The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

Streams

After a month of running our new Wheatstone Stream Blades in three of our markets, I am very pleased with the sound and performance. These things are amazing! We just put our fourth market up on the Stream Blade as I write this, so that's all four of the initial wave.

We have, after setting up, tweaking and using Stream Blades for several weeks in other markets, found some things we would like added as features going forward. All these things are convenience features and won't materially affect the operation or sound, but they will make their configuration and operation easier. We have submitted those things to our friends at Wheatstone and are confident that we'll be seeing them implemented with future updates.

So how is it going with Soundstack, our new CDN? I am pleased overall with Soundstack. They have been good to work with, and we've had no operational issues. Good people.

The issues we have had with the change to Soundstack are largely external to both our stations and Soundstack. For example, TuneIn. On many off-brand smart speakers, TuneIn is the only way to listen to our streams. However, TuneIn has refused to change the URLs for our streams to the new ones from Soundstack. They say that they can only take a change order from the very person and email account that was used to originally set up each individual stream in their system, and they won't tell me who that person was or what email account was used. Some of those go back 10 or more years, and people (and their email addresses) come and go. As such, we've been left out of TuneIn across the board since switching to Soundstack, although James Kelly has had some success in getting TuneIn to play ball with our Chicago streams. Maybe he can do something with the others in the company.

Other issues we have experienced have had to do with the embedded players used on our station websites. It was easy enough to get the players to tap the correct stream URLs, but getting the metadata to work on those players was another matter. The good folks at Soundstack provided us with JSON links, and the support people at Intertech Media were able to parse that data and get the title/artist information (and recently played data) working on the embedded players.

The biggest worry I had turned out to not be an issue at all – Alexa skills. All that is now taken care of through an online Alexa Radio Skills Kit. It was easy for me to spin up new skills for all our streams, right from my office computer and without involving any third parties at all. And we can add or edit invocations at any time as things change or we recognize needed changes. The one issue that we have run into is with invocations that are duplicated by other stations. Sometimes, two or more stations in different locations may have the same name. In those cases, no warning or error is produced – the invocation simply doesn't work. But station callsigns and frequencies always work, other invocations notwithstanding.

Transmitter Site Flood!

We usually think of Southern California as being a place of perfect weather. Albert Hammond, in his 1972 hit, sang, "It never rains in Southern California." We play that song on our Denver oldies station. Seems like we get hung up on that hook, but we miss the other lyric: "It pours!" And as our San Diego engineer can tell you firsthand, it surely does!

On Monday, January 22, a rain event in San Diego inundated the drainage canal that surrounds the tower site where KNSN diplexes with KURS, and the adjoining auto impound yard and tower site flooded. Water made it to and beyond the door of the

Water made it to and through the door of Multicultural's AM transmitter building.

transmitter building, flooding the building with enough water to get into the bottom rack equipment, which is the UPS that powers the rack. Thankfully, the water only got into the UPS units at the bottom of the racks and nothing else. The rest of the rack equipment and both our transmitters were untouched and remained on the air throughout the event with the exception of some satellite rain fades.

Almost... but not quite! Even with an inch of water on the floor, KNSN stayed on the air.

Now Bill has some cleanup to do, but much of that will have to wait for the water to recede. The floor is concrete, so we don't have to worry (much) about mold and soggy carpet. Mud will be the

challenge to clean up once things dry up. We don't own the site – Multicultural does, so any damage to the building is their problem, but I don't suspect there is any.

Translator Upgrade

We got word back in November that an LPFM that shared 95.3 MHz with our almost full-market 95.3 translator was going dark. This LPFM, owned by the City of Louisville, Colorado up in Boulder County, came on the air a year or two after we purchased the translator and sited it on Lookout Mountain at 2,100 feet above the terrain of metro Denver. The LPFM was at the time a CP, and we had to protect it, which limited the amount of signal we could radiate to the north and the overall ERP of our translator. When the LPFM eventually came on, it produced pockets of interference within our translator's coverage area, which was an irritation. And of course it wiped out any translator coverage in the north metro area.

The LPFM played a key role in the Marshall Fire a couple of years ago when wildfire destroyed over a thousand homes and businesses in the towns of Louisville, Superior and Broomfield. Late last year the city government made the decision to disband the LPFM and submit the license for cancellation, which they did. I was hoping that the vacated frequency would not be available in last December's LPFM filing window, and it wasn't. As a result, that spectrum is now open, and we took the opportunity to "move in."

Last month, I filed an application to change the directional pattern of our translator to a much broader pattern, rotated a few degrees north of the existing pattern. We still have to maintain a radiation limitation to the north, not because of the LPFM but because of a couple of houses that are a stone's throw from and immediately below the Lookout Mountain site where our translator is located.

The dotted line represents the signal value that can't overlap any houses. Thanks to the elevation pattern of the antenna, we're well clear.

