The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

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A year ago, with much trepidation we were anticipating the companywide conversion from Nexgen to Zetta, from the tried, true and familiar to the untried (by us) and unfamiliar. It was, in a lot of ways, like changing from analog infrastructure to TDM back in the early 2000s and then from TDM to AOIP in the early 2020s. We had learned all we could about the new equipment and software, but until we got our hands on it in a truly operational way (as opposed to demos), the unknowns caused a good bit of angst and worry.

Thankfully, those earlier infrastructure transitions went well, and like Peter Sellers' character in Dr. Strangelove who learned to quit worrying and love the bomb, I learned to stop worrying and love the TDM… and later the AOIP. And I daresay, Zetta.

As I noted in these pages last month, we have experienced a number of issues with Zetta, starting with its deficiencies in metadata exports, but once we got through the training gaps, by and large it is an excellent playout system with lots of really great features. At this stage, I can't see where any competent operator, once properly and fully trained and with a properly installed and configured system can't make it perform to excellence.

Are we there yet? I would say that we're most of the way there. We still experience some issues here and there, but those are mostly training gaps and operator errors, not faults with the system. How do we fix the training gaps? That's a good question, and the reality is that we don't know what we don't know. We learn what we don't know by using the system, and when we run into one of those gaps, we deal with it. It's just about impossible to anticipate every situation, and our company uses Zetta in ways different from most other broadcasters; Zetta trainers can't know this and get ahead of it.

So what's next? We continue to learn as we go, getting better and more competent with the system every day. We share – and this is important, folks – we share what we learn with other markets. If Market A learns how to do X, Market A should share that knowledge with all the other markets, saving them all kinds of grief and shortening their learning curve. That, by the way, was the original intent of this publication when it started some 36 years ago, sharing of information between our engineers in different markets.

The other thing that's coming is companywide training on Zetta Disaster Recovery. RCS is in the process of upgrading the disaster recovery platform in each of our markets, with the west coast stations already done at this writing. We'll get through the rest of the markets and then schedule training. The time to learn how to use a parachute is not when you're airplane is on fire!

My expectation is that by this time next year, we'll be calling Zetta tried, true and familiar.

Servers

This month, we will be replacing the Zetta file server in our Buffalo cluster. It has reached its 5-year EOL, and while it's still working okay, we just can't take a chance with such a critical piece of equipment. The new server is already on site and RCS will be helping Bill and Josh with the swap the middle of the month.

The early part of last month, we did a Zetta file server swap in Denver market, and it went great, much better and easier than any Nexgen server swap we have ever done. Zetta has some utility features that make swapping out a file server a snap, almost like the developers expected their users to upgrade and change their file server equipment from time to time. That experience, which was another "fear and trepidation" journey into the unknown, turned out to be very positive, and we expect no issues with the Buffalo server swap.

While we're on the subject of file servers, we ran into another server issue in Chicago last month. The GSelector installer for some reason installed to the 60 GB operating system partition of the server rather than the huge data partition that was intended for that purpose. That's the fourth or fifth time in the RCS conversion processes where an installer has made that mistake. This time, the problem showed up as Zetta licensing messages, the result of running out of space in that OS partition. While we did not move GSelector completely out of that partition, we were able to change the file storage location to the data drive so that it would no longer write anything of consequence to the OS partition. Hopefully a more permanent and correct solution is coming at some point, but for now, crisis averted.

A Happy and Productive 2026

Bill Stachowiak didn't have time to get me anything for this issue, so we'll look forward to his column next month, when he will begin sharing some of his radio engineering adventures. I'm hoping he will tell us the story of cutting a hole in the outside wall near the top of the Rand Building (skyscraper) in downtown Buffalo so that they could crane a Continental FM transmitter into the room near the top – it was too big to fit into the freight elevator!

I'm on vacation as I write this, so I'm going to keep it short. Here's to a happy and productive 2026! Stay well!

The Motown Update

by
Mike Kernen, CSRE
Chief Engineer, CBC–Detroit

Edgar Allan Power Over Ethernet

'The Raven' by Edgar Allan Poe is my absolute favorite of his writings. I love how the poem takes the reader into the storyteller's madness and frustration with the persistent and coldhearted bird that says only "Nevermore" as our tortured orator yearns for his lost love Lenore. The tone, the setting, the cold bleakness and loneliness are felt in every verse by the reader.

