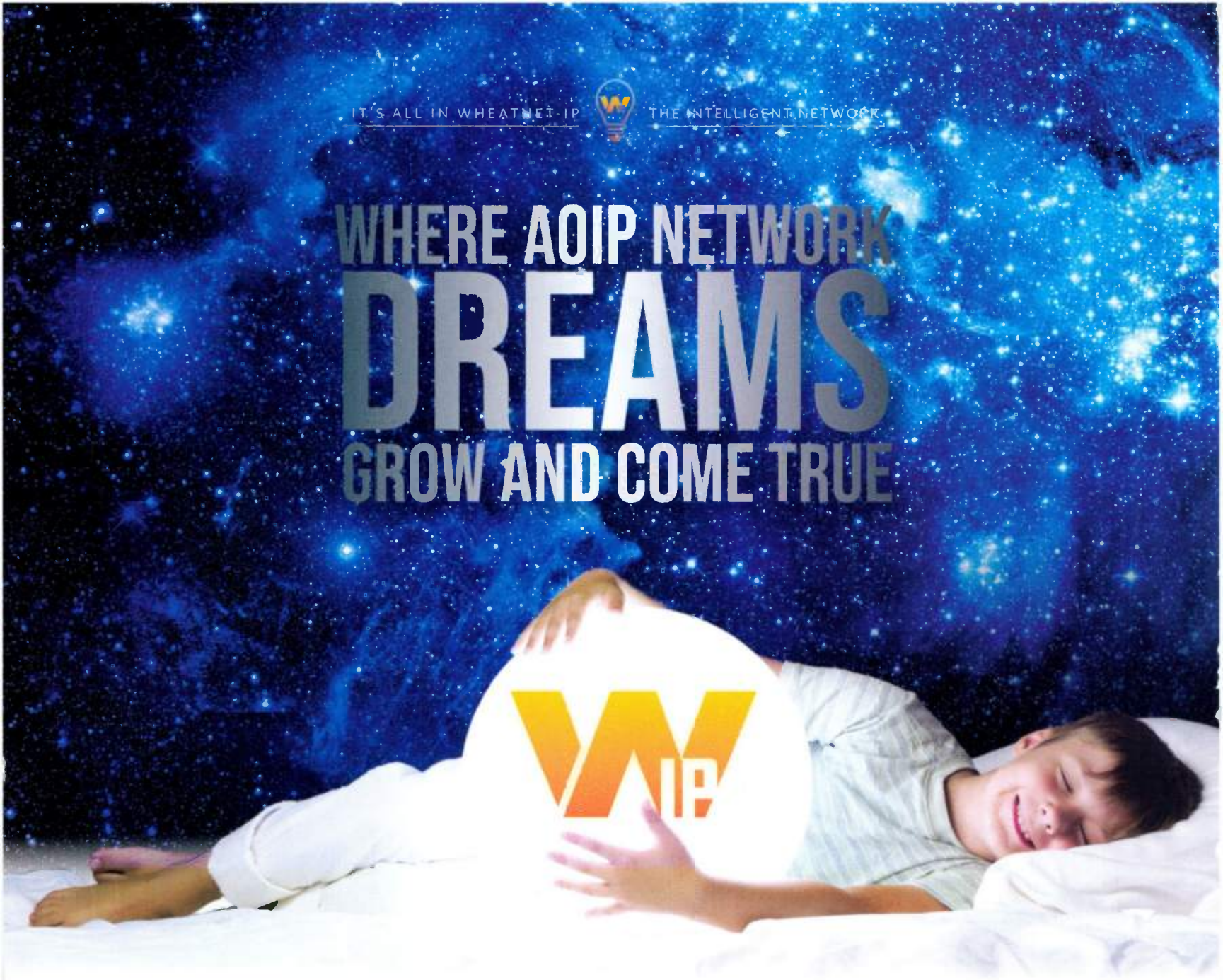

As an engineer, you know how centralized network management is a single-point-of-failure waiting to happen. Distributing network intelligence throughout to every IP point in the network is the smarter approach, because distributed networks like WheatNet-IP automatically build in redundancy - if one part of the network fails for any reason, the rest can keep on functioning. **Now you can let your inner child dream on because you already have most of the networkability you need to grow with the times.**

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Paul McLane
Editor in Chief

Telos sees opportunities in the world of software

Still, "some things are just better suited to hardware for the way people operate"

Scott Stiefel became CEO of Telos Alliance in January of last year. We checked in with him and Executive Chairman Frank Foti about current developments.

