The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

Hope and Change

I was recently reminded of a verse in the book of Ecclesiastes that says, "The end of a matter is better than its beginning…" That is certainly true of the year 2009. What a year that was for our industry, our company and many of us personally as well! I am certainly glad to see it in the rearview mirror.

The Obama campaign rhetoric was all about "hope and change." We certainly got change, most of it for the worse. And while we cannot lay all of the bad at the doorstep of that administration, the reality is that 2009 was a difficult year full of economic downturn, high unemployment and a general quelling of the promised but undelivered hope. In fact, 2009 could be termed a year of hope *lost*. There are a lot of folks walking around out there down in the mouth these days, and for good reason.

And so it is that we start 2010. Hopefully (no pun intended) people have by now come to the realization that their hope does not lie with the Obama (or any) administration. Mr. Obama and his panel of czars can, in reality, do very little if anything to make things better; just about anything they do is bound to make things *worse*. The real power lies with the Congress, and we have seen over the past few months that this august body cares very little for what you and the rest of the populace thinks. They do what they want to do. Representative government for them means that you get in line behind them – they will show you what is best for you. Certainly our hope is not in the Congress. We simply can't trust them.

Our eternal hope, really the *only* hope mankind has, is in Jesus Christ. In Christ, those who follow Him have assurance about the future. In the cross we have assurance of His unconditional love for us.

But what about the here and now? What about the workaday business world where we ply our trade? I would offer that we have a lot to be hopeful about. 2010 will, I believe, be a turnaround year for the broadcast business. There will be a lot of political ad purchases to help drive this turnaround. I also think that as the economy levels out some, much of our regular business will return. I believe that we have it in our power to get out there and effect change in the marketplace that will rebuild our business and make broadcast radio an indispensible part of American life. We have to be different and better. We have to provide the very best listener experience that we can.

And finally, we have real hope *for change* in the mid-term elections coming this fall. If "We the People" wish, we can *flush* those in Congress that have shown such disdain for the American people in their actions of recent months. I intend to do everything that I can personally to see to this. We definitely need change, this year and in 2012.

The end of a matter is better than its beginning. We're starting 2010 off on a better note, and I pray that it will end much better than it began. So much of that is up to us.

While we are on the subject of change, a change has taken place in the list of CBC stations. WLGZ-FM in Rochester has been sold to DJR Broadcasting. Most of you know that this entity is Don Crawford, Jr.'s radio group. CBC will retain ownership of WDCX(AM) in the Rochester market, and we will share studio facilities and offices. Brian Cunningham will continue to provide engineering services for both stations.

A Solution

A couple of months ago, I wrote in these pages about the ongoing interference alleged from the KBRT upper digital primary carriers to KFMB's analog signal in Orange County, California. You may recall from that account that the allegations of interference have been sporadic and inconsistent but always loaded with lots of inflammatory language

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and rhetoric. The one thing they have been missing is any kind of meaningful dialogue.

Nothing much changed in that regard over the past months. We made one resolution proposal to KFMB and they, in essence, rejected it. That left us with a couple of options: one, ignore the issue and wait on the FCC to act; or two, try and find some means of resolution on our own. I chose option two.

On December 3, we cranked the KBRT upper digital primary carriers down to -45 dBc, which is tantamount to shutting them off altogether. We did this after filing proper notice with the FCC.

The process wasn't as easy as simply selecting the desired level on a menu, however. When Bill Agresta first attempted to lower the digital carriers a few days prior to that, some ugly things happened. When he took them below -45 dBc, the NE-IBOC HD exciter started alarming. A reboot was required to put it back to proper operation. And at the -45 dBc level, the spectral regrowth was considerably higher than it had been with the uppers at their previous (higher) level – so much worse, in fact, that the station's digital performance was considerably compromised. I had to send consulting engineer Joel Saxburg out to the site with his Anritsu Spectrum Master to tweak the DC offset and mag delay to get the regrowth down. The consensus with transmitter manufacturer Nautel and iBiquity Digital was that the unbalancing of the digital carriers produced some non-linearities in the transmitter that increased the ±25 kHz third-order products. That was a surprise to all of us, since our experience has typically been a *reduction* in regrowth with a reduction in digital carrier levels – but then again, we had never tried a 17 dB imbalance before.

Todd Stickler immediately evaluated the digital coverage of KBRT after the reduction and found it to be "about what it was before." I was in the area a few days later and Todd and I drove the signal. My finding was that indeed KBRT's HD signal is alive and well, even with one set of primaries dramatically reduced.
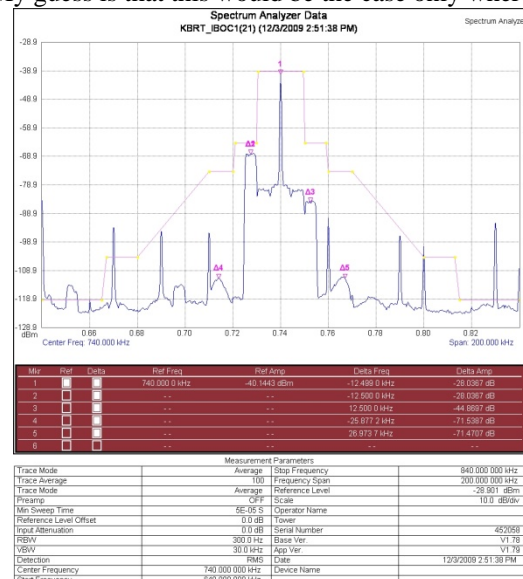
During that same drive test, I listened all over Orange County to KFMB and could detect no interference from KBRT. The KFMB signal is relatively weak throughout the area, between 0.5 and 2.0 mV/m, and there was a good bit of noise audible in many locations from power lines and other manmade electrical sources. But the steady-state hiss that we had previously observed was gone. The problem, it appears, has been solved.

I have a couple of observations from all this.

One is that we certainly would have taken this step much earlier had we known it was an option.

It was not until late November of last year that I heard from iBiquity that, "With all that KFMB interference, those uppers probably aren't doing much anyway." I suppose I should have thought of it myself, but there is so much that I don't know about the HD signal and how HD receivers and demodulators work. Somehow, I suspect that even iBiquity didn't really know what would happen, either.

Another observation is that AM HD works just fine with only one set of digital primary carriers. My guess is that this would be the case only where

the remaining set of primaries occupies clean spectrum, i.e. no interference from adjacent-channel stations. The redundant digital carrier sets increase the robustness of the digital signal where there is interference, so if there is adjacent-channel interference, performance is bound to be compromised, maybe significantly.

Understanding that, I think we should hold this option in the top drawer of our tool chest and use it aggressively when interference does occur. Stations can do this voluntarily by simply notifying the FCC by letter and making the adjustment. I don't know if the spectral regrowth issue is limited to the Nautel XL-series of transmitters or if others will behave in the same way. It certainly bears watching, and stations that do employ a reduction should immediately check their spectrum to make sure that things haven't gotten ugly.