I'm reminded of this poem around Halloween but especially as I write this, in the gray gloom of December, when this poem takes place. For some reason, I'm also reminded of Poe when dealing with the Ethernet specifications for Power over Ethernet, otherwise known as PoE. Grace Hopper once said that "The best thing about standards is that there are so many to choose from"; PoE has many as I'm finding out while working on adding cameras to one of our transmitter sites.

Most readers here will at least be familiar with PoE. Simply stated, PoE enables the use of Category 3, 5, 5e, 6, and 7 cabling to deliver power to connected devices. Devices such as VoIP phones, security cameras, network switchgear, Wi Fi access points and the like can draw power from PoE which can be provided by a PoE capable switch or an injector, keeping wiring to the endpoint simple and free from the need for an electrical outlet.

Explaining all the flavors of PoE and their implementation is beyond the scope of my writing here, but suffice it to say, there are many things to think through when working with it. Key considerations are voltage, cable length, power budget, and wiring method. There are at present four types of PoE defined by IEEE specification 802.3: 802.3af for Type1, 802.3at for Type2, and 802.3bt for Type 3 and Type 4. Forget all that number salad unless you're into such technobabble.

Effective use of PoE begins with understanding whether your device requires PoE, PoE+, or PoE++. These are the most common standards, though others exist. For example, some point-to-point Ethernet bridges operate on 24V PoE – a passive legacy approach alongside 12V, 18V, and 54V variants that predate IEEE 802.3 specifications and contribute to PoE's complexity. My absolute favorite is that of my Trango Microwave STL radios which require a -48V PoE power source. Yep, negative 48 volts.

Next, you must consider your PoE sourcing equipment. These will have a limit to the totalized power they can supply expressed in watts called the power budget. For example, a certain PoE-enabled

network switch can provide PoE on each of its 48 ports, but its power budget limits the number of high-consumption devices that it can power simultaneously. Depending on what's connected, you might be limited to only a few ports. One 8-port PoE switch I have reports that I'm using 7.7W of the 52W available.

PoE can be complex, yet it significantly simplifies installation and reduces electrical infrastructure costs. It can also significantly add cost to network switches, especially as the switch port count grows. One 48 port PoE switch I priced is $310 more than its otherwise identical non-PoE model.

I cried out "Will PoE ever be easy?" and imagined the raven squawking a lone eerie dismal interminable retort: "Nevermore".

UPDATE: 560 Tower 4 Reconstruction: Tower Lighting Monitor

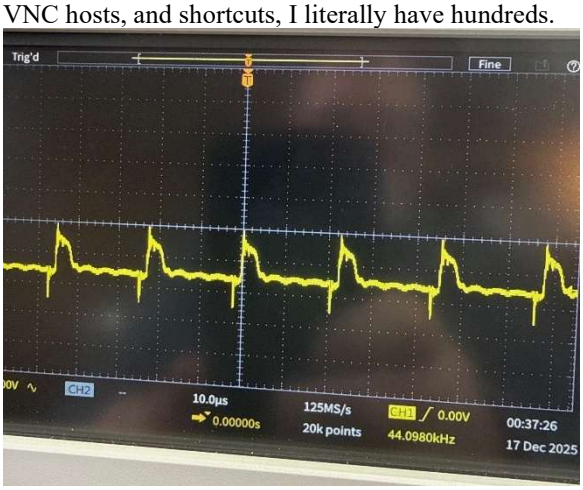
As I noted in last month's *Local Oscillator*, the new WRDT tower 4 lighting system functions correctly, except that the lighting monitor triggers an alarm within 60 seconds of the photocell activating the lights at dusk.

The lighting monitor provides limited diagnostic information, indicating only the issue rather than its cause. In this case, it extinguishes the green beacon indicator, which led me to question the new lighting system's flash rate. The lighting monitor's firmware expects the beacon to run at about a 50% duty cycle. Our new controller, however, drives a short ON/long OFF cycle of roughly 30%. Because the monitor initially counted two flashes per cycle, it reported ~60 flashes per minute. The FAA requires 30 flashes per minute ±3, with dwell times of ½ to ⅔ of the flash period for incandescent systems and between 100 and 1,333 mS for other light sources. While the new controller certainly meets the FAA spec, the mismatch in duty cycle expectation trips the monitor's alarm.

I reached out to both the controller and monitor manufacturers to look for a solution, which turned out to be a simple replacement of the flasher module to match the monitor's expected on time. As it turns out, the module supports programmable duty cycles; the factory provided a unit configured for a 50% on/off ratio, ensuring compliance with the monitor's expected timing limits. I imagine standardizing the flash rate across all towers would be more agreeable to our neighbors, too.