Those houses represent population that cannot be within a particular third-adjacent contour (40 dB above the incident field strength of the third-adjacent station), which, practically speaking, makes no sense because trust me, you can't hear *anything* up on that mountain anyway with many megawatts of TV and FM broadcast signals in the immediate area swamping receiver front ends. But a rule is a rule, and we must comply.

The facility increase that we proposed includes the aforementioned broadened directional pattern and a 52% power increase horizontal and 130% vertical. Coupled with the absence of the LPFM interfering signal, that should make an observable improvement in the coverage of the translator, which is the main FM signal of the KLVZ "Legends" format ("Legends 95.3").

To achieve this, we also had to file to reduce the ERP of one of our other Denver market translators, which is first-adjacent channel to the 95.3 translator. I filed that application at the same time I filed the 95.3 application.

Amazingly, we already got a grant on the 95.3 translator upgrade! I have ordered the new antenna, which is a Kathrein-Scala CA5-FM/CP circularly polarized Yagi. Circular polarization should offer some additional signal improvements over the existing unequal ERP H&V array that we are now using. It will also simplify the whole antenna situation, eliminating the asymmetrical power divider and cutting the required vertical real estate in half.

I also ordered a new transmitter, a Nautel VX150. Both antenna and transmitter should ship in mid-February. We still must see if the existing equipment rack is deep enough for the new transmitter. If it's not, we have another rack in storage that will work, but swapping out the rack will be a project.

The New York Minutes
By
Brian Cunningham, CBRE
Chief Engineer, CBC – Western New York

Hello to all from Western New York! We got hammered again! After last year's record-setting snowfall a day before Christmas, weather forecasters were predicting that storm was a once-in-a-lifetime weather event. Fast forward to January 13th of this year. We experienced three days and nights of non-stop snow, at times the snowfall rate was five inches per hour.

Total accumulation was 74.6 inches when the lake effect snowstorm finally subsided late on that Monday evening.

Local weather forecasters did an amazing job of predicting when the storm would hit, and what areas would be most affected. We were given ample time to make pre-storm preparations at our transmitter sites, ensuring all standby generators were fueled and operating in the event of power outages. Luckily, there were none; our sites weathered the storm without any lost air time or significant issues.

As there was a area-wide travel ban, any programming changes had to be made from home, and thankfully they could be. This is a big improvement to our operation, as in the past someone had to make the trek into the studios to make programming changes.

Just less than a week before this storm hit, on Tuesday, January 9th, we experienced 74 mph winds, which eventually powered the snowstorm in. We did not have any issues at the Boston, NY transmitter site of WDCX-FM. However, WDCZ in Hamburg lost power for a few moments five different times. I was there when the outages occurred, so I was able to get us back up post-haste with no programming lost.

In Rochester, the 4CX15,000A PA tube in the WLGZ-FM transmitter was failing, so I installed a standby tube I had on hand to hold us over until I could get an Econco rebuild tube in.

I had just made it back to Buffalo when Ed Smith called to report that they were off the air. I tried to bring the transmitter back up via remote control, but it would not come up. In that it would take me an hour and a half to drive back over, I asked

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Ed to go to the transmitter and be my eyes. Perhaps I could walk him through bringing it back up.

He called after arriving and reported that the plate and screen breakers were tripped. I had him reset the breakers and try to bring the plate up, but it would immediately trip the screen supply breaker.

To get the analog signal back on the air, I walked Ed through setting the BE FMi-206 transmitter into FM+HD mode. With both analog and digital signals on air, we could at least keep our listeners happy and not lose any revenue.

The rebuilt tube arrived on Tuesday the 9th, the same day as the significant windstorm, so I could not with any comfort leave Buffalo to travel to Rochester to install the new tube with the possibility of one of the Buffalo stations going off. Once the winds died down the following day, I made the trip over to install the rebuilt tube.

I put the tube in, lowered the transmitter output power control to approximately 10 percent, then turned the plate on. Immediately the screen breaker tripped. Clearly we had additional issues besides the bad tube, so I began troubleshooting the screen supply.

Many times in the past, I have found one of the two filter caps shorted in the screen supply. I checked those and they were fine. Next, I removed the + and – leads on the output of the rectifier, brought the screen supply up, and again, the breaker tripped. This meant that there were only two options left. Either the screen supply transformer was shorted, or the rectifier was bad.

I pulled the three leads off the input of the rectifier, brought the supply up, and no tripped breaker! Whew, we certainly dodged an extremely high repair bill on this one! I also found a bad 18-ohm 215 watt bleeder resistor in the HV cabinet, so I called Bill Vandergriff at Continental and got the parts ordered.

A few days later, I returned to the WLGZ-FM transmitter site, installed the rectifier, bleeder resistor and tube. The transmitter came up, and after making several adjustments, was able to bring the transmitter back up to full power!