We had budgeted for but not ordered a new AM-IBOC HD generator and Exporter Plus exporter for KBRT. I wanted to see what the outcome of the interference issue would be before making that investment. Now that we have eliminated the

interference and retain our digital coverage, I am comfortable proceeding with that move. The new equipment has been ordered and will be on hand shortly. Very likely I will go out and install it myself. It is very likely that the new equipment will permit an even greater reduction in upper primary digital carrier level than the old NE-IBOC. If it does, I will take it down as far as it will let me.

What's In a Name?

This marks the 21st year for *The Local Oscillator*. That's hard to believe. I clearly remember those early days. We had just six stations at that time, and I wrote pretty much the whole thing myself. It wasn't until years later that I enlisted the participation of the other engineers in our company. That was when this little publication really took off. Rather than simply being a newsletter, it became, in effect, an idea exchange. It has remained as such for the last decade or more. And while we actively circulate only within our company, to selected vendors and friends of the company, our readership extends to thousands. I hear from readers far and wide who go to our company website every month for the express purpose of reading these pages.

I remember that in one of my early columns I explained the name of *The Local Oscillator*. In those days, the early 1990s, our technically-inclined readers would know what a local oscillator was. Most would recognize the schematic graphic as a Clapp oscillator, which is a variation of the Colpitts design.

In this day and age, however, such oscillators are passé. We use low-frequency oscillator modules as frequency references for our phase-locked loop (PLL) synthesizers or DSP direct synthesizers; seldom will you encounter a stand-alone discrete component oscillator circuit in a modern piece of equipment.

So what is (was) a local oscillator, anyway? Does anyone remember?

A local oscillator is a locally-generated, sometimes variable frequency signal generator, the output of which was mixed with the input signal of a superheterodyne receiver to produce the first intermediate frequency (IF). In FM broadcast and communications superhet receivers, the first IF was often 10.7 MHz, so the local oscillator frequency would 10.7 MHz above or below the operating frequency. The difference frequency would be filtered and amplified by the IF strip and passed on to the second mixer and IF. The first local oscillator frequency determined the operating frequency of the receiver. Without a local oscillator, your receiver would be completely deaf.

And so it seemed at the time that a local oscillator would be a good mascot if not an excellent title for our little engineering newsletter. I think that remains true today, despite the changes in technology that make the circuit shown in our header graphic archaic.

So now you know. Feel free to impress your friends with this little bit of radio trivia.

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

Hello to all from Western New York!

As I get older, I am amazed at how much faster time seems to pass. It seems like only yesterday that we were preparing for Y2K, and now here we are, ten years later! I cannot comprehend how the past ten years went so fast. Looking back, we have experienced an explosion of new technology, and not only in the radio industry.

Practically everything that has to do with electronics has grown beyond what our imagination could conceive just a decade ago.

It's fascinating as you look back on some of the old science fiction movies from the 50s and 60s at the "future technology" that was shown in those old flicks. Things that were unheard of in that time are commonplace today. It makes you wonder what the

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future has in store for us. If you have watched any of today's science fiction movies, you will see that we indeed have a pretty interesting future ahead!

As I was recently looking back over the past year's engineering logs, I couldn't help but notice that none of our Western New York stations experienced any major problems or downtime over the past year. The storm season was relatively mild this past year so no lightning or storm damage was received. Of course we had some equipment failures/malfunctions, but the severity of those problems seemed to be on the light side. I like to attribute this to good engineering and preventive maintenance practices. For whatever reason, this equates to lower operating costs, which increases our stations profitability. I have always maintained the stance that a good preventive maintenance schedule will save you time and money in the long run, and this also equates to more nights spent sleeping instead of cooped up in the transmitter shack or becoming overwhelmed with multiple failures all at once.

As most of you are aware, one of our job duties as chief engineers of our respective markets is to keep an eye on the FCC public inspection files. I have gotten into the habit of checking these every three months to insure that everything that needs to be there is there. One item that is not specifically required but falls into the "good idea" category is the posting of licenses and special authorizations at the transmitter site. Each year in December, I go through the transmitter site documentation to insure that all legal documents are in place. These are kept in plastic page protectors and placed in a three-ring binder. Not only do I keep the station licenses in this binder, in there you will find all technical information pertaining to the transmitter plant, such as wiring charts and signal flow charts. You never know when another engineer may be called in to assist or troubleshoot a problem for you. Having this information readily available will save a lot of troubleshooting time. Also in this binder, I keep a list of all the important telephone numbers for the equipment vendors and technical support departments of the equipment that is installed there. This saves a lot of time by not having to dig up the equipment manual to look for contact information. I also keep a list of all of the engineers' phone numbers in the CBC group, along with utility suppliers' emergency phone numbers and account information, such as account numbers and circuit identifier numbers. Should you need to report a problem, it seems to go much easier if you can provide the service writer with the appropriate account information. After all, we

could all stand to save a little time when we can.

WDCX-FM – Buffalo, WDCX(AM) / WLGZ-FM – Rochester

Aside from some remote control issues, there is not a lot to report on from the Rochester stations. For as long as I can remember, we have experienced some "bouncing" on the transmitter readings into the WLGZ-FM remote control. The slug in the directional coupler being loose caused part of this problem. I finally solved this by simply wrapping some electrical tape around the slug to hold it firmly in place. By doing so, the forward and reflected readings on the transmitter and remote control were now rock solid, but the plate voltage and plate current readings were still fluctuating enough to cause high limit alarms. To solve this, I installed a 2,200 uF capacitor across both metering samples, which solidified these readings. So far, we have not experienced any further false alarms due to fluctuating metering samples.

One other remote control problem I encountered was when January 1 rolled around. The transmitter remote control at WDCX(AM) did not switch us into high power when it was programmed to. I have written macros to perform all our power changes and to turn on/off the transmitter at the appropriate times, and on the first, it did not switch us into high power. As we do not have Internet capabilities at this site, I had to drive up and with a laptop, take a look at the timed events that were programmed into the VRC2500. I found that the macros for January and February had been mysteriously stopped, therefore they would not run. A simple check of the start button was all that was needed to remedy that problem. I am unsure as to why these two functions were stopped. All other macros were fine. I think I will take this a step further and rewrite the macros to call me when a timed event does not take place. This can be easily done in the macro editor, and it will insure that someone is notified if a required power change does not take place at the scheduled time.

At WDCX-FM in Buffalo, everything is humming along fine, with no problems to report on. We have budgeted to replace our STL tower on top of the building this year, with a new aluminum pre-fabricated, free-standing tower. The old STL tower was handmade from 2x8s that lay horizontally on the roof with a steel structure bolted to the center of the "X". Mounted on the structure were two 3-inch poles which support the STL receive and transmit antennas. Concrete blocks were used to provide ballast to keep the structure in place. As the wood is starting to rot, I

have noticed some sway in the tower when the wind blows, and it blows a lot here in Buffalo! As soon as weather permits, I think we will go ahead and get this work done before we lose our STL altogether. Aside from that, we do not have a backup STL path to the transmitter site, and should we lose the one we have, our only alternative is to utilize the Comrex Matrix to provide programming to the transmitter site. Not ideal, but it beats being off the air!