Telos Alliance brands include Axia, Omnia, Telos, 25-Seven, Linear, Minnetonka and Infinity, and the company has a worldwide distribution agreement for Jünger Audio products.

Update us on the state of the business.
Scott Stiefel: I'm fully situated now in the CEO role. We had an incredibly busy 2023 on the corporate side. We added around 10 people, and though there was uncertainty in the economy, with ripples throughout the industry and with ups and downs in the supply chain, we stayed the course. We're quite profitable and will continue to expand.

We started our fiscal year, which began in November, with a roar. We've got a spate of products coming out around NAB Show time, and more slated for IBC. We're always on the lookout for opportunities for mergers and acquisitions. And while our primary focus is still broadcasting, we have opportunities to look into adjacent markets too. So I'm really excited.

How did fiscal '23 compare to the prior year?
Stiefel: Revenue was on par, though bookings were down. We had an enormous backlog going into that fiscal year because of the supply chain, which helped us on the revenue side.

Then we started to see things pick up this September, and we really hit it out of the park as the new fiscal year started. We've started to see the recovery — sooner than we expected, actually.

Frank, what are you working on?
Frank Foti: Behind the scenes, I'm still doing developmental work and research. The next generation of our tech is going to be containerized as well as hardware-

Above
Scott Stiefel and Frank Foti are shown celebrating an award from RW's sister publication TV Tech last spring.

related, so we've got things happening with regard to audio processing.

One concern for some broadcasters is the "codeability" of the Portable People Meter system with respect to certain talent and content. There are program segments and talent where the vocal spectrum is not 100% agreeable with how the PPM encoder works; I've been spending time on that issue.

I continue to work on my Déjà Vu surround upmixer as well as a 3D immersive application for headphones. There's a lot we can do to make the listening experience in headphones or earbuds more exciting.

And I enjoy being able to empower others on our team in doing development work and bringing ideas to life. That's reflected for instance in our new Forza product.

Scott, what do trends toward a software-based world and virtualization portend for your business?

Stiefel: We're looking at it as a huge opportunity. Telos has grown in quantum leaps at times when we were able to visualize applications of developing technology to broadcasting and capitalize on it — with perceptual coding, DSP, audio over IP, the prevalence of high-speed networks and so on.

The next shift is the incredible expansion of computing power, obsoleting discrete DSP chips and bespoke hardware. We've been thinking this way going back to the processing engines for the first Axia consoles. We've worked for years to position the software that we write for our hardware so it can also be nestled into high-density solutions, first in servers and then expandable into the cloud for virtualization. AoIP provides the backbone that allows interconnectivity of these different functions.

Beyond that, we've been taking DSP algorithms and moving them out of tiny chips to take advantage of multicore server processor platforms.

The next phase is to ask, "How would you think about audio processing if it didn't exist solely in a box? If all the pieces of the audio processor could be rearranged in any way you wanted?" There are all sorts of opportunities through virtualization if we break these pieces into discrete components and are able to reassemble them quickly through software in any fashion we want.

Foti: I've always wanted a digital version of what we did back in the analog days. You'd take a Compeller and hardwire it to some Audio Prisms, and then to an Optimod, or you'd mix and match with your processing du jour.

Now you'll be able to do that by buying into a library of functions. If you want to modify the architecture of what we offer, you'll be able to point and click, move things around, hit "Apply" and, boom, there you go. And while I say it in respect to one product, you can have a whole ecosystem where you can do that.

There are people saying "Frank, I still need to have a box." They'll sleep better knowing there's a box in their rack doing a dedicated thing. So we must serve two masters and walk that line. I want the marketplace to know that we will support hardware too.

> **"We've worked for years to position the software that we write for our hardware so it can also be nestled into high-density solutions, first in servers and then expandable into the cloud for virtualization."**

Stiefel: We still live in a physical world, and some things are just better suited to hardware for the way people operate. For instance, endpoints. You need to get audio from the mic or from other sources onto your AoIP network, even if the processing is done in the cloud. People still feel comfortable controlling their mix with faders and buttons. So we're continuing to invest in the human interface.

But another consideration is flexibility. How do you as the customer want to pay for something? What's optimal for your operation? Do you buy a piece of software outright and own it? Do you buy the software with a service level agreement, so you get not only patches or bug fixes but also updated versions? Do you buy on subscription, where it'll work for a year and automatically renew, but you can always turn it off?