While I hate to have transmitter failures, it sure was fun to get back into one, troubleshoot and make the repairs to get it back into operational mode.

Another issue we experienced last month was a Spectrum outage at the WLGZ-FM transmitter site. The outage occurred around 2:17 am, and Spectrum notified me via email.

Throughout the morning, we kept experiencing numerous dropouts, and after looking at the event log in the Tieline codec, I noticed a great number of lost packets. I dropped the bit-rate down to 48 kbps from 96 kbps and increased the FEC from 80 to 100. This greatly reduced the dropouts, but I still had Ed Smith go to the transmitter site to reboot the Spectrum modem. This did not seem to make any difference when I returned the settings back to normal, so a trouble report was made to Spectrum.

The Spectrum tech came to the transmitter site on Friday the 19th and replaced the modem. Since then, so far, everything seems to be good, with lost packets down to 1-4 packets lost per hour. We'll closely monitor this to see if this problem pops up again.

Right before press-time, the WLGZ-FM Vox Pro computer decided to start acting up. The Dell Optiplex computer would shut down randomly, sometimes while playing back a call over the air.

I went to Rochester on Thursday the 25th to investigate the problem. It appears that the processor was getting hot and shutting down the computer. I attempted to replace this computer with a newer Dell I had on hand, (Windows 7 Professional), but the version of Vox Pro software we are running cannot work on any OS newer than XP.

I saved one old desktop Dell with XP when I cleaned out the WDCZ transmitter site back in December, so on the following Monday I went back to move everything over to this computer and got them back up and running. We were fortunate in the fact that last time there was a failure of the Vox Pro computer, I added a USB backup drive to save all the audio files on, so they did not lose any audio files they wanted to keep.

That about wraps up another month here in the great Northeast, and until we meet again here in the pages of *The Local Oscillator*, stay safe, and happy engineering!

The Motown Update
by
Mike Kernen, CSRE
Chief Engineer, CBC–Detroit

New FM Control Studio

As reported here in January's *Local Oscillator*, the last time that the WMUZ FM control room was remodeled was in the early 1990s. It's a down-to-the-studs remodel featuring all Wheatstone and Wheatnet technology as well as new paint, furniture, lighting, sound treatment, etc.

Accommodating most new technology these days requires computer monitors. We didn't need just one, or two, either – we have *eight!* One of these is a 35-inch ultrawide curved UHD monitor which will display our NexGen playout system.

Given our heavy focus on live talk programing, making certain the operator can see everything he needs to see while maintaining a view of the talk studio was a foremost design goal for this studio. Secondarily, keeping the countertop free of PCs, and limiting the number of mice and keyboards was important, too.

Yellowtec m!ca poles, monitor and mic arms are used to mount monitors, mics and micro-PCs in the WMUZ-FM control room.

I don't know how a studio with so many monitors could possibly be set up without the super flexible m!ka mic and monitor mounting system from Yellowtec. The m!ka system offers lots of options, and of those we selected their poles, monitor arms, and mic arms. The poles mount easily via an M10 socket head cap screw and a pair of beefy fender washers, one on top and one on the bottom to distribute the torque load. Slots on the four sides of the poles secure the monitor arms anywhere along their length, and mic arms peg into the top. On a few of the arms, we mounted Dell OptiPlex Micro Form Factor computers in VESA brackets that secure them directly between the m!ka arm and the rear of a monitor.

If you've not worked with Yellowtec, I suggest you do so on your next project. Their products are high quality and have an impressive high-end look. Having used them in the past, I can attest to their sturdiness, too. I can't recall ever having to tighten one down or replace a part. Pricey, yes, but good stuff that'll outlast computer store arms and mounts!

Wheatnet and StudioHub

I'd be very surprised if anyone reading this hasn't heard of either Wheatstone or StudioHub. Nevertheless, I have a story:

Having built many studios in my life, starting with one in my parent's basement that I built while I was in high school, one thing that they all had in common was a dizzying amount of wire, connectors, punch blocks, looms, documentation, soldering, − all that stuff.

I recall the beginning-of-the-end years back traveling by Amtrak from Philadelphia to Washington D.C. with Dan Braverman. At the time, Dan was the proprietor of Radio Systems, Inc. and was accompanying me to the very new and very over-the-top studios of Sirius Radio.

Among other things, Dan's company made audio consoles and low power radio transmitters that were used for roadside information. They did much of the work at Sirius Satellite Radio in their function as integrators, a function for which I had hired them during a large construction project at Greater Media's new studio building in Detroit.

Radio Systems also made a considerable number of handy gadgets that broadcast engineers could use to convert this to that, a large segment LED

clock for a talk studio, little headphone amps and guest panels, etc. This project afforded me a chance to use their new product introduced to me at NAB, which was a new concept in studio wiring known as StudioHub. We used StudioHub everywhere we could, even running bundled CAT5 under the sizable parking lot to our transmitter building.