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

The Motown Update
By
Joseph M. Huk, Jr.,
P.E., CPBE, CBNT
Chief Engineer, CBC–Detroit

Engineering Status and Life in Detroit

This month I thought it would be interesting to talk about working virtually from the office. I have been using Ultra VNC to remote control computers in our broadcast plant for some time. For maintenance, troubleshooting, and getting general work tasks done, it has become an indispensable part of our operation.

The acronym VNC stands for Virtual Network Computing. Through RFB protocol, it transfers mouse, keyboard, and video data between the server machine and the client. The program was originally developed by Olivetti Research Laboratory (ORL) in Cambridge, UK. The original code is under the GNU general public license. Subsequently, ORL was acquired by AT&T Research Lab. In 2002, the lab's research functions were closed.

There are many versions of VNC. My favorite is Ultra VNC (UVNC). This program has a built-in file exchange feature which makes file transfers a snap. I have found the version 1.0.2 to be very stable. From my desktop computer at the station, I can look at any computer in our plant and even remote control our transmitters.

This month I came across a version of VNC that can be run on a PALM PDA. It is called PALMVNC. I loaded onto my computer and uploaded the software routine into my palm Centro. While the screen is small, the clarity is excellent and I am able to control my desktop back at the office. Therefore, in a pinch, I don't have to let my laptop warm up to respond to issues. Technology can sure be nice!

To find these programs, please go to the following sources: Sound Forge for PALM VNC 2 and UVNC.com for the PC version.

This month, I finished up my first semester teaching at Adrian College in Michigan. It has certainly been an eye opening experience. Now that I have a pretty good plan of the content of the broadcast operations class, life as an instructor should get easier. However, things keep changing and I will need to keep up with new developments. Christmas was wonderful. My wife Kim, my daughter Kari, and my son Mikey had dinner with my folks and in laws. Then we had two other dinners with our extended family as well. Our family is truly blessed. I wish you all a very blessed belated Christmas and prosperous New Year.

Until next time, be safe, and if all goes well, we will be reporting to you from the pages of the L.O. next month. Best regards.

News From The South

By
Stephen Poole, CBRE, CBNT, AMD
Chief Engineer, CBC–Alabama

Thoughts On Windows™

You probably get tired of me ranting about this, but seeing as how I've spent a good bit of the New Year's weekend (a) recuperating from a bad head cold, and (b) doing some programming in Windows, I can't resist.

I've spent so much time in Linux now that when I go back to Windows, I feel limited. I am unhappy. I've mentioned that before here, but what really surprises me about it is that it can be stopped dead in its tracks by a misbehaving application. I'm running Windows XP with all of the latest patches, and it still wants to hang from time to time.

Now, the argument will be made that Windows itself is stable; it must be the application(s) that I'm running. I'll grant that. In fact, it was probably Blackberry's Desktop Manager that caused my hang. But one of the key features of a professional operating system is that *it protects you from bad applications*. Very rarely do I ever need to do a hard, power-off reboot on OpenSuSE Linux. Even the crudest application can usually be killed by simply holding down Ctrl-Alt-Esc and moving the mouse cursor over its main window. In those rare cases where this doesn't work, I can switch to a terminal, "pgrep" the name of the application to get the process ID (pid), then kill it that way. If that doesn't work, I can simply reboot smoothly and cleanly. Linux just doesn't hang during shutdown like Windows does.

The argument will then be made that I should upgrade to Windows Vista, or Windows 7, which are more stable than XP. I've heard this one before. When I had trouble with Windows 95, I was told, "Upgrade to 98." When that would hang, "Upgrade to Windows 98 SE." Now, for its day, 98 SE was a marvel; I stayed with it as long as I could. (Windows ME and 2000 were both boat anchors and will get no further mention here.) But how often do I need to upgrade just to get an operating system that will absolutely, positively allow me to kill a misbehaving application?

I'm a little late getting this missive to Cris primarily because Blackberry's Desktop Manager not only wouldn't allow me to download pictures from my smart phone (I ended up emailing them to myself, which took quite a while), but when it crashed, it apparently left something in an altered state that wouldn't allow Windows to shut down. I'd click Start->Shutdown>Reboot, and nothing would happen. I didn't even get the old, "this application is not responding" window... which is also annoying, by the way; when I say, "shutdown," I want to *shutdown*. I leave it to the OS to sort out reluctant apps for me. I finally had no choice but to hold the power button for the required six seconds to force a hard reboot.

I realize that Linux isn't for everyone. Some hardware won't work with it. Many applications that we use every day in Windows simply aren't available for Linux. And speaking as a programmer, Microsoft's Visual Studio is a joy to use; Cris and I have talked about this, and I agree with him. It makes writing a very nice, neat-looking Windows application a breeze. All you have to concentrate on is the code that does the real work. The Studio lets you build the pretty GUI interface in a matter of minutes, instead of the days that it can take with other development systems.

So ... Windows does have its advantages. Whether they outweigh the annoyances is left up to each user.

WYDE(AM)

I think I mentioned in a previous issue that we were working on a microwave STL link from Red Mountain to the 1260 AM tower site in downtown Birmingham. We hired Southern Broadcast Services to mount a 4-foot Scala dish that we had lying around. We're actually grabbing part of the signal that's shooting from Red Mountain to the WXJC(AM) site in Tarrant and weren't sure how well it would work, but to our pleased surprise, the

receiver locked right in.

It was then that we began discovering other problems. The first thing that we noticed was that one of the support insulators for the unipole skirt was lying on the ground, meaning that one of the skirt wires was able to move in the wind. This will obviously have to be repaired, and it's on the docket for early this year. But the next thing we noticed was that the STL signal wasn't reliable; it would come and go at times. I was afraid that we were in an "iffy" reception location, but on a hunch, I had Jimmy check the reflected power meter on the transmitter at Red Mountain. Sure enough, whenever the signal would drop, the reflected power on the STL transmitter would go up. Something was wrong with the feed.

Broken Unipole Skirt Bracket

Southern Broadcast had already agreed to do a relamping on the Red Mountain tower, so we had them look at the dish while they were up there. Their crew reported to us that when they pulled on the old connector, it came right off the line! Not good. We ordered a new connector and they're replacing it as I write this. Let's keep our fingers crossed...

WXJC(AM)

And speaking of the 850 AM site, this is our year to model that array. I've mentioned in previous issues that we've had a time with that thing. Cris and I have cogitated and pondered and compared notes on this antenna system almost from the day that we rebuilt it in 1999 because we've had trouble with it drifting when the weather changes. The modeling software finally gave us a clue last year: the array itself probably isn't drifting very much, but because of the high impedance at those tower bases (they're 350 feet high, well over ¼ wave at 850 kHz), the samples are sometimes unreliable.

We're currently using the standard Delta base sampling transformers inside the ATUs; the obvious answer is to replace them with sample loops on the towers to get a more reliable monitoring system. But just as obviously, and thanks the FCC's decision to permit modeling of arrays, this is an ideal time to do just that. We've obtained quotes from Kintronic Laboratories on the isocoils that we'll need. I'm going to have the sample loops manufactured locally. I'm excited about this; we'll finally have a reliable, stable monitor system on that array.