Other Musings and Goings On

Christmas and New Years have quieted things as many have taken time to be with their families. I've decided to do my usual organization and review where I make sure that I've not orphaned any shortcuts, especially bookmarks that lead places I only need to go occasionally. Those occasions can often be when you're troubleshooting, so it's good to recheck them from time to time. Between bookmarks, VNC hosts, and shortcuts, I literally have hundreds.



15VAC at 44 kHz is not -15VDC!

I discovered a misbehaving piece of equipment that had an interesting hidden symptom. Upon first inspection, the power supply voltages were fine, within 5%, but the unit operated erratically. This unit's switching power supply has 3 DC outputs, and I measured them several times each time with a portable multimeter looking first at the DC voltage then switching the meter to AC looking for a ripple component. Everything looked as it should, but the misbehavior continued. Still suspecting the power supply (switching supplies are notorious), I obtained a new one and measured it the same way. They matched. Why switch out a good supply, I reasoned?

Unable to tolerate the unit's non-stop disobedience, I opened it up again, but this time I brought my oscilloscope with me. Testing the -15V output revealed not DC, but a -15V output at 44 kHz that my multimeter simply couldn't resolve. 44 kHz is likely the supply's switching frequency. Swapping in a new supply cured the issue. Yes Virginia, 15VAC at 44 kHz is not -15VDC.

News from the South
by
Todd Dixon, CBRE
Chief Engineer, CBC–Alabama

Zetta Upgrades

2 Corinthians 12:7 "Therefore, in order to keep me from becoming conceited, I was given a thorn in my flesh, a messenger of Satan, to torment me. Three times I pleaded with the Lord to take it away from me."

As many of you are familiar with what I have written in the past, in Nexgen, we had an issue where WDJC-FM's audio server would simply hang and take us off the air. The solution was to go in and restart Nexgen, and the station would continue for playing for another 2 ½ to 3 weeks before doing the same thing again. The issue survived file server changes, audio server computer changes, multiple network card and cable changes, and a switch change. Neither RCS nor I could find the problem, and I assumed, as the scripture says, that it was due to my conceit and I was given it to keep me from it. Even though I pleaded with the Lord to take it from me way more than 3 times...

Enter RCS Zetta with its shiny new interface and database, and with it, the hope that the WDJC-FM issue was over. Thankfully, it was. It simply moved to WXJC-FM/AM and its sequencer machine, albeit with less regularity than its predecessor. In the course of the nine months we've had Zetta, it has happened to WXJC four times where the station simply quits playing and requires a restart in order to begin playing again.

On Thursday, December 11th, I decided that my conceit had been thoroughly abolished and my torment should be over. When RCS began looking at the issue in the station's Zetta sequencer logs, they saw a glaring similarity to another station (not one of ours) on the same Zetta version as us that was having similar issues. The other station had not upgraded, but in the words of the RCS tech, "If the issue continues in our latest stable version, it will be escalated more quickly to our developers." So, with a go ahead from Cris, I scheduled the earliest availability for a Zetta update, which fortunately happened to be the following Monday.

We've upgraded Zetta once already, and spent a couple minutes off of the air on one station due to some issues with the sequence we followed going into "Local Database Mode" to do the upgrade. Going into Emergency Control Room in Nexgen was relatively easy, as it was only a matter of telling the control room machine that you wanted to and then casually switching the channels on the Wheatstone surfaces from audio server channels to local PC channels at the end of the last piece of audio server audio loaded into the Nexgen play routine. To get back, you'd simply reverse the operation when any work with the audio server machine had been done.

RCS Zetta is a different software animal, so I thought I might share our experience from this last upgrade that may help all of you avoid an off-air issue like we had in our first version upgrade.

The first step to move toward putting your station in Local Database Mode is to arm and activate the Hot Spare for the station that you want to be in Local Database Mode.

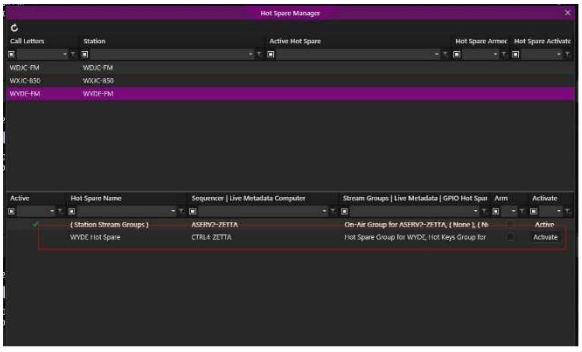


Figure 1 - The Hot Spare manager in the tools menu is where you'll arm and activate the hot spare for the station.