Eventually, in the cloud, you get to a software-as-a-service model, where you pay just for the time you're using the software, which is hosted remotely. We're looking at those models as well.

And internally there's the operations side. How do we deliver those licenses? How do we ensure cybersecurity so that things can't be hacked? We want to present not only the best product but also a seamless experience to the customer.

How would you characterize the health of the radio technology supply sector?

Stiefel: At least from our chair, we're as healthy or healthier than we've been in decades. Shifts in technology provide us with opportunities, not threats of obsolescence, as long as we continue to learn and bring on staff who know how to do those things.

55 YEARS

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Your sometimes treacherous trips to Tx sites

Your drive to bring the best quality to your listeners

Your implementation of complex technologies

Your perseverance during natural disasters

And...

Your suggestions, ideas and open discussion with us

You've shaped us to be the best transmitter company to serve you

THANK YOU

nautel

Content is still growing at an exponential rate. How will traditional broadcast suppliers adapt to how content is made, who's making it and what those price points are? That continues to be a challenge.

Talking with people in podcasting, it's fascinating to learn which platforms are successful. One person told me that when he uploads his audio podcast to the Apple or Google platform he gets maybe 400 downloads a week, but when he uploads the same content to YouTube, he gets 100,000 views. It's orders of magnitude bigger than "traditional" podcast platforms. But conversations with him about the software or hardware to make a professional audio production are radically different than if I talk to a traditional broadcaster.

How will AI play into your business model?
Stiefel: I don't want to give away trade secrets. But we have a sizable group of people who are looking at the five- to 10-year horizon of technology, and AI is on the front burner, primarily around making our products smarter, understanding the topology of the workflow, recognizing different inputs and context.

As far as the generative stuff, creating AI-based content, there are others working on that. We do have partnerships with some of those players, because those pieces of technology don't exist in isolation. But on the machine learning side, there's all sorts of opportunities to improve the performance of our products.

What are your priorities for the coming year?
Foti: Staying on point with our team to get projects we have in the can out into the real world. And as I mentioned, broadcasters are concerned about getting that People Meter signal across; so seeing to it that audio processing on AM can cut through the noise from power lines, seeing to it that FM stereo has minimal multipath, to make sure they get credit for that quarter hour. Every meter counts.

For the most part, our world has been oriented to the transmit side, and we'll continue to do that. But there are opportunities as well to enhance the experience for the consumer. How can we best utilize our big toolbox, not just for broadcasters but for consumers and the professional audio world?

Stiefel: "Time to market" is one of our major focuses. And we'll review our design process. We've got a huge bullpen of ideas that are clamoring to get out. How can I align the organization to allow that vision to happen, how do we get it through the funnel quickly and deliver it with quality so our customers can take advantage of these leaps in technology and exploit the value of them?

KVWJ Deploys Nautel

Here's an item from the "Who's Buying What" page of the Radio World website:

KVWJ in Hyrum, Utah, has installed a Nautel VX300 transmitter. The low-power FM station, licensed to Alumni Records, broadcasts on 94.9 MHz with the slogan "Radio for the South Valley."

Friend Weller, director of Alumni Records and a veteran radio engineer, told Nautel, "Our original transmission setup involved several separate devices, all which performed surprisingly well together given their age (circa 1980–1988)."

But he said the station needed a new and reliable transmitter to assure ongoing operations. Weller said key selling points included the price; the compact 2 RU format; the "Orban Inside" option, which eliminated the need for a separate processor; and the integral remote control/AUI. Weller is shown above, with the new transmitter at the top of the rack.

"Listeners have let us know that our sound has improved, and with our recent entry into the world of RDS, we can maintain the spirit of radio while keeping our listeners informed," Weller told Nautel.

MMD's DAB+ multiplex with a view

We just can't get enough of great tower pix.

Olivier Cordier from Kiss FM West Coast shared this fantastic photo of the Monaco Média Diffusion transmission site on Mont Agel. Kiss FM West Coast and a dozen other stations use a DAB+ multiplex to broadcast to the French Riviera. The self-supporting metal structure for the antenna is from the 1950s, while the multiplex launched in 2016. The site is a complex RF environment of FM and digital television broadcasts along with DAB+.

For the multiplex, MMD installed two Kathrein Broadcast panels in front of an existing tower, along with a Selecom multiplexer. Two additional multiplexers were since added.

See more pix of the facility (including the view from the top) at *http://radioworld.com*, search keyword MMD.