My experience with StudioHub has been so positive that twenty-plus years later, I cannot point to even one failure. I always appreciate companies like Wheatstone, who include StudioHub connectivity within their components.

Construction of this latest studio was still complicated, but now by the complexity in figuring out how to get so many computer monitors in front of the operator. Once that was done, the actual wiring took about a day, the worst part being the network wiring that had to go through the drywalled ceiling! Today, Radio Systems is no more, but StudioHub survives and is part of Angry Audio.

Give and Go

Life is what happens to you while you're making other plans. This is a quote my grandfather loved to recite whenever he'd muse about things going awry. January has been full of distractions and things going awry. Nothing catastrophic, but I mean that my pace was often opposed by the counter-strength of whatever I was working on at the moment.

In a day that I'd attempt to get ten things done, one or two would wrestle me to the mat. I spent an entire day trying to dual home a computer only to find that the fresh-out-of-the-box NIC was intermittent.

Another time thief is also a device needing access to two networks. On this we have one wired NIC and one Wi-Fi connection. The manual says use the Wi-Fi for access to the internet and the wired network for the data from the closed network. The only thing is, the Wi-Fi disables itself!

More on this device next month. On a given day something that should take ten minutes can take hours. This is not unusual. The older I get the more I build-in time to beat down issues that can't be foreseen.

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

Automating FTP (Part 1)

One of the things that has become synonymous with sourcing audio for radio broadcast is downloading said audio from a variety of FTP servers using software clients like FileZilla or WinSCP. The next step after you have the audio is getting it into whatever broadcast file system you may have. I'm going to try to explain the process we use here in our Birmingham market that automates not only getting the audio, but putting it into the system as well.

As the title suggests, I'm going to break this into two parts, the first of which is automating downloading the audio. The second part will focus on getting it into your system (we use RCS Nexgen). Of course, it wouldn't be a software solution from yours truly unless it was using software that is freely available for download.

I guess the first thing to answer about doing this is why you would want to automate this process in the first place. My answer is a pretty basic one – downloading individual pieces of audio (usually MP3) and processing it completely into our broadcast system literally takes somewhere between eight to ten steps for any given piece of audio. Then, if we multiply that by the number of audio shows or clips that must be placed in a daily broadcast log, you can see that the work that a typical program director or producer does is not only a large task, but also a monotonous one.

I've always tried to tell our board operators and others that if they are spending time every day doing the same things to prepare for a show, then those things need to be done in the broadcast clock (the template) to do that work in the logs. The same logic applies here. We're only increasing the chance that an error might occur doing the same tasks over and over, whereas well-tested
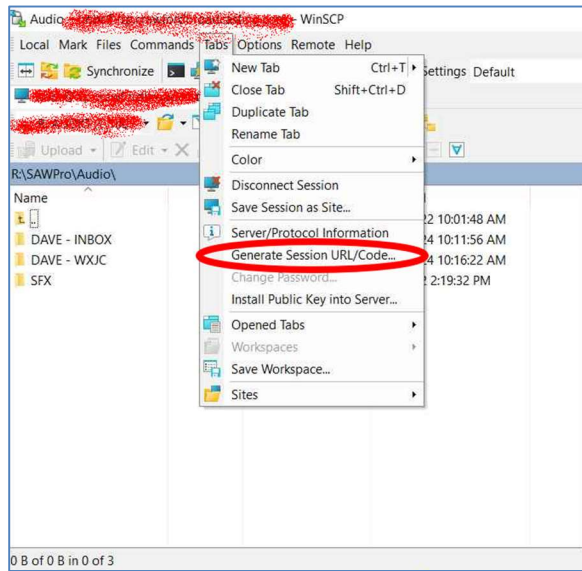
Figure 1- WinSCP can generate session/URL code, i.e. batch files.

automation processes can free up time that can be devoted to other tasks.

This all started simply enough with things like weather forecasts and traffic reports but has morphed into much more with programs from AMB-OS and other sources that maintain their own FTP sites with their audio on them.

Figure 2 - WinSCP popup window generates the generic script for whatever server you are connected to.

The secret sauce in the overall process is creating "batch" files and then using the built-in Windows Task Scheduler to run those batch files scripts at a prescribed time. Our weather forecasts and the like were simple one line batch files that referenced a text file with all the account information and what file(s) to grab from the FTP, but it became apparent that the batch files would need to become a little more complex to get audio from several of the shows that we needed to get.

Since I don't have a great scripting skill set, I started looking for something that might do the bulk of the scripting and simply allow me to tweak the batch file and I found WinSCP, which is itself an FTP client. Once you create your connection to the FTP server, one of the options you have is to generate a URL/Script/.NET Assembly Code for the connection.