These changes are both made in the Tools>>Hot Spare Manager section of the menu. Once you are in the Hot Spare manager, you can arm the Hot Spare (get the system ready) and then activate the Hot Spare system. So far, all we have done is change the play out from Zetta from the sequencer to local play out. In our system (and I

believe many of our other markets as well), this amounts to the play out then happening on a couple of local control room machine channels, noted on screen as it changes from OA1, OA2 and OA3 (our sequencer channels) to HS1 and HS2 (hot spare channels).

If we were not upgrading our database, this is the way that you would move to Hot Spare so that the system could still use your primary database, but, that was not what we were doing. We needed to be completely in Local Database Mode (using a database copy available on the local control room machine), and we needed the station to be running from the local database copy so that we could do a complete database upgrade across all of our machines.

In order to do that, you have to go into the Tools>>Database Manager. The Database Manager window shows you all of the database copies that you have available to you, and all of them should be equivalent to each other as far as the date and time and the copies that each has.

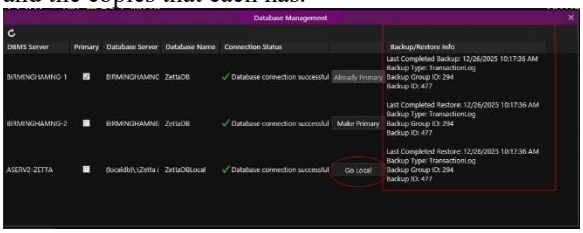


Figure 2 - The Database Manager shows you all of your available databases and allows you to choose which database the station is allowed to run.

When you switch to Hot Spare, the Database Manager will begin syncing the databases with each other. You'll begin to see the primary database preparing a copy, and the secondary and local copies will follow its lead and begin copying that database. Patience is a virtue here. It takes two to four minutes for the systems to align and be ready to switch to local mode. The database manager screen will help you here because it will give a percentage of the copy that has been done. This will keep you from asking your RCS upgrade tech "Now?" ... waits 3 seconds} ... "What about now?" Jason was our RCS tech and he used a lot of restraint to not reach through the phone and wring my neck, I'm sure.

Anyway, once you see that all of the databases register the same backup ID and are matched regarding their time signatures, you can click the Local Mode button in the database manager window and the system will move to that position.

As in Nexgen before, your control room machine is now running in Local Database Mode and everything is being generated from the machine into your air chain. For your information, Jason (from RCS) told me that they have asked for an enhancement feature request that won't allow users to go to Local Mode until all the databases are equal, but that will be in a future version of Zetta.

The reverse of this procedure will get you back to normal mode where your machine is reading from the primary database. That is, go to Tools>>Database Manager and simply choose to go back to the primary database. At this point, all of the databases are already equal, so there is no reason to wait as you did previously. You can then immediately go back into Tools>>Hot Spare Manager and arm and activate the sequencer and the upgrade process is done.

How did the upgrade end up working for us? So far, we haven't had a stoppage of the WXJC-FM sequencer. but at this writing it has only been about two weeks since the upgrade was done, which puts us in a "wait and see" position.

The upgrade placed us on Zetta version 5.25.2.264. Not a lot has changed for most users, but for engineers and people that have access to settings, the one thing that did change was that in all of the configuration menus, the tabs at the top of each section (system, computers, et al) were moved and are now located to the left side of the window. It's just a little change, but it does seem to create a better visual break and allow you to find each element in the sections faster and easier.

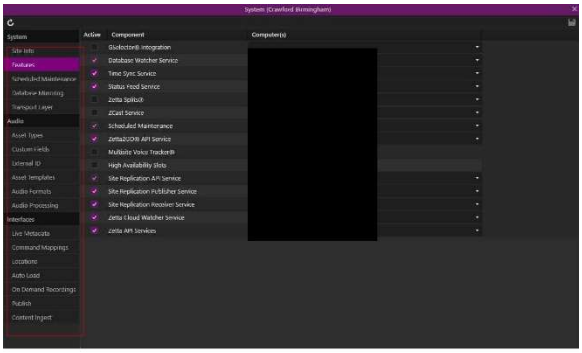


Figure 3 - The movement of the menus from top tabs in Zetta 5.25.1 to left side justified in Zetta 5.25.2 (computer information blacked out on purpose).