— T. Carter Ross

About Buyer's Guide
This 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.

KEOM implements Access NX

Deploys Comrex tool for sports and remotes in the community

KEOM 88.5 FM is a noncommercial, educational, community station owned and operated by the Mesquite Independent School District (MISD) in Mesquite, Texas. A fully functional Class C1 FM station, KEOM features student DJs on the air live from 8:30 a.m. to 4 p.m. on school days.

KEOM offers a professional-grade facility, which serves as a way for MISD high school students interested in radio as a potential career to get hands-on experience.

"We want to give [students] the experience of working at a real radio station," Shondra Tharp, station manager for KEOM radio and supervisor of the student program, told Comrex. "We use every bit of the equipment that the big radio stations use."

As part of the program, students gain real-world experience by coordinating and participating in field-based broadcasts.

"We go out into the community and do remote events where we are representing the station and getting to know our listeners," said Tharp. "We bring our Comrex [Access NX Portable] out to those events, and the students get to use it."

In addition to community-oriented events, KEOM uses their Access NX to cover sports.

"Sports broadcasting was one of the reasons for starting the station," said Tharp. "Using Comrex for all of the sports broadcasts that we do was something we did from the beginning, and that's been a big part of the program."

Ryan Castle, KEOM sports director and announcer, uses Access NX regularly to cover MISD football.

"We will have 18 broadcasts over the course of the football season. We also have an online-only component that generates probably another 15 or 16 broadcasts a year," said Castle. "The Comrex has been our primary piece of equipment since I've been with the organization. As far as ease of use goes, it doesn't get a lot better."

KEOM uses WheatNet-IP, an AoIP network system, for its studios. To receive the audio from Access NX units in the field, engineering consultant Brian Chase of Broadcast Works installed Access NX Rack, a rackmount IP audio codec that is AES67-compatible and designed to integrate into most AoIP systems available.

"I interfaced it into the WheatNet system, and they just dial in remotely — whether it's on the telephone wireless or whether it's on the internet — and boom, we're on the air," Chase said.

When building the MISD studios, he said KEOM chose Comrex products because of their consistency.

"I've used Comrex gear since back in the days of the little wireless packs. As time went on, I just kept buying them because they work," said Chase. "I consider them to be sturdy and reliable, and the audio quality is great."

Steve Glenn, KEOM sports announcer and former director, said, "We first bought a Comrex unit 15 years ago or so. We have a 61,000 watt [station] here and so a lot of people listen. We want the sound to be good, and [with Comrex] the sound is excellent."

Above
Steve Glenn, sports announcer for KEOM

Right
Ryan Castle adjusts audio levels on the Access NX Portable with Mixer attachment at the North Mesquite vs. Forney football game in October 2023 at Mesquite Memorial Stadium.

More Info
www.comrex.com

Cumulus Radio Tucson combines ViA and Gateway

Tieline gear gets a workout at this five-station cluster

Mark Simpson is the chief engineer at Cumulus Radio Tucson and Jose Pollorena is assistant chief. Between the two they handle everything from the microphone to the antenna.

The Tieline ViA audio codec has replaced their older iMix G3 for more intricate remote broadcasts, such as pre-game and post-game remotes for University of Arizona home games.

"We also use one of our ViA units for larger broadcasts within our cluster of five stations," Simpson said. "We love using the Report-IT app too, but there are times when you need a full-featured unit on the table."

They use the ViA for radio broadcasts and to feed the YouTube channel of Wildcats Radio 1290 AM, KCUB.

"We typically have three commentators, one host and two former players, and sometimes a crowd microphone. We attach the ViA to a laptop for the YouTube feed, and this also allows us to play a locally recorded audio clip through the codec if required."

At the studio they are transitioning from using a Merlin Plus with analog I/O, to dialing into a Gateway 8 codec with native Livewire AoIP support. This integrates with their Axia equipment, and the additional channels allow them to broadcast remotes in stereo.

"This lets us split the return feed and send a mix-minus IFB feed of everything relevant to the show to the commentators' headsets. We send the other channel to onsite speakers minus any IFB communications audio. With the advent of much smarter consoles, the mix-minus is very simple to set up."

The team typically use a CradlePoint router for connections between the ViA and ISP, whether that be a wired connection, LTE modems or a combination. Whenever possible they use both, so they have an automatic backup or load-sharing configuration.

"We have also used Wi-Fi, but usually as a backup. We use the highest quality Opus algorithm since we typically don't send music from the remote site, which reduces latency and buffering."