I use the script tab to generate a batch file that I can then tweak with individual commands like the file I want and where I want to put it on our computers.
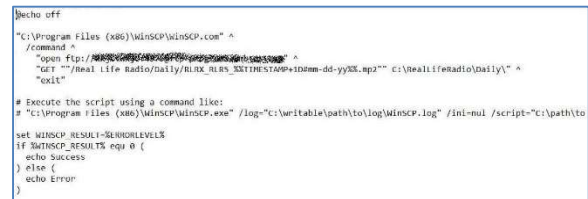

Figure 3 - The tweaked WinSCP batch file for a show that we wanted to automatically get from Real Life Radio's FTP site.

As you can see from Figures 2 and 3, the only real difference are the command lines where I tell it to "GET" a particular file and where to place it in my computer (a folder created to house audio you are about to download). I'd be remiss if I weren't honest about the how frustrating it is to get all of the formatting right on the actual command line (most internet-based servers are Linux and they're not particularly forgiving about upper/lower case and spacing).

When it works the first time, you get a feeling that I liken to taking a fortified position in a war. The benefit is that not only have you created a script that will get the file from that vendor indefinitely until they make changes to their file naming conventions or folder structures, but you've also created a template for other FTP client sites to get their audio as well.

One of the tricky parts about doing this is to really talk with the person that has done this manually for a while. One client's audio might be uploaded all at once for the next week. Another may upload single pieces of audio each day at a particular time. In fact, the astute reader might have noticed the timestamp in Figure 3 that includes "+1D" in the formatting of the file name we want to get from their FTP server in the command line. This particular client puts their entire week's audio onto their FTP site, so in order to make our automation work correctly the batch file is only grabbing the audio for the next day from the current day.

Once you have tested the batch file to make sure that it runs correctly when you manually force it to run, the next step is get the automation to execute the batch file at the time of your choosing. The last piece of the puzzle is to use the Windows Task Scheduler to run the batch file. Again, the time that this needs to be done can be discussed with the person that has been doing it manually as they will know the client's tendencies. The scheduler walks you through scheduling the batch file for the time and the weekly days that you may want to get the files. I typically put the batch files into the folder that I'm going to be putting the audio into so that everything can be easily seen in the same folder, but one might choose to put multiple batch files together in one place and only separate the audio into different folders.

The goal of this exercise is to remove the opportunity for error in our systems. Obviously, this work needs to be well tested before it is actually implemented into your work flow. In fact, I'll generally set up the process and then let the person that does the work manually check it against their audio for a week or more before it goes live in our system.

Next month, I'll explain how we move the audio from an individual folder with conversion and cart number creation so that the process, in the end, is a completely hands-off operation.

We'll visit again next time on these same pages and may God richly bless the work of your hands.

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

I am now 68 years of age; I have started a new year around The Son. Some things never change, though, from the time you're born until you finally make that Last Journey to eternity. For example, we had another icing event recently, and Alabama ground to a halt. As I've said before, I know how to drive in snow and ice (and when not to even try it), but the problem is that so many people here don't know how to do it. They'll end up abandoning their cars, blocking the only roads in and out of my neighborhood.

There was one huge embarrassment, though: I ran out of bread! Yes, I, a good Southerner, forgot to buy bread when the forecast was first made. I made do with grits and a few other things (until the power went out, anyway), but I had to hang my head in shame.

Gmail Hates Us

To start my New Year, Gmail started rejecting some of our older CBC email addresses, complaining that our SPF/DKIM/DMARC stuff wasn't set up properly. What made this especially confusing was that other email providers – most notably, Microsoft and the M365 Exchange folks – said that we were fine.

First, I guess I should explain what this means and how it works. (Put on your helmet.) All of these are part of our DNS records. When you send an email to a crawfordbroadcasting.com address, the sending server looks up that base host name, without any subdomains (ex., "mail." or "ftp." or "www.") to the left. This returns our "MX" (mail exchange) record, which points to the "mail." subdomain. Another DNS query is made for that specific subdomain, which returns the IP address of our email server. If the receiver is DMARC-compliant, he'll look up the DKIM and SPF, too.

"SPF" is "Sender Policy Framework." It's part of the primary record for the base domain name and tells everyone the IP address(es) that is (are) permitted to send email for us. "DKIM" is "domain keys identified mail," which is a cryptic-looking hash, unique to our email server, inserted into the email header. The receiving end can look up that hash in our DNS record and determine if the email was, in fact, sent by us.

Finally, "DMARC," or "domain-based message authentication, reporting and conformance," is simply the final "wrapper" for both SPF and DKIM. I receive daily reports from other email servers on whether our DNS records have the proper values, who has tried to fake our email, and so on.

Confused??

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If you're not confused yet, it gets better! Like most open standards, there are some gray areas. In the never-ending fight against spam, from time to time, some companies – Comcast is notorious for this – will suddenly decide, "We're not going to accept any email from anyone who doesn't do this precisely the way we want." Over the past few years, once I began my slow slide (decline) into IT, I've had to deal with email that suddenly gets blocked or returned, for whatever reason. In plain English: Comcast (or in this case, Gmail) might block our stuff, but everyone else on the Internet thinks we're fine.