Identity Theft

Here's another warning for everyone, in addition to the ones that have appeared already in these pages and elsewhere: be very careful about using any public wireless "hot spot" to browse with personal information. If you're at a Starbucks, for example, you might be tempted to pull out the laptop and do a quick check of your email. The problem nowadays is that there are even-money odds that someone is nearby trying to eavesdrop on your connection.

It's surprisingly easy to do, too. You can download software from the Internet that will let you crack WEP in a matter of seconds, and the more secure WAP in a matter of minutes. All the hacker need do is park close enough to the hot spot to pick up a signal; he may not even be inside the building. He simply turns on his laptop, starts the "cracking" software and waits. Within a few minutes at most, he'll be able to watch all transactions that are taking place on that wireless access point... which means that he could easily steal your email user name and password, and use your account to send spam; or he could watch as you access your online banking, and later, take money from you.

It's a very real problem, and I hate to say it, but the safest thing is just to avoid wireless altogether. That's not always practical, though (when you're on the road, you'll probably have wireless at the hotel), so the next best thing is to avoid doing any serious personal business on that public Internet service. I'm planning to download an app for my Blackberry that will allow me to access my Region's banking account directly; it's supposed to be far more secure than using my laptop in a hotel room or hot spot.

I mention this because yesterday, out of the clear blue, I got a call from my credit card company. It seems that a number of bogus charges had appeared on my account, all in late December. How the thief got my credit card number, I don't know. I *may* have used it while I was on the road in early December, but I honestly can't remember. I do

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exactly as described here – when I'm at the hotel, using wireless Internet service, I'll check the news and weather, but I will not do anything else. I certainly won't check my bank or credit card accounts or make online purchases.

Of course, this leaves one other problem: a lot of businesses online want to store you banking or credit card info. I strongly suggest that you say "no" when they ask. You'll have to enter that info each time you want to make a purchase or a transfer of funds, but that's much more secure than allowing them to store that info on their servers. Now that I've had first-hand experience in administering some of these servers, I know just how easy some of them are to "crack."

Paranoid, I know... but good advice, nonetheless.

Finally

We have a New Year's baby here in

Birmingham! Jennifer Paepke, one of our top AE's, gave birth on December 29th at 2PM to little Julia Claire. Enjoy this picture, and we'll see you next time!

Gateway Adventures
By
Rick Sewell, CBRE
Chief Engineer, CBC–St. Louis

In the December issue of *The Local Oscillator* I discussed how we had a problem with the main audio channel of multiplexer we use to connect the studio to the KJSL transmitter site. The problem would show up when this digital audio channel would lock up on one frame and create and buzzing sound on the air.

With the station in a constant 40-second delay, the operators do not monitor the actual off-air signal, so when it occurred in the past it would unfortunately usually involve a listener calling to let us know about the problem. The station also has long periods of walk-away operation with no one on duty to answer the phone. That's what happened on Labor Day of 2009. The card locked up with no one around to detect the problem or answer the phone when it occurred, and we had a long period of time where our programming was completely obliterated by this harsh buzzing noise.

In my December column, I detailed how I set up a device to detect when this occurred by using a silence detector in reverse by having it close the

relay with actual audio. Taking the analog audio from the audio card in question and then using an audio potentiometer, I fed the input of the silence alarm with a much lower level of the audio so that the audio barely activated the silence alarm on the highest audio peaks, hopefully once or twice a minute. I then wired the silence alarm relay to a status input on my remote control and set the alarm delay of that status channel to the maximum two minutes.

The theory was that with the locked-up audio being a lot louder (and having a higher RMS value) than normal programming, and also knowing that it is a continuous buzzing sound, if the audio level was properly set into the reversed silence alarm, only the bad audio would trip the alarm and not normal programming, thus creating a system that would detect the condition so that we could take the station to a backup STL audio and then correct the situation.

The main problem I had with this as noted in the column was how much audio to the reverse silence alarm. Too much audio and I would receive

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numerous false alarms. (This certainly was an issue that woke me up too often in the middle of the night.) Too little audio and it may not catch the event when occurred. So I tried to find a compromise level that I could live with until an actual event occurred and then I could set the level properly.

Of course, Murphy's Law came into play, and now that I had something to detect the situation, it wouldn't happen – a situation akin to taking a car to a mechanic because of an unusual noise only to have it not make the noise when in the presence of the mechanic.

Finally, after four months (and too many false alarms), the event occurred just a few days after Christmas. I was actually listening when it occurred and then got the alarm as expected. I was able to use my phone to call the remote control and switch to the backup STL audio and then drove to the transmitter site. Once there I set the level of the audio going into the reverse silence alarm (this was the actual locked-up audio) so that it barely tripped the silence alarm. I then gave it a bit more audio for good measure. Since then I have not had a false alarm and I am confident that we will catch it quickly in the future should it happen again.

We had another problem that was giving us fits recently. One of the audio servers in our automation system was doing strange things whenever it was rebooted. It would delete the current log it was running and any future logs. The processing of deleting the logs and then recreating the logs usually took almost an hour. In the meantime, we had to fly by the seat of our pants without the automation system until we could get everything restored. Obviously this caused much hesitation to reboot this computer. I gave this a lot of

thought because it really needed to be remedied. If I wasn't around after a power outage, it would probably be a disaster until a capable person was able to get on the scene.

Being that the ASERV computer was over five years old, I began to think that it had to be hardware related, but just how I wasn't sure. My thinking was that the deletion of logs was a time-related issue. But since the ASERV got its time from another computer and always displayed to correct time once it was booted up and running properly, I couldn't get a handle on what was happening.

It took awhile, but I finally figured out that the computer was not getting its time until it was logged into the network. This occurred *after* Windows was fully booted up and running when a "Basic" script is used to log into the network and start the audio server software.

So the machine was losing track of time between the reboot and the time it was logged into the network. The time it would have then would come from the motherboard. On the next reboot, I logged into the BIOS setup and found that the computer had a time back in the year 2004. So this is what was causing the problem. From there the next logical step was to figure out what was causing this. With a little research, I found that the most logical problem for a motherboard to lose track of time was the on-board battery going bad.

So after replacing the motherboard battery, a part that cost less than three dollars, the problem was resolved. I could reboot the audio server without everything going crazy. I also didn't have to request a whole new computer, which was pretty much what I thought I was going to have to do if I couldn't find the problem.

Valley Notes
By
Steve Minshall
Chief Engineer, KCBC

I spent the last week of December in Portland Oregon assisting with the move of the KKPZ studios. Studio moves are always interesting since the station involved must usually be moved without any significant off-air time. This move was no different.

In this case, continuity of programming was easy to accomplish. The NexGen control room machine was put in the "Emergency Control Room" (ECR) mode and thus all the other NexGen machines could be shut down and moved.

On Monday, we moved the production room up to the new studio facility co-located with the KKPZ transmitter on Mount Scott. The production room move turned out to be an easy one. The furniture came apart into two large and one small piece, easy to move. The audio server was installed at the new site and the station programming was switched over to that source at midnight.

Tuesday was the day to move the control room. This was more daunting than the control room. There was much internal cabinet wiring, and we did not want to disassemble the cabinets any more than absolutely necessary. The tape measure told us that we needed to remove two doors from their hinges. With that done, we proceeded with moving the cabinets out the room. We then discovered that due to the angles involved, we needed another quarter inch of clearance. Station manger James Autry had the solution: remove the door frame.