Above
David "D.K." Kelly is program director and afternoon drive host on Wildcats Radio 1290 AM.

More Info
https://tieline.com

On the ViA, they have three setups per station — one for connecting to the Merlin Plus, one for the Gateway and one for internal testing — so everything is preconfigured.

"The ViA's reliability, audio quality, audio latency and overall performance are excellent," Simpson said.

"It is a noticeable change from the iMix G3, with new features and functional improvements, as well as multiple cellular technology options."

They use the input compressor to keep audio levels consistent between commentators and guests. This helps alleviate the need to ask a person to put the microphone closer to their mouth and allows the conversation to flow without interruption.

"We use the Cloud Codec Controller (CCC) to monitor units remotely, and it is a great remote diagnostic tool. With cellular you can perform a site check, but then tens of thousands of fans arrive on game day and the connection struggles with enough bandwidth. The CCC lets us monitor and adjust connection settings, another reason we always try to use a LAN connection with cellular as a backup or bonded."

Tech Update

Asian Games Chooses **AEQ** Commentary Systems

AEQ was chosen to provide the commentary system solutions for the 19th Asian Games in Hangzhou, China, hosted by the Asian Olympic Council. The event featured 35 venues, 40 sports and 61 disciplines. Around 12,000 athletes participated.

The Olympia 3 system chosen can operate as standalone or as a system in an AoIP multichannel network. The AoIP connectivity is Dante/AES67 and allows for integration with AEQ's Intercom Systems or AoIP matrix for large, multi-venue, multi-sport events.

AEQ partnered with Sintoech Xinrui (Beijing) Co. Ltd. for the engineering and supply of the systems. Sinotech Xinrui was also a technology partner of China Media Group, the host broadcaster.

AEQ supplied 150 Olympia 3 AoIP Network Commentary Units and 300 headsets used at the 35 venues and booths at the International Broadcast Center. Fifty-eight Netbox 32AD/MX Network Interfaces were deployed to handle common commentary signals at the venues. Mixed Zone signals were routed through the Netboxes, and these units were the connection point for a commentary contribution network between the venues and the broadcast center. The contribution network was a high-speed redundant fiber network that allowed low latency and almost negligible jitter.

The core of the commentary system was at the IBC and the commentary switching center. The commentary switching consisted in an AEQ XCore matrix system with AoIP contribution and audio distribution on MADI links for rights holder broadcasters at the IBC. Seven XCore Frames were installed to manage all signals.

Info: *www.aeq.eu*

Simpson said their engineers, commentators and promotions team find the codecs easy to use. He loves the touchscreen but discourages commentators from touching the unit if possible.

"Their job is to produce the best content possible and it's ours to set up the equipment properly. Having said that, it's nice to have equipment that is simple to use and navigate around, in case there is an issue or last-minute change."

The battery is handy if they are doing a short coach's interview without access to power. It also ensures they stay connected if the generator runs out of fuel.

"We also use a double-conversion UPS in between shore power or generator power. Utilizing the UPS and internal battery ensures we rarely ever experience a connection issue."

Simpson said that with the ViA codec they can pick up a case and do an on-the-fly remote.

"The ViA has been wonderful to operate because there is normally never a problem, and if there is, it is easy to resolve with the CCC.

"Even the Tieline Gateway is so simple to set up and connect with the ViA, that you often over think things and forget you can easily connect via the CCC, or the Axia router, to change your configuration. No more moving wires, making weird setups with extra equipment, etc. Just put the unit on the table power up, connect and do the remote."

SportsCast streamlines webcasts

Henry Engineering offers a system for managing the audio portion of your video sports event

Many schools offer video production as part of their media curriculums, often producing live video webcasts of sporting events.

This requires a considerable commitment of video and audio gear. Ironically, the video, including the cameras, switcher and monitors, is often the "easy part." It's the audio that becomes a huge headache.

The broadcast team usually includes play-by-play talent, a "sideline" reporter, camera operators and a producer. Mixing their mics is easy. But you also need headphone audio, usually with a different mix for each user, and an intercom for off-air communication between the team members.

Henry Engineering says its SportsCaster does all this. "It's 'Audio-Control-in-a-Box' that simplifies play-by-play sports audio," the company states.

"It mixes the announcers' mics, controls headphone mixes for announcers, producer and camera operators, and provides duplex intercom for essential communication between everyone."