I'm rapidly going bald anyway, so I haven't much hair left to pull out. But stuff like this is always fun to run down.

Step One: Check Our Records

This was the first headache. When I tried to dig into our DNS records, I was told that our "mail.xxx" domain name couldn't be found. Better yet, when I tried to directly query GoDaddy's DNS servers – well, the authoritative servers that were assigned to us; they actually have a bunch of them, but I'm trying to keep this simple – I got a "not found" on the server addresses! Other DNS servers were showing our records, but they weren't "authoritative;" simply put, some lookups might disregard them. Yay.

So ... I got to contact GoDaddy support, which is almost as much fun as having a root canal. I chose their chat, because at least I can understand the replies from people who don't speak English very well. Yes, it went as such chats usually do, being read from a script: "OK, I understand that you are having problems with [insert here]; I am sorry for your issues." I tugged my thinning hair and kept plugging.

After quite a bit of back and forth, the GoDaddy guy said, "The problem is Gmail. Go talk to them." Ah, thanks. Talking to Gmail support is like having the root canal without anesthetic. Anyway, I think GoDaddy was having problems at that time, which sent me in several different directions. An authoritative DNS server isn't supposed to just disappear, and the first time I tried to chat with their support drones, the page suddenly went blank and kicked me out. I was unable to log back in for several hours.

Step Two: Keep Digging

The next day, magically(!), the GoDaddy authoritative servers reappeared and our records appeared to return as well – but the SPF was missing. I went to the DNS section of our GoDaddy account and it was in there, but a "dig txt" command kept

Figure 1 - An online check (finally) shows that all is good.

returning nothing. I finally deleted the record, then re-entered it, and after the usual delay for worldwide DNS to see the changes, it reappeared.

Online checks of our DMARC stuff were hit and miss. On one try, it would say, "There's a problem with your DKIM signature." On the next, it would appear to work! As I mentioned above, some email providers (M365 in particular) loved us, but Gmail still hated us. More hair-pulling. I deleted and reinserted records over and over. Finally, they took. Whew!
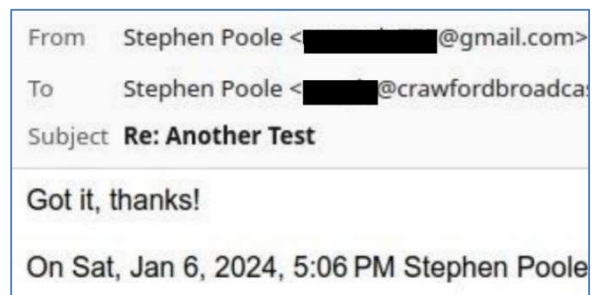

Figure 2 - Better yet, I can send email to my personal GMail account. Yay!

Step Three: Our Email Server

To complete the fun and joy, our email server had recently installed an update. I checked and noted that the "OpenDKIM" service wasn't running! (I could almost promise you that I had checked that earlier and it was fine, and I had email that did have the DKIM hash.) In fact, something had apparently disabled it. (Maybe because GoDaddy was unreachable? I don't know.)

So, I re-enabled it and restarted Zimbra, and now the DKIM hash started re-appearing in our email headers. I went to dmarcly.com to check again and ... viola! They said that we were good! Yay! After a few

naps and a three-martini lunch (read: it took a while), Gmail decided to stop hating us.

Success!

See Figures 1 and 2. This mattered because we have a number of clients who use Gmail addresses for communication. It's hard to send proposals and requests for information to people who can't receive the email! It took me quite a bit of time to work this one out, but it had to be done. Again, it looked like the problem was multi-fold: GoDaddy was having issues. Gmail was being anal-retentive. Our mail server decided to disable the DKIM service on its own hook. I was bouncing around like a ping-pong ball from one check to the next.

Todd, Jack and I have a saying: once you finally get something working, "OK! Back away slowly, hold your mouth right and leave quietly." That's exactly what I did. Stopped pulling my (thinning) hair, too.

Updates

Never overlook the fact that updates can cause problems. The best example for our company was a few months ago when Outlook decided that it wanted certain types of encryption, and would reject any connection that didn't support them. The only solution at first was to roll back the Windows update that installed the new rules. It took a couple of weeks, but finally, we straightened that out. I told Zimbra to stop accepting older forms of encryption (which no doubt caused trouble with other email providers, though I didn't really hear anything about that), and life was good. For a while.

For some reason, the most recent Android update on my smartphone, for example, cleared all of my passwords. I'd pull up an app or Web page and it would force me to log in fresh. Given that all of us (are supposed to!) use long, cryptic-looking passwords nowadays, this took some work. Not all of my apps are working yet; I fix them as I need them.