Next Month Teaser

This month we also had the Dielectric RF Hawkeye installed on our main antenna line at our

WXJC-FM site in Cullman. The unit consists of a 15-¾" long line section with several N type female connections. When fully installed, all of those connections are tethered to a 2RU Central Monitoring Unit, a 1RU Processing unit and a 1 RU I/O unit. Jacub Emery from Dielectric was on site for about six hours while we got everything installed and connected.

In Cullman, we have a shorting "T" section in our line, and it had to be moved so that it was not between the RF Hawkeye and the antenna. Then, he had to do some calibrating of the sensors so that they were matched for our antenna.

The RF Hawkeye is meant to give us much more information throughout our line and antenna so that we have a better and continuous picture of its overall health. The best way to describe it is that it's an EKG for your antenna, constantly monitoring for arcs, shorts and other anomalies, even changes in moisture in the line.

Jack and I are scheduled on the 29th to go through the system diagnostics training with Jacub, which is why I can't include a more detailed description in this month's article. So that's my cliffhanger, and you'll hear more about it in the next issue.

Until then, have a Happy New Year and may God bless the work of your hands and show himself as provider for you in your work and in every other area of your life.

Tales From Cousin IT
by
Stephen Poole, CBRE, AMD
CBC Corporate IT Specialist

I hope everyone had a blessed Christmas and a Happy New Year. Mine was nice and quiet; same as last year, I didn't travel. I stayed home with my cats, which suited them just fine. The only glitch was that on Christmas Day, I had trouble finding anywhere to grab lunch. This year, for some reason, even the local Dollar General stores were closed.

Sure, the Chinese joints were open, as was Waffle House; but the only "Chinee" near me sometimes has trouble keeping roaches out of the rice. There isn't a Waffle House in my area, and anything that was open was packed with people, anyway. I would have had to drive into Birmingham or Huntsville, then wait in line outside for an hour or two. I shrugged and grabbed some junk food at a convenience store.

AI: Smoke, Mirrors And LOTS Of Money

Since no one else wants to declare that the emperor is nekkid, I will. So-called "Artificial Intelligence" – which is actually anything but – requires huge, billion-dollar data centers; gobs of electrical power and Internet bandwidth, megatons of cooling, hectares of real estate ... and at the end of the day, just isn't that useful. IBM's Watson was doing most of what these huge AI "Farms" were years ago.

If you think you're using "AI" in your work, it's actually coming from these gigantic data farms. So much for portability, and forget about it if your Internet is down. Better yet, the results range from "meh" to dismal. I'll repeat my solemn warning to anyone tempted to use it for programming or web development: the answers are often wrong, or miss critical things like changes between software versions. If you're using AI for creative work, you get canned responses with fill-in-the-blank specifics.

So what's driving the madness? Investors. If you use the Buzzword of the Week™ – think, "Cloud," "Virtual Reality" and now, "Artificial Intelligence" – and emit endless "buy, buy, BUY" alerts, verily; tons of cash will magically flow. There are signs that this is finally beginning to end; some of the Big Guys have decided to cut back on constructing new data centers, and local folks with a severe case of NIMBY have mobilized and are petitioning local governments and zoning boards to Just Say No.

... and AI Search Results

This is a recent change that is beginning to frustrate me. The "AI" behind most web searches now tries to divine what you should know, instead of taking your query verbatim. Case in point: having run our family-owned insurance agency for many years, I always ask for the insurance "symbol" for any vehicle that I'm considering. A lower symbol number means

a better price for full coverage and can be an indicator of a better value overall. I've been doing some web research because my beloved Ford F150 is a bit long in the tooth. I Googled "What is the insurance symbol for the Kia K4?" Google responded, "There isn't a specific 'Kia K4 insurance symbol' on the dashboard." Ba-dum tish.

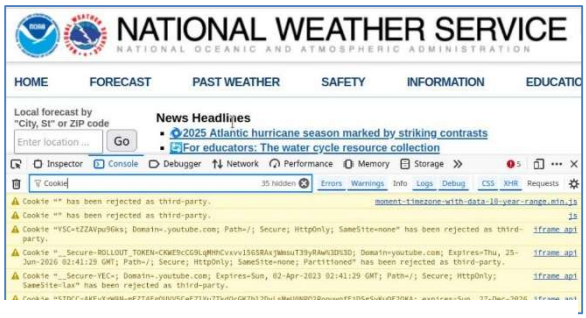


Figure 1 - Using the Developer's Console in Firefox.