When we unloaded at the new site, we found a similar but worse problem. The angles into the new control room were too tight to get the cabinets in. This time there was no choice but to further disassemble them. Further thinking about our dilemma revealed a simple answer: remove the bolts holding one end of the cabinets together and were able to angle it enough to make the turn without disturbing the wiring.

Minutes after we had the control room cabinets in the room, it started to snow. The snow was coming down fast and most of our vehicles,

including the moving truck, were not equipped for snow. We called it a day and left the site while we still had a chance to do so. The next day revealed the wisdom of the decision. Abandoned cars were seen along the side and one right in the middle of the road on the way up to the new site. I even saw a fire hydrant that had been broken off by a car.

Wednesday was spent getting the control room and talk room operational. The work went smoothly with only a few minor hitches along the way. At the end of the day, the move was essentially finished with just some LAN and telco wiring to finish up.

The move went about as smoothly as they can go. One of my worries was RF interference into the studios. The new studio locale was, after all, the home of two diplexed AM stations, one 5 kW and the other 10 kW. You never know what might be effected by RF, but we were blessed by *nothing* being affected, not a hint of any RF in any audio.

I must express my appreciation of everyone that I worked with. Chief engineer John White was a pleasure to work with. Contract engineer Jeremy was indispensable; the move would have taken days longer without his help. Station manager James Autry was fully involved and had great ideas. It was nice to again work with operations manger, and NexGen expert, Sunny Hudson, whom I knew from here previous employment at KCBC. My helper (a.k.a. wife) Ann Minshall provided a lot of extra help to all of us.

KCBC

We were shocked and amazed when the construction permit was granted for the KCBC night power increase last month. We were not expecting it for another three months or so, but we don't argue with success!

So now that we have a permit and all the parts, equipment, and cables on site, the project is underway at best possible speed. The most troublesome part of the project in my mind was the installation of the new sample lines and control wires.

As I mentioned last time we have conduits to each tower but without pull ropes. The solution was a simple one. We used the old sample lines as pull ropes for the new wiring.

It took most of a day and into the night to get the new wiring in. It seems like a simple thing to do, and it is in the general sense. The time is consumed in the setup. Spools must set just right. Cables have to be very securely attached, yet still be able to pass though the bends of the conduit. Lubrication must be provided at both ends of the conduit run.

We were pulling over a thousand feet of wiring through conduits. Some experimenting told us that we needed at least 400 pounds of pull to get the cables to move, less as it progressed. After considering the options, it was decided to use a 4WD pickup truck to pull the cables. With the truck in low-low gear, it crawled along and pulled the cable nicely.

Our longest pull was about 550 feet of conduit. Unfortunately, we only had about 70 feet of straight shot from the dog house to the brush. So after each 70-foot pull, I had to un-hitch the truck from the cable, slide the cable grip back to the dog house, roll up the old sample line back to the dog house, back the truck up to the dog house, put the roll of sample line in the bed of the truck, secure the grip to the sample line with electrical tape, hook up the truck, place a cell phone call back to the helper in the transmitter room, and then start the next 70 foot pull, then, as the shampoo bottle says, "repeat."

Now the most dreaded part of the project is over, and it's done before our rainy season. The sample lines are trimmed to the same electrical length, hooked up, and operating well. More on sample lines next month. .

To be continued…

Catalina Tales
By
Bill Agresta
Chief Engineer, KBRT

Greetings and Happy New Year from Santa Catalina Island!

I am not one to get sick that often but the last week of 2009 had me in bad shape with some awful sinus garbage that I would not wish on anyone. This sort of stuff always seems to happen at such bad times. By the second day of getting sick, the main air conditioner at the transmitter plant decided to quit, along with our typical phone issues. Then our voltage (from Edison) went high.

Since the fire it seems that the slightest bit of wind or rain takes out our phone and/or T1 line. This time I was told that the node enclosure got wet inside, thus taking down the power supply. I came to find out later that the node had been housed inside a cobbled-together wooden box and that a woodpecker made a hole in it – another one for the *island factor* files.

I am still awaiting Edison's response as to why our voltage continues to climb here. It is normal for it to rise by about 5 volts in the evening because they kick on another generator. With less load and the lack of solid regulation, it is normal for the island's power grid to fluctuate by this amount. During the holidays, however, for days the utility voltage went up by over 10 volts and the evenings saw rises as high as 20 volts, and it has continued to rise slightly each day. I have adjusted both our main and backup transmitters' power supply taps, but am now running into a situation where my UPS units go into protect. Thank God this is occurring after we go off air in the evening!

Well, I feel awful and can hardly write so, I am going to cut this month short and ask for your prayers so I can get over this awful sinus stuff. I am thankful and looking forward to a great New Year and I know that God will bless us all if we stay faithful…

Until next month, the Lord bless you and keep you; the Lord make his face shine upon you and be gracious to you; the Lord turn his face toward you and give you peace.

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The Chicago Chronicles
By
Art Reis, CPBE, CBNT, AMD
Chief Engineer, CBC–Chicago

Project Scheherazade

We're back to our trivia questions and answers this month, and this one is a little more complicated. What is a proper, simple test for a power FET (such as is used in current transmitter technology)? Answer next month.

A Study in Frustration, or How (not) to Fix a Transmitter Module

I hate admitting defeat, especially when it comes to dealing with any kind of electronic circuit. But I'm going to have to say that after three different times of trying to merely adjust a solid state RF amplifier module properly in a fairly low power transmitter, I'm ready to scream for tubes.

Years ago, my sister sent me a gag instruction sheet entitled, "How to Give a Cat a Pill." You cannot fully appreciate the meaning of what is entailed in that process unless and until you've been owned by a pussy cat and have had to try doing it. Across the course of the treatise, a steadily escalating war of wills develops between the cat and the owned human involving cuts, bites, growls, hisses, ripped flesh, soggy pills, partial strangulation, broken furniture and linens, a trip to the ER (or two), and an ultimately triumphant cat. And the neighbors calling the cops because of a perceived case of cruelty to animals. It's funny if you haven't experienced it. It's too true and painful if you have. It's actually easier to just give the cat a shot, or shoot it for that matter, than to go the pellet down the gullet route. I know, since both Cashew and I are diabetic. Shots he'll take. Just get it over with, thank you. Pills? Heh-heh. Go ahead, just try....

The point is, it's not much different trying to fix one of those power FET amp modules. I know, I've tried, and the frustration involved is something akin than giving the pill to the cat, or nose drops to a two-year-old, for that matter. It simply is not something you should try at home. Here's the story.