Tom White, a former high school video production instructor, told Henry: "Before we had the SportsCaster system, it would take me hours to install the audio gear. I was using several mixers just to deal with the headphone feeds and intercom. It was a complicated mess and never worked very well. Teaching students how to use it was nearly impossible."

Hank Landsberg at Henry Engineering worked with them to design a system that would streamline the process.

"That's where the SportsCaster came from," White said.

More Info
https://henryeng.com/sportscaster

"The SportsCaster allows me to mix audio and communicate with all of the members of our production staff with ease. For football games, we have talent who does play-by-play, a color analyst and a field reporter as well as a field producer, a social media producer and a producer. The struggle we had in the past was giving all of these people the ability to talk with each other in a way that didn't require several mixers and complex wiring."

He said the SportsCaster makes this task easy and that he can train producers on how to use the system in a few minutes before a game starts.

"Our producer can give cues to the announcers and/or field reporter, while simultaneously 'calling the shots' to the camera operators. The producer controls the intercom audio paths, so that each team member hears only what is necessary, without hearing comms intended for someone else. This minimizes confusion, especially when dealing with inexperienced student announcers and techs."

SportsCaster works with Henry Engineering's Sports Pod announcer stations and integrates all audio mixing, headphone and intercom functions into one easy-to-use unit.

Tom White now works at Amitrace, a new Henry Engineering dealer for the SportsCaster system and a systems integrator that specializes in video production systems for education, government, worship and corporate environments.

Tech Update

Yellowtec Expands Intellimix Mixer Family

Yellowtec will expand its Intellimix Desktop Mixer lineup by adding the Neo model, coming to market this spring.

"As an eight-channel mixing console without AoIP connectivity, Intellimix Neo bridges the gap between the current models Intellimix Focus and Intellimix Pro (shown)," the company said, highlighting the mixer's extended I/Os and settings.

"It is designed as a mixing device to master every imaginable and complex eight-channel mixing task. Thanks to remote control options, admin mode and an unlimited amount of user profiles, Intellimix Neo is the ideal desktop mixer for shared workplaces used for multiple different workflows that do not require AoIP connectivity."

The mixer combines a multi-touch widescreen display with physical control elements. The central elements are its four G-Touch Faders, which the company provide more features, comfort and reliability than conventional faders.

For on/off functions with the need for tactile feedback for maximum reliability, the Neo provides sealed hard keys and a robust rotary control. The touchscreen offers access to all settings and properties.

The eight-channel Intellimix Pro addresses needs for AoIP connectivity. It offers connectivity to run multi-channel AES67, Livewire+, Ravenna, MADI, NMOS and SMPTE 2110.

Intellimix Focus is a four-channel device that makes mixing easier. "Users no longer need to handle detailed adjustments that may distract them from their actual mixing." It is suitable for single workplaces and less technically experienced users. Advanced AoIP connectivity can be added to Focus with the optional X64 AoIP extension.

Info: *www.yellowtec.com/intellimix*

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Tech Update

Telos Infinity IP Intercom v2.4 Software Available

The Telos Infinity family of matrix-free IP-connected intercom products has new functionality with the availability of Infinity v2.4 software.

"Infinity v2.4 enables remote control of Infinity VIP Virtual Panels by desktop or rackmount Telos Infinity hardware intercom panels, a capability that gives even more control and flexibility to intercom operations," the company said.

It also improves Infinity VIP's four-wire cloud-to-cloud and cloud-to-ground interconnectivity using the onboard VIP Infinity Link VoIP codec.

VIP Infinity Link now supports NDI V5.5 as well as variable bitrate Opus and Unicast AES67. Infinity software v2.4 is backward compatible with existing Infinity hardware.

The Telos Infinity family of matrix-free IP-connected intercom products is an ecosystem of rackmount and desktop intercom panels, belt packs, headsets and enterprise software. It provides native support for AES67 and ST 2110-30 standards, enabling interoperability with Telos Alliance products connected via Livewire+ AoIP, and with legacy third-party analog, AES, SDI and MADI systems.

The ecosystem includes the Infinity VIP cloud-based intercom system that extends comms to smartphones, tablets and computers with HTML5-capable browsers, as well as the Infinity VIP App for Android and iOS devices.