Oh! And to complete this fevered rant, recent studies have shown that long, gibberish-filled passwords are no better at protecting accounts than the more modest 8-10 character ones. But your odds of remembering "$Drt^^1488*JpJx!!" are much worse.

Finally ...

Partly because of being derailed by this email issue, partly because of power and Internet outages and partly because Amazon Web Services likes to change key packages from time to time, I've been delayed on the My Hope Now app work. I've made real progress and, Lord willing, hope to have it done this week as I write this. But ... OK, one more quick rant.

I've never been a Microsoft hater. I don't use Windows on my personal computers, but that's a personal choice rather than a Political Statement™. I give them credit, and cut them plenty of slack when it takes them a while to fix a bug, or introduce a new bug when they push out an update. Here's why.

Say what you will about them, but MS has always been concerned with reverse compatibility. Simply put, if I have an older piece of software that I must have, the Windows folks do everything they can to ensure that it will run, even on the latest versions of Windows. Sometimes this simply isn't possible, but again, I give them credit for trying. Hard.

For example, from the very first versions of Windows, a function (aka "subroutine" or "procedure") called "CreateWindow()" has been available to ... well, create a window. Over time, Microsoft has added functionality with newer calls like "CreateWindowEx()" and "CreateWindowExA()," but they have also provided wrappers and macros to support the older calls, to avoid killing older software.

Not so with Amazon Web Services, or Expo (the cross-platform builder that we use) and several other parts of the Web/app process. I've ranted in the past about the bad documentation, but just as frustrating is that they'll declare a module "deprecated" and then just stop supporting it in the future! So, if your Website or App needs an older module, it may or may not work. I've had to go through and edit files to change module names to fit the latest requirements. They provide tools to help with this, but the tools are hit or miss and just plain make mistakes at times.

OK, enough ranting. Everyone have a great February and keep praying for this nation!

The Chicago Chronicles
by
Rick Sewell, CSRE, CBNT, AMD
Engineering Manager, CBC–Chicago

I was spoiled last year with the easier winter weather we had. This year has been a bit different experience so far. Probably closer to normal with a little extreme temperatures mixed in. However, at our most northern transmitter site we had a bit more, snow, but I wasn't sure how much.

This site is near Kirland, Illinois and it's about a hundred-mile drive and the weather can be quite a bit different from our other sites that are near the border of Indiana in the southern part of the Chicago market. I can sometimes keep up with the weather though traditional means and the security cameras that are at the site, but you just never really know until you actually get there.

One day last month, the main transmitter had a bad low voltage power supply, so I was hoping that everything was open to let me into the site. However, I found once I got there that the cameras really didn't show how much snow there was at the entrance of the driveway, so I got a bit of a surprise when I got to the site and quickly figured out that my car was not going to make it in.

Uh... nope. Not going to be driving into this site today.

A nearly four-foot high by four-foot-wide snowbank was in front of the driveway created by snowplows was not going anywhere in a hurry. So, I had to climb over this icy wall and post-hole my way up to the building.

The worst part was that I wasn't able to fix the power supply issue as proscribed by support. So,

once we get the new supply from the manufacturer, I will need to make another trek there.

Profanity Delays

We recently got the opportunity to install two new profanity delays that are now part of our Wheatnet AoIP network. The great advantage of using the Eventide BD600+W profanity delays is that we use a lot less wiring. With the embedded Wheatnet module. There is literally just one wire involved beyond the AC power cable, and that is the Ethernet network cable. Every function, including audio and logic both in and out are now part of the network.

Other than our own documentation error that caused an IP address conflict with another device on the network, the installation went somewhat smoothly. We did have one issue with the Wheatnet embedded NIC working with the Cisco Ethernet switches we use for the Wheatnet network. The devices we're not showing up properly in the Wheatnet Navigator software. The NIC connection LEDs were also not blinking on the delay or Ethernet switch.

I was fairly confident that the NICs were working on the delays, since I had used a laptop to connect with them to change their IP addresses from the default IP addresses. Just for testing purposes, I decided to connect them through an off-the-shelf Netgear five-port switch. Sure enough, going through the Netgear switch to the Cisco switch allowed the delays to show up properly in Navigator.

This meant that we likely had a config issue to deal with ports on the Cisco switch. I remembered that we had this same issue with the Tieline Genie that had a Wheatnet NIC embedded as well. We checked the Cisco switch to see what was working with the Genie and copied the config for that port, which was set for Auto Negotiate and 100 mbps. This did the trick, and we quickly had the units up and running on the network.

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

January has flown by. I didn't make many trips to the transmitter sites, and thankfully I haven't needed to. Most of my work was studio stuff. We now have a security video system at the office, something that has been needed for a while.

The majority of my month was spent trying to troubleshoot issues with our DRR system. For now, it's fixed but not by my doing, at least I don't think.

And then the weather has been a rollercoaster in Colorado, with several days of sub-zero temperatures and then beautiful and in the 60s.