Some time back, one of the four RF power amp modules in the WYCA main transmitter decided, gradually, on its own, to just put out less and less power. It got to the point where we had to do something about it. So, we scheduled an afternoon to take care of it. Warren McFerren, our real transmitter maven, went to Beecher, put the backup on, and proceeded.
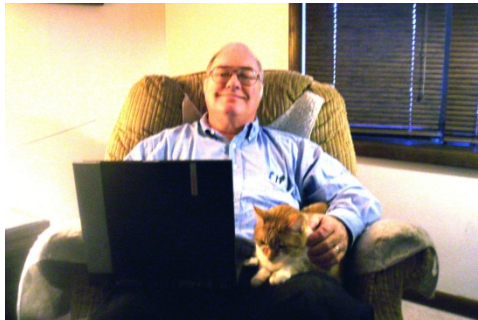
The transmitter manual outlines a really detailed method for adjusting the RF modules, and we followed that procedure to the letter. The method calls for there to be a wattmeter on both the input and the output of each module, the former to read the reflected power on the input, the latter to, of course, check the power on the output. Upon turning the rig back on (the ancient backup "fire breather" rig was on the air and the main was feeding the dummy load for this work, since it had to operate at full power per the manual, which is a power level for which the station is not authorized). First thing we noted was that the reflected power into that module was really high. Aha! A problem with the input tuning would cause this issue, right? Fine. I had Warren adjust the input tuning with an insulated tool while I watched the meters.

At that point, the input cap on that circuit failed, flamingly catastrophically and taking with it the power FET, all $285 worth, with it. Cute. Quick call to the factory. Once Customer Service was told the serial number of the rig, they came back with an answer: "Oh, those caps have been very problematic. We have updated them with new, better ones. We'll send some right out." Which they did, sort of, but not *right* out. Due to a paperwork snafu and then a lack of supply, it took the better part of two months, but then we got the caps, and I spent the better part of two hours replacing four of them in just the one module in question.

This is where I contributed to my own downfall. I mentioned earlier that the manual has a very detailed description of the module adjustment procedure. However, for all the prose, there is not one diagram or picture accompanying this procedure. Successful accomplishment, I've found out the hard way, requires that. Suffice it to say that I wired up the system just wrong enough to blow up another $283

power MOSFET double transistor, or maybe two, (it's not something I really would like to remember) in this one module before I found out what the deal was. And, in the last section I worked on, I found out what it was like for a ceramic variable capacitor, located on the input side of the RF amp, to glow. The VSWR on that input circuit was that high!

After about a week of dorking around with this thing, I decided what the better part of valor really was, called the factory and got an RA number. The customer service rep was really sympathetic with me on this. ("Yeah, I've been told that working on these things in the field is fraught with danger!" Indeed.) With great regret (mostly to my pride) I loaded up the module into a suitable box and sent it off to the factory for repair. A couple of weeks later, that module was back, along with the capacitors and transistors I'd sent along with it as replacement parts. I'm not going to replace the old caps in the remaining modules. That "better part of valor" thing, you know. The repaired module is drawing its share of current now, the four amps in the rig are balanced, all is right with the world, and I'm praying that our little Nautel stays together for another couple of years without needing any radical surgery. I just hate when I have to send anything like this out for repair, but the word is, apparently, "Don't try this at home." Or maybe it's, "Discretion really is the better part of keeping the repair costs down." I don't know. Maybe you can tell me.

HD Radio Notes

Radio Ink did an HD Radio promotion recently which was really nice. Too bad it wasn't available to the general public. Namely, you could own one of those cute little FM/HD radios, just like the little black Insignia cuties which are available at Best Buy for about fifty bucks. Except that, like the Best Buy radio station promotion deal, you could get 'em for about $35. And, instead of being Best Buy black, these were called the Mighty Red Radio, because they were a shade of red which could only be found at a lipstick counter – and they had Radio Ink's logo on it. Otherwise, identical. I hopped to it, and bought five of them, one each for the guys here in the department, and one for my Sheila-sweetie.

That's not the big news. Radio Ink let it be known in a broadcast email that the first shipment of these little red honeys had sold out in four hours, and that they had to order a bunch more in order to keep up with demand. I got Sheila's Mighty Red in time for Christmas giving. Far as I know, she loves it. The rest of the order won't be here until January.

There's a lesson here: Give the public what

it wants, and they'll show up. Finally, HD Radio is giving the public what it wants, a truly portable HD Radio, and the results are there for all to see.

Now, if we can just come up with more imaginative programming on those HD Multicast channels. But you've heard that spiel from me before...

You've been warned!

I heard this one the other night on "Web Site Wednesday Night," a regular feature of the "Chicago After Dark" show with Steve King and Jonny Putman" on WGN Radio (a program I cannot too highly recommend, by the way; check it out on 720 kHz, or on wgnradio.com). What I heard chilled me enough to want to pass it along.

At long last, Microsoft has *maybe* gotten its act together with regards to security and virus resistance, which is good news, I guess. About time, don't you think? Anyway, the sluts of Satan who make it their life's work to make our computing experience more miserable are now having a harder time themselves forcing their bit-filth on the Windows operating system. The bad news is, they're moving on to what they see as easier targets for them, namely the current generation of smart phones, which are obviously not so smart where resistance to malware is concerned, and programs which we all use but to which we've given little thought about their vulnerability– like Adobe Acrobat and other such offerings from the big A and its ilk.

Hadn't thought about that one, have you? Well, maybe the cell phone infestation isn't such news; we've all heard the word about that for maybe a couple of years now. But, with regard to Adobe, we'd better take note, because apparently Adobe's program construction is riddled with security holes for malware to exploit – this according to the panel of folks I heard on that WGN radio program the night before New Years. And the bad folks who write this malware are licking their lips, because the use of Acrobat and its software brethren is far more widespread than just as a Windows application. This cuts across all three of the major operating system in use today – Windows, Mac *and* Linux.

The latter two OSes have enjoyed, to this point, a major advantage over Windows in that the design and construction of both systems have been aimed at one thing: security. And, to this point, the systems have done their job, and done it well. Malware hits on both OSes have been historically very low in comparison to Windows. But now the problem may be coming in the back door, through applications rather than operating systems, and the

gang from Adobe and, for that matter, other major applications manufacturers, is going to find itself under siege from both the monsters of the malware and from outraged consumers who have become victims of the onslaught.

I'm not suggesting that you dump your Adobe stock quite yet, but it may be that this year, 2010, is going to be a grim one at their company HQ. If you want to hear the sound of real sweating, you could do worse than to move to a place near wherever they are. If you are a software writer with experience in making your code 'bullet-proof', you might want to give them or some of their competitors a call. I'll bet they'd love to hear from you. First one who comes up with a bullet-proof version of Acrobat wins.

Aphex Compellor Digital Exposed!

The conversion of the entire air chain at the stations of CBC-Chicago has been slow and methodical. As part of that, some time back, we removed the analog Compellors from the chain and just fed the StarLink and 6000 STLs naked. No not a good idea. The thing is, we wanted processing within the digital domain. But for the life of us, and we tried several, we couldn't beat the performance of the Compellors. They're just too good.

But, we'd overlooked something. Aphex does make a *digital* Compellor. Great. We ordered one, pricey though it was, and then we checked the Aphex web site to learn more about it. To our surprise, we learned that the Digital Compellor actually operates in the *analog* mode, just like the version that mother has always made. Aphex just inserted some very high quality D-A and A-D conversion on input and output of the box and called it good. How'd we miss that? Even our sales rep at our equipment supplier didn't know!

I called a friend who had one and asked how the Compellor Model 320D worked for him. He said, "Beautifully." It seems that Aphex has had such a good processor in that original Compellor design that they couldn't really duplicate it as a pure digital box. So, they decided that the best way to beat the old analog design was with the old design, attached to a nice new, transparent digital interface. Ours will be on line by the time you read this.

Now, what do we do with the two analog Compellors we have? The same thing that Aphex did. In our case, we've also purchased two new Behringer SRC-2496 A-D/D-A systems and we'll be putting them in line, surrounding the existing Compellors (with their hands up!).

As I've thought about it, I have to rather admire what Aphex has done here. They've sold more Compellors to the broadcast world and who know where else than anyone else has ever done with a competing product. There is a reason. They are the best at what they do and they've been doing it longer. I bought my first Compellor in the early 80s. I mean, why mess around with DSP's and algorithms and tricky-to-write software which might infringe on somebody else's patent and bring their lawyers down on you? If I were in Aphex's shoes, I'd do just what they did. And feel guilty about putting that little bit of analog into an otherwise all-digital chain. All the way to the bank.

Compliments

I've found a gift that anyone would appreciate for Christmas, and it doesn't cost anything, although I suggest that one has to work for it. I'm referring to the gift of a real compliment. We here at CBC-Chicago have received several for which I am grateful.

The first one came from competitor up in Rockford, of all places. During a meeting, the GM of a four-station group up there really complimented us on the quality of our audio signal on Soul 106-3. I couldn't believe it. Here we are, with our transmitter site located several miles away from Rockford, while everyone else is sitting within a couple of miles of the center of town, and we have the best audio. I don't know why but I suspect that the digital systems we have may have something to do with it. Or maybe it's our man James Kelly, who has the best set of ears for critical listening of anyone I know. Whatever the factors are, it's nice for someone who is in the business to notice how well you do your job.

The second compliment came from our friends at Telos, with whom we have a close relationship due to our excessively heavy use of the Zephyr IP for conveying remote broadcast audio via the Internet. We are now considered to be 'power users' of their equipment, and we and they exchange a lot of information about the ZIP. Remote Engineer Warren McFerren in particular has been cited as a real help in the Telos shop for his contributions to improving the ZIP product line.

Wait'll they find out that there's another ZIP remote unit in our budget for this year. Now, if I can just finish my work on the instruction manual!

Finally, my thanks to my guys in the department for their vote of confidence in me and my work. One member in particular told me recently that I'm always working well as the head of the department. I responded that I didn't think so, but that he could be my press agent any time he wanted

the job!

Next month's column is already started. We've just discovered a disaster with the WPWX main directional antenna, and that story will play out long after the deadline for this issue. I promise that there'll be pictures. And I'm revisiting the subject of the use of AES/EBU as the audio feed for the analog transmitter, in light of what we discovered while trying to make the pilot synchronizer circuit work with the two synchronous stations of Soul 106.3. Remember that one? Well, be prepared to be fascinated!

Until next month, blessings to you all!

The Portland Report
By
John White, CBRE
Chief Engineer, CBC–Portland

They say the saga is coming to an end. I am not sure about that but I know that light is not an oncoming train. Almost exactly a year ago, KKPZ began a project to consolidate studio and transmitter operations into a single facility. It was a saga that blazed a trail through the valley of local regulations, a brief glimpse of the goal from the hill not yet there. In December, after a year of effort, we received a certificate of occupancy for a newly remodeled Mt. Scott facility, just weeks to go until the last day at the old studio/office.

This left a four-day window to move out of the old studio/office leasehold near downtown and begin operation for the new year. I have to admit being entirely skeptical about how well that would work. Cris was confident, so I took a step back and looked at what the move would require. I had three distinct components to deal with. The production room, control room and central rack, audio chain and audio server/digital recorder.

Since I knew the punch down code for the production/control pigtails I defined this part of the move as a disassembly, move and reassembly without major change or modification – somewhat easier said than done. The central rack was another story. Any thought of move intact was frankly delusional. That just wasn't going to happen.

About this time, a fourth component emerged: moving the Ku-band satellite dish, EAS antennas, telephone lines, PBX and network. These jobs were farmed out and the telephone company assured us they would start installing the phone lines the day of the move.

Cris authorized additional local help and we began by building a new central rack at Mt. Scott. As Cris has noted, there is never enough rack space, so I chose a new two-wide 7-foot rack. Since the available width space was only 48 inches, I asked Bill Wallace at Crouse-Kimzey to research the vendors. Bill found precisely one vendor product that would fit the space, APW.

T minus 14 days... Helper Jeremy and I began assembling a skeleton wiring harness for the rack and punching down the rack ends of the production and control pigtails. This was all done with no actual equipment in the rack. The equipment would not appear until move day.
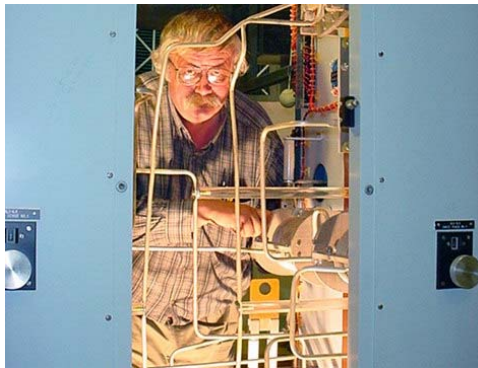
And before we knew it, Monday, December 28, "M-Day," arrived. Cris had arranged for Steve Minshall to make the trip up from San Francisco so the "M Team" met at 9:00 AM Monday morning. Monday went surpassingly smoothly.

The first order of business was moving the production room cabinets and equipment, which were smaller and reasonably portable. At the same time, I began pulling the non-mission-critical equipment from the central rack. EAS receivers, ISDN, Hotline and DRR. Steve's wife, Anne, was a great help throughout the process. Last to come down Monday was the NexGen audio server.

By Tuesday, we were operating on the NexGen audio server in standalone mode, totally pre-recorded with no live local programming. Moving the control room and disassembly of the central rack was on Tuesday's list.

During the planning stages I had a fleeting thought that the DAs would no longer be needed. That thought quickly evaporated once I considered the house monitor, music on hold, listen line, back

feeds, mix minus and post-delay DRR sources that would be required. When the old central rack was built, I had routed the DA inputs and outputs to the punch blocks. Teasing the cabling out intact took some effort, but the payback was a nice pigtail numbered and attached to the DA and ready to install in the new rack. That saved a lot of time in the long run.