Info: *www.telosalliance.com/infinity*

BROADCAST EQUIPMENT EXCHANGE

BROADCAST EQUIPMENT EXCHANGE

Writer
Steve Floyd
WUVT Engineer/DJ Alum; Chief Engineer, HAARP Facility

Virginia Tech's WUVT celebrates 75 years

Station alumni funded purchase of a new transmitter and remote control system

Listen Live
Hear the station at *www.wuvt.vt.edu/listen-live* or search for WUVT on your streaming app

College radio is alive and well at Virginia Tech, with WUVT-FM celebrating 75 years of broadcasting on April 1, 2023.

The anniversary was marked with a festive alumni reunion weekend and the installation a few months later of a new transmitter and remote control system.

WUVT, broadcasting on 90.7 MHz at 6.5 kW from nearby Price Mountain, operates today as a community-focused public radio station, with studios in the Squires Student Center on the campus of Virginia Tech in Blacksburg. The students are responsible for all aspects of running this popular station.

Many notable broadcast engineering and media professionals have benefited greatly from the practical experiences and enthusiasm unique to WUVT.

Its alumni are appreciative and supportive. During reunion weekend, a plan was conceived to raise funds to provide a new transmitter to replace its aging system. In less than three months the required funds had been donated, and after careful research, the university purchased a new Nautel GV5 transmitter and Burk ARC Plus Touch control system funded entirely by station alumni — a 75th anniversary gift to the students at WUVT.

The new equipment was installed professionally as a donation by Virginia-based Radio Cardinal Communication Service. RCCS owner and WUVT alum Josh Arritt and field techs Jon Light and Jason Perdue accompanied student staff and other alumni on the installation day work.

Below
Student Chief Engineer Corey Carpenter, left, and former student Chief Engineer Steve Floyd stand with the new Nautel transmitter.

Carrier-current roots

WUVT, in one form or another, has been on the campus since its founding as an experimental station in 1948. It is one of the longest-running noncommercial stations in the state.

It began operations at 640 kHz when a student built an unlicensed carrier-current AM transmitter system in a dormitory room. The station quickly became popular, providing music programming and local news not available elsewhere.

WUVT eventually became a formal student organization on campus. WUVT-FM, 90.7 MHz, signed on as a licensed noncommercial station in 1969. Along with other student media organizations, it is a division of The Educational Media Company at Virginia Tech, an independent governing body for student mass media. Its board includes Virginia Tech faculty and staff, students and members of the Blacksburg community.

WUVT is known for its eclectic programming, covering a wide swath of past and present music styles. The volunteer DJs typically are students or alumni, and they select content based on their personal preferences within a daily "block" format. WUVT serves the wider community by offering music and local news rarely heard on commercial stations. Activities such as engineering, management, fundraising and programming are the responsibilities of the student staff.

Sadly, readers may remember that on April 16, 2007, a mass shooting on the campus took 33 lives. WUVT provided reporting to major news outlets and the local community in the immediate aftermath, showing professionalism and compassion to the world media.

Kevin Sterne, WUVT's student chief engineer, was critically wounded that day in a classroom. Thankfully he survived.

Those events called attention to the station's infrastructure needs. Subsequent donations from several broadcast equipment manufacturers allowed the station engineers to move the WUVT transmitter site off campus to its Price Mountain site location, where it enjoys improved antenna height and a power increase to 6.5 kW.

Today WUVT's young broadcasters represent the future of industry talent. It is up to all of us to stay actively connected to our favorite college radio stations, offering generous financial support and encouragement, making sure student stations continue to bring future generations of passionate people into the industry.

The station's new equipment was placed into service in November. WUVT thanks Nautel and Burk for their support and encouragement, and Radio Cardinal Communication Service for the installation. The station now sounds better than ever. Student staff enthusiasm is sky high. And the generosity of station alumni has now positioned this unique radio station for continued success.


Westend61/Getty Images

"For lease, multiplex channels — best offer"

FM-HD and NextGen Broadcast are both multiplexes, meaning they carry more than one "service." Both are fighting for adoption.

Adoption is driven by content far more than quality, which is so obvious it feels awkward to even say it. If it's the experience you want to hear or see, you will listen to distant noisy AM, watch snowy black-and-white, or dig through the web looking for it.

Without desirable content there are few customers, and no manufacturer will build and promote affordable, user-friendly, mass-market receivers.

We use little more than a third of our VHF FM "service" capacity, and we've just begun to play with UHF NextGen Broadcast as a platform. A few HD2/HD3 "channels" broadcast unique content or simulcast a main channel of another (often co-owned) station that benefits from enhanced coverage.