DRR Woes

You may recall last year me writing about a DRR issue where the audio would go wonky and record several seconds less than it should have. I worked with RCS support for weeks trying to track this down. We finally replaced the DRR computer and that seemed to correct the issue.

About the second week in January, though, this issue along with one other came back with a vengeance. Rather than record several seconds less, it would record several minutes less, as in the file was unusable because it only recorded mere minutes. Talk about frustrating. I immediately began working with RCS support to try and track down the cause.

While doing this, another issue popped up on the Wheatnet side. Sources would not switch at times. To me, it seemed like a collision of sorts, where the system was doing a lot, which it always is, and it just somehow missed the switch causing the DRR to record something entirely different.

At this time, I also began working with Wheatstone support. Shout out to Trey for being super patient with me and working through all this. He gave me a document they created for optimizing Windows computers for AoIP. Over the years they have learned some things Windows does to cause issues, things we weren't told about because we already set our system up before this document was created.

I went through each NexGen computer and did all the various recommended things. Some things had already been done, but there was a patch to correct an issue Windows Update caused.

There were also some settings in the NIC that weren't correct. They had ports to add to the firewall if one was in use to prevent issues. I made all these changes to each and every NexGen computer that was connected to Wheatnet, which was all but two machines.

Wheatstone also had me go ahead and update the blades to the latest and greatest 4.0.9 software. Thankfully, this did not require a PC driver update. I was able to get all the blades updated with no real issues.

Even after making these changes, I still had some reports here and there, but not as many. The last one was Friday, January 19. Both issues seem to have disappeared. RCS has no explanation, nor does Wheatstone. I should mention that we also did a hard power cycle restart of the Cisco 3850 core switches somewhere in the process, and that may have had a positive effect.

I have put a hold on both support tickets, and we are just waiting to see if the issue comes back. While I'm glad the issues seem to be gone, I hate the fact that, despite doing a bunch of stuff, none of it was probably the reason for things to work. I can't imagine it taking a couple days to take effect. Only time will tell if we have another issue.

And for those of you who do have Wheatstone blades and do AoIP, I highly recommend getting your hands on the *Optimization for AoIP* doc that Wheatstone has. If you email me, I can send it over. While I can't say for certain it is what solved my issue, I did see it correct a lot of log errors I had been getting.

Cameras!!!

We have been going back and forth on getting security cameras for the office since we

One of the new high-resolution security cameras in a control room. Visible but not obnoxiously so.

moved in. Over at the old Wheeler Block building near downtown Denver, we had a bunch of cameras to help us keep an eye on things. It would allow us to see who was waiting at the door and to see people come and go from various areas of the office space, and it helped us catch a person stealing speakers and microphones right out of our studios.

We haven't had that at the Pavilion Towers studio/office location, but I have wanted it for a long time, so, I got a quote using the same type of system we use at the transmitter sites and got it all approved. We are now proud owners of nine cameras and an NVR.

The hope is that these cameras will create a sense of accountability. We know people break the rules and bring food/drink into the studio, and there are sometimes other things that go on that shouldn't. I have no plans on watching every second of every day, but much like with the transmitter site cameras, I will have the program I use loop through them every

few minutes so I can check on things here and there. And if management ever needs me to look more closely at something, I can.
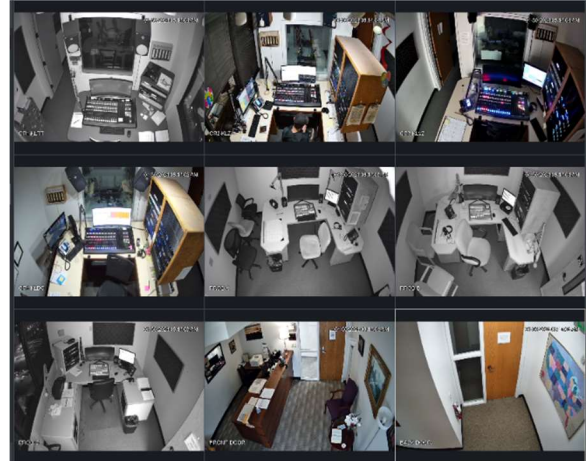
The NVR provides a high-definition view from all the cameras.

Coming Up

February will hopefully bring snow to the mountains (we need it bad!). I pray the DRR issues become a distant memory. We are also toying with the idea of adding a couple more cameras to our new office security system. We have the 95.3 translator upgrade, including transmitter and antenna change, to do probably in late February. I plan to make some trips to the transmitter sites to check on things and to do a basic cleaning. Thankfully we have had very few issues at any of the sites.

I think that about does it for this edition. I pray you all stay safe and well!

KBRT • Costa Mesa - Los Angeles, CA
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
WXJC-FM • Cullman - Birmingham, AL
101.1 MHz, 100 kW/410m AAT

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