Let's Scare Ourselves!

Because everyone needs something to make them (even more) nervous about privacy and the Internet, here's a little trick that you can try. Most browsers, including Microsoft's Edge, include tools that will allow you to inspect what a web page is doing. With Firefox, I clicked the Tools menu, then chose "Browser Tools," and finally, "Web Developer Tools" from the drop down. When the little window box appeared at the bottom of the screen, I selected "Console" (Figure 1) and in the little "filter" box I entered, "cookies" to trim the output a bit. This is from our local National Weather Service Website. The NWS!

You may not be a web programmer, but you can still scare yourself. With the Developer's Tools opened and console selected, start with Google's main page. The console area will fill with all sorts of cryptic weirdness. Browse to a few other websites and watch the console. You won't understand all of it, but that's OK; most web developers are just as baffled (they're paid to not admit it).

In Figure 2, I'm at one of our own station-specific websites (WXJC). My Firefox setup blocks third-party ("tracking") cookies, and this lets me make an interesting point for you web developers. Companies like Google and Amazon, frameworks like Wordpress and web "kits" like Elementor, make it easy to set up a really nice-looking website. In return, they get to track your visitors.

You'll have to squint, but the names of various ".CSS" files to the right in Figure 2 are all part of the "make my website look good" riff. CSS stands for "Cascading Style Sheet," and it's the standard for formatting a web page. For example, the latest CSS tricks can automatically resize and arrange your content to fit anything from a huge desktop monitor to a little itty-bitty smartphone screen.

Figure 2 - A sample from one of our station websites.

Even if you block third-party cookies, the – Google, Amazon, – can still track you. Go back to Figure 1 from the NWS page. You'll have to squint again, but the third line in the console says, "domain=.youtube.com." AHHH. Alphabet, the parent company of Google, owns You Tube. They provide a lot of the advertising that you see as you browse. When you add in the fact the Big Guys are fanatical about autoplaying videos and NOT letting you block advertising, a light will dawn. You can block third-party cookies from now until the Millennium and they'll still find ways to track you.

For The New Year

We're going to (finally!) get the new mail server online and running. I played with it some over the Christmas holiday and discovered that it doesn't like talking to our Barracuda Spam Firewall. I've obviously got to get that straightened out before we go live with it.

Some improvements to the POR system are also in order. We need to archive older stuff, provide a meaningful "search" function and standardize vendor names (possibly with a drop-down list), among other things. Cris has suggested several enhancements; at one time, we even talked about moving employee expense requests totally on-line.

Last but not least, I'm excited that we're going to retrofit SNMP capability into some of our older equipment. Cris and I have been working on that one for the past year as we've had time, and we're close to field testing. Relays say, "clicky" and inputs say, "I'm here," which is all good.

Thoughts About Forgiveness

You may have noticed that I have a weird sense of humor. It's just part of who I am. One of the Adversary's most effective lies is that only "his" people are cool, happy, fun to be around, whatever. I

refuse to participate. Many Christians believe that they have to riff into "religious mode" for Christian things (most notably, attending a worship service), and are far more relaxed and open at other times. Sure, we are to fear and respect the Lord, but we shouldn't have split personalities. One of the New Testament-type churches back home in NC used to call this "moving in a religious spirit," which is an excellent description.

I said that to say this, and I hope you'll take a great deal of comfort from it. God knew me before the beginning of time and saved me anyway. I'm not gonna get into arguments here about predestination. Whether God literally chose me or simply foreknew that I would accept Christ isn't the point.

The point is this: He knew what you would be like when you were called to salvation. He knew precisely how and when you'd fail him afterwards, but He saved you anyway. He knew what might cause you to struggle, and where you'd win a victory. He saved you anyway. When Jesus died on the cross, ALL of your sins were in the future. God was there before, during, and after. This doesn't excuse sin in my life; I confess my faults daily and ask God to make me more like Jesus. But He doesn't give up on His children, and He won't give up on you!

Until next time, keep praying for this nation!

The Chicago Chronicles
by
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Engineering Manager, CBC–Chicago

The Chicago market is a competitive PPM market. We take any PPM alarm as seriously as we do silence alarms or a transmitter off air. In these times of competitive ratings being measured through the Portable People Meters, if you're not encoding PPM properly, you might as well be off air.