No market carries anywhere near all the great public radio content that is available. Nor do we do enough rebroadcasting of block programs in different — more convenient for some — time slots. Potential and existing high school and community radio "stations" cry out for broadcast homes. Radio reading services and the audio of local and national TV news have an audience. There are more significant ethnicities/communities than English and Spanish. Some pirates could grow up to be legit given the opportunity.

If broadcasters filled their multiplexes with desirable content, there would be demand, and HD Radios and NextGen Broadcast devices would find a welcome home with our listeners.

AM is more special. Migrating to big FM-HD and NextGen Broadcast signals is far more useful in the long run than shoehorning in a flea-power analog FM translator on an AM tower or yearning for the laws of physics to change and the climbing noise level to retreat.

There are no technical barriers, relatively small financial barriers, some changeable contractual barriers and some unintentional regulatory inconveniences. Until FM-HD and NextGen devices are ubiquitous, a broadcast "service" slot is worth little. We should lease these to our AM friends and competitors for our own good. Syndicated content providers should adjust their costs to reflect what the embryonic audience can support and raise costs as the audience expands.

Whether radio or TV, the question is the same: Do we start the transition to the next platforms or not? The answer is in the hands of the license holders.

Fred Baumgartner
Elizabeth, Colo.

The author is a retired broadcast engineer who has worked for companies including Qualcomm/MediaFlo, Harris, Nautel and OneMedia LLC/Sinclair.

How to submit

Radio World welcomes comment on all relevant topics. Email *radioworld@futurenet.com* with "Letter to the Editor" in the subject field.

Radio is for everyone

If we want to get anywhere with preserving and promoting AM radio, we have to start by changing the perceptions, among both the public and the manufacturers.

Bill DeFelice's outstanding website *www.hobbybroadcaster.net* has a forum devoted to radio receivers "costing more than a combo meal" (in other words, very affordable). If you click some of the links, which lead you mostly to Amazon, beauty pictures abound of radio receivers enthusiastically embraced and used by people at least 55+. There are older couples dancing to music on the radio, retired gentlemen on park benches presumably taking in talk programming ... and heaven forbid the receiver should have shortwave capabilities; that's when the copywriter takes over and sells the SW band directly and exclusively to the elderly.

Seriously. Go to Amazon and look for radios under the brands PRUNUS, HanRongDa, ZHIWHIS and others. Us silver-haired devils seem to be the target consumer. Radio is for everyone. Why push it only to us seasoned folks?

Alan Peterson
Williamsburg, Va.

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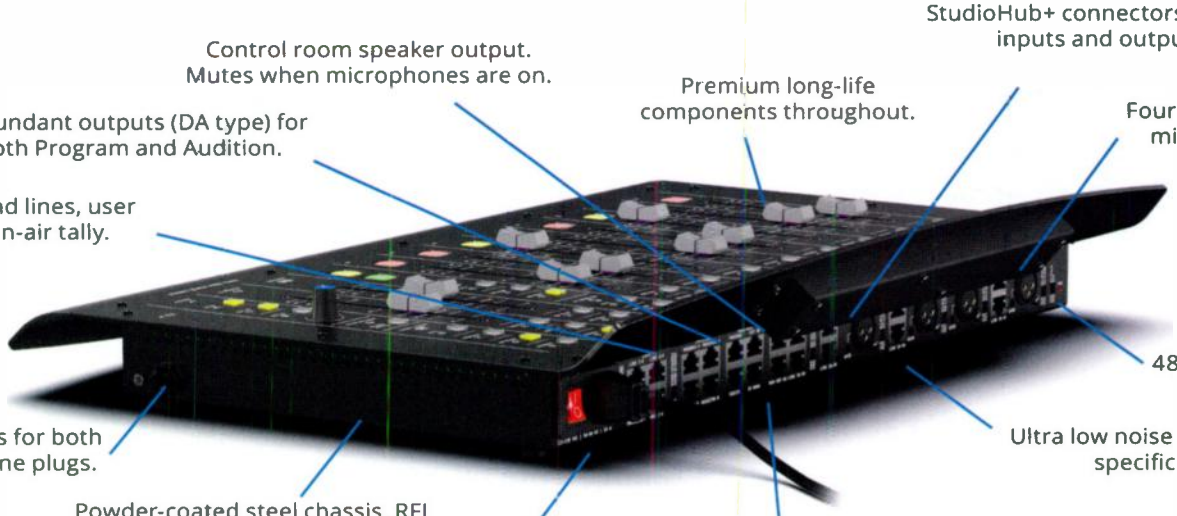

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