Meanwhile, in the control room, Jeremy and Steve were disassembling the studio cabinets. "Plan A" was to lay back the wiring harness, disconnect the left and right extension pods allowing the central assembly to be moved intact. That, as they say, is easy to say. First, there wasn't enough space in the hall to wheel through the door and make the turn, so the console and top counter had to be removed. Mind you, I am looking around the corner watching this as

I continued to disassemble the central rack. This is while taking calls from the telco and satellite guy and all the usual interruptions.
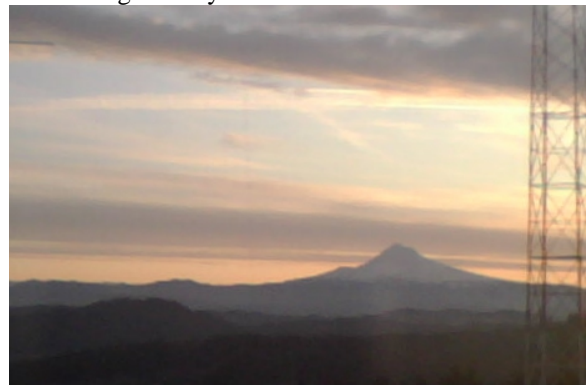
With the console and top off, Steve and

Jeremy almost made it. Almost. Off came the doors. Still almost. At that point it looked like if they wheeled at an angle out of the control room into the copy room, they could then wheel at an angle into the back hall and then make a U-turn to the exit hall. Still almost – almost by ½-inch it looked like. So off came the door frames. That did it, and we were off to Mount Scott with cabinets and equipment in hand.

I had been monitoring the weather with a forecast of possible snow that evening. On the way up, I saw that Happy Valley had put down deicer. Somebody was taking the forecast seriously. We started unloading about 12:30, took a short break for pizza, thoughtfully provided by James our station manager. And it began to snow. While unloading, I took some time to visit my truck, whereupon I learned it was snowing in down town Portland. For up to the minute news, who is the one? RADIO!

Steve was driving a fair-weather rental (Arizona plates), and the rental truck was not much better for snow, so we knocked off for the day. The Telco cable guys were still working, so I (the 4WD guy) had to stay. Portland, of course, never called out the snow equipment so evening traffic was mess.

By Wednesday evening, the control room was in provisional order, and the rest, as they say, is history. I still have a lengthy list of non-critical path items to deal with, but we are out of the old building and starting a new year in Portland.

Wednesday morning James captured the sun rise behind Mt. Hood. A good sign for the future.

Rocky Mountain Ramblings
The Denver Report
by
Amanda Alexander, CBT
Chief Engineer, CBC - Denver

NexGen

It has been a while since we've had any T1 problems. Now our constant issue seems to be NexGen. That's right, NexGen. It seems that periodically the NexGen workstation in one room will lose connection to the server. The problem stays isolated to that one room as well. After looking into all our equipment and cleaning the inside of the computers out and reseating all the cards, I decided to call RCS.

I had been told never to do a Windows update on these computers. However, what I was not told, something RCS never mentioned, was that the .NET framework needs to be updated every so often. We had the 1.1 .NET framework on all our computers. RCS told me to update all the computers to a .NET 2 or newer and this should fix the problem. I was able to get most of the production rooms done, and so far, so good. Only one room has failed since, and I think the problem is much, much bigger than a simple update. When I reboot that particular computer, it gives an error message before booting. I believe it is a hard drive issue. I am in the process of getting our spare workstation set up.

When I pulled the spare out of the box, I found a nice hole in the front of the computer. Boy was I surprised! After taking a quick second to think about it, I noticed it was the hole where the CD-ROM should be. I guess Ed needed it for another room and took it out. I am going to have to order a new one. And the computer hasn't been updated in years, I assume since we first got it three or so years ago. So I am still trying to find time to pull the computer that's failing so I can get everything updated on the spare. This may mean some evening work or maybe just some weekend work, depending on when I get time to finish this up.

Upcoming Move

The month of January, more importantly the year 2010, means we are getting closer to moving our offices and studios here in Denver. I must admit I am a wee bit nervous about this move. I took a dry erase board from a spare office and have put on it a list of all the things I have to get done before we start the moving process. While this is a standard 2 X 3 board (which makes the list fairly small), each thing written has its own branch of things that need to be done. While I know that in due time I will be able to finish off everything on the list, in some ways I feel like it will never get done. January means I'd better get started! March is the build-out and the move is July. That isn't too far off.

Unity 4000

We have for many years had problems with anything from IRN that comes through the Unity 4000 satellite receiver. I'm not sure if Ed ever looked into the problem, if it was put on a back burner or if he was just never told about it. We carry IRN News at the top and bottom of the hour as well as News &Views, which is recorded to DRR for a later broadcast. Almost daily, Matt Wyatt, the KLTT operations manager, has to call IRN up and have them upload the News &Views feed to the FTP site so he can patch together where the dropouts occurred.

I looked at the L-band signal from the satellite – it is great. I looked with the Anritsu Spectrum Master to see if there was any terrestrial interference – there wasn't. I even installed a C-band TI filter borrowed from another engineer here in town and while it seemed to improve things for a few days (at least no dropouts for that long), we are now getting dropouts again. The next step is to change out the receiver with our backup. I'm not sure what that will entail, so until I have plenty of time to devote to it, we are just going to have to live with the dropouts we have.

In Other News

Since there isn't much to tell about the month of December, I thought I'd take a moment to let you all know about a situation that happened over

the New Year's holiday. This story made national news, so many of you may have heard about it without knowing the connection to CBC-Denver.

Mike Kilgore is the general contractor that helped us with the new building at KLVZ this past summer. He took charge and did great work for us. Over the holiday, his aunt, Julie Ann Kilgore, was kidnapped from her home. She was watching Mike's 7-year-old daughter when her ex-fiancé showed up. Leaving the little girl at the house, he took Julie and never returned.

Mike went by the house to pick up his daughter and found Julie gone and his daughter there alone. After his daughter told him the details of what she overheard, the police were called. The search continued for three more days. They were spotted in the Denver metro area Wednesday, and that was the last time anyone heard or saw anything. Finally, on New Year's Day, Julie was able to escape the hotel in Laramie, Wyoming where her captor, Dennis Cox, had been holding her. She hid under a desk in the hotel office until police arrived. Dennis fled once she escaped, and later that day he was shot and killed by police in Fort Collins, Colorado. Julie is now home

safe with her family. While physically uninjured, she will no doubt have years of recovery ahead of her.

Until now, I have never quite gotten it when the friends or relatives of a suspect – murderer, rapist, kidnapper, etc, would say, "So and so would never hurt her. He was a good person." I now understand this statement. Dennis actually worked with Mike and helped us out with the project at KLVZ this last summer. He is in some of the pictures that were taken. I even worked alone with him once when he came out to help me bury some copper strap the horses got into and tore up. He really was a great guy. We had fun working with him. I know the family, including Julie, did not know of his criminal past. It was a sad outcome, but thankfully Julie is home safe with her family. Please keep Julie, her great niece (who is also having difficulties coping with this), as well as the rest of the family in your prayers through the upcoming months. Mike Kilgore and Kilgore Construction will be the GC on the tenant finish at our new studio/office space.

Well, that about wraps it up. Until next time… That's all folks!

Digital Diary
by
Larry Foltran
Corporate Website & Information Technology Coordinator

Time to Get Organized

First, I'd like to wish everyone a very happy 2010 (is it two-thousand ten or twenty-ten?). It's amazing how a decade flies by and equally mind-blowing all that has changed in each one of our lives in the span of only ten years. 2010 sounds so futuristic, yet this week is very much like last week. I suppose it comes down to attitude and whether you're willing to look forward to what the next decade will bring. Regardless, I pray that all of you, your families, Crawford Broadcasting Company, and our fine country will be richly blessed in 2010 and beyond.