Of course, most often the above two conditions are the most likely reason a PPM alarm. Obviously, if you're not on air, the encoded audio does not reach the PPM meters. But there are other times when the audio is solid and you are on the air.

This could be due to a problem with the PPM encoder itself. This happened to me recently. I had to drive to the transmitter site after getting a PPM alarm and found that the PPM encoder was locked up and in bypass. It had an error code on the front panel, and this was obviously the cause of the PPM alarm. Fortunately, in this case a simple power reboot brought the unit back online and properly encoding the audio.

Just before Christmas I had another mystery PPM alarm that was initially hard to figure out. This alarm occurred on our Gospel station. At first, we got a PPM alarm from the PPM monitor that monitors the FM signal. I checked the on-air signal, and the audio was very solid.

Shortly after that we also got a PPM alarm from the PPM monitor that monitors the internet stream for the same station. This seemed very strange, since it would seem almost impossible for two PPM encoders to go bad at the same time on the same station.

The alarms cleared after a little while, and then about half an hour later, the same thing occurred again. PPM alarms from the FM and stream monitors at the same time on the same station. This time I investigated the exact alarm and found that they were saying that audio had double codes.

Once again, I checked the audio chains in our Wheatnet system. The digital audio going to the transmitter site through our STL systems and to our internet streams separate early in the chain. In fact, the PPM encoder for the FM signal is located at the transmitter site, and the internet stream PPM encoder is in the TOC at the studio.

After this check, as I suspected, nothing in the two different routes were different than normal. But we were still getting PPM alarms, and both monitors were showing that the alarm was due to double codes. The alarms did go away again, and I got involved with other problems and just filed the PPM alarms away in the back of my mind in that category of "that was weird."

The next morning, I was driving to another transmitter site that was a hundred miles away, so I had a long drive. I really wasn't even thinking about

the PPM alarms, and then I started laughing. I figured out what had happened the day before. My subconscious mind must have chewed away on this one for a bit. It was not the first time this had happened to me.

Once I had this theory, it was so obvious. The station was airing client programs from our Zetta playout system at both times this occurred. The source material had to have been from our "tracker" recording system that is recording audio from our air monitor 24/7.

The clients must have been furnished these recordings from our staff when they had been on the air live when the programmed originally aired. Since it was just before Christmas, the clients most likely gave the recordings back to the station to use during the holiday week instead of going live as they normally would.

The tracker recordings have PPM encoding because they are recorded from an FM air monitor, so the audio already has coding, and then when they are being played, they get encoded a second time. Thus, we would get PPM alarms on both the FM and stream PPM monitors.

I didn't even check with the staff to see if this was actually the case; I knew it was. It was the only way this could have happened. I was actually wondering why it took me so long to figure it out and why my mind works like this sometimes. It is amazing to me that God gives us this ability to problem solve in our subconscious minds, while we go about our day.

Rocky Mountain Ramblings
The Denver Report
by
Amanda Hopp, CBRE
Chief Engineer, CBC - Denver

Quick Recep of the Month

I'm grateful December was a fairly easy month. It flew by for sure, as has all of 2025. The month started with tower work at KLVZ.

Right around Thanksgiving I got a notification that a tower light was out. With the cost of having a tower crew just show up, we always choose to replace all beacons on all towers at a location when we have to replace one.

It was quite a chilly day, but the crew got it done. They brought out three guys. They chose to climb two towers at once, that is one guy on one tower and the other guy on the other tower with a man on the ground. They were able to get the three towers climbed and the beacon bulbs replaced in about four hours.

New Team Member

Daniel, the newest member of our engineering team, has been a blessing. He lives close to the KLZ transmitter site, which is nice. I gave him a task to take all the equipment off the storage shelves at KLZ, clean the shelves up, wipe the equipment down, and organize everything. Keith had done that a few years ago, but the organization gets messed up over time. We recycle equipment, bring in old equipment from the studios and other sites and just pile it onto the shelves.

We gave Daniel a list of things he could take to the recycler, and the rest he organized and reshelved. It looks great out there.

Daniel has been able to help me keep up with each transmitter site, getting things cleaned and looking good. As issues arise, if it's something I can get him to deal with, I know I can. I look forward to seeing what 2026 brings for him in Denver. We need more young engineers (although he and I are the same age), and I am hoping 2026 will give us some good training opportunities.

File Server Replacement

On December 17, we replaced the Zetta file server. We typically replace the servers every five years, and this one was next on the list. We weren't going to do the replacement until it was due in 2026, but we had been having issues with audio servers losing their way and taking a station off air. We replaced the Cisco switch on the system, which was

several years old. The next step was the file server. We were able to get Samantha as our installer from RCS, which was great. She began the process a couple of weeks prior with the copy and basic setup of the server. I did my part of getting windows updates current but most of the work was for her.

We started early at 5:00 AM. The day of the installation, we put the four stations into Hot Spare and Samantha did a final copy and transfer from the file server. Once that was done, we re-ran the installer for Zetta, since the file server had a new name. Then we ran the installer on the sequencers, bringing them back online.

Then, instead of taking the stations out of Hot Spare, we got things caught up on the sequencers and just brought the faders back up on the consoles. We shut Zetta down on the control room computers and ran the installer and when they came back up (by then they were out of Hot Spare mode). Then we were able to move on to the production rooms, background recorder computer, and utility workstation. The whole thing took an hour and a half, which was great!

I am impressed with how easy this was. I am also happy to say that in the weeks since the replacement, we have not had any issues. I am praying we are finally at the end of the randomness that kept happening every week or so on various stations. I know we will have issues going forward as all stations do, but if the random disconnects to the main file server stop happening, I'll be thrilled. That will be two major issues cleared up in a matter of weeks.

Coming Up

2026 will hopefully be a slower year for us – the past year has been a screamer. January will start with server replacements. Dell informed us of a significant price increase beginning in January, and we still had four more servers to replace in 2026. Rather than wait and deal with the price increase, Cris decided to go ahead and order our servers along with several other servers for other markets. Those all came in the last two weeks of December. They are currently waiting for me in our TOC to deal with in January. We will be replacing our web server, FTP server, and a couple of firewalls. It will be good to get these done.

We will see what the rest of the year brings. I am looking forward to the new year, though. 2026 will mark 24 years for me with Crawford Broadcasting. That's over half of my life!

That about covers it for this edition. I pray you all had a wonderful Christmas and a great start to the new year.

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740 kHz/100.7 MHz, 50 kW-D/0.2 kW-N, DA-1
KNSN • San Diego, CA
1240 kHz/103.3 MHz, 550W-U
KCBC • Manteca - San Francisco, CA
770 kHz/94.7 MHz, 50 kW-D/4.3 kW-N, DA-2
KLZ • Denver, CO
560 kHz/100.7 MHz, 5 kW-U, DA-1
KLDC • Denver, CO
1220 kHz, 1 kW-D/11 W-N, ND
KLTT • Commerce City - Denver, CO
670 kHz/95.1 MHz, 50 kW-D/1.4 kW-N, DA-2
KLVZ • Brighton-Denver, CO
810 kHz/94.3 MHz/95.3 MHz, 2.2 kW-D/430 W-N, DA-2
WDCX • Rochester, NY
990 kHz/107.1 MHz, 5 kW-D/2.5 kW-N, DA-2
WDCX-FM • Buffalo, NY
99.5 MHz, 110 kW/195m AAT
WDCZ • Buffalo, NY
950 kHz/94.1 MHz, 5 kW-U, DA-1
WDJC-FM • Birmingham, AL
93.7 MHz, 100 kW/307m AAT
WCHB • Royal Oak - Detroit, MI
1340 kHz/96.7 MHz, 1 kW-U, DA-D
WRDT • Monroe - Detroit, MI
560 kHz/107.1 MHz, 500 W-D/14 W-N, DA-D
WMUZ-FM • Detroit, MI
103.5 MHz, 50 kW/150m AAT
WMUZ • Taylor - Detroit, MI
1200 kHz, 50 kW-D/15 kW-N, DA-2
WPWX • Hammond - Chicago, IL
92.3 MHz, 50 kW/150m AAT
WSRB • Lansing - Chicago, IL
106.3 MHz, 4.1 kW/120m AAT
WYRB • Genoa - Rockford, IL
106.3 MHz, 3.8 kW/126m AAT
WYCA • Crete - Chicago, IL
102.3 MHz, 1.05 kW/150m AAT
WYDE • Birmingham, AL
1260 kHz/95.3 MHz, 5 kW-D/41W-N, ND
WYDE-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT
WXJC • Birmingham, AL
850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2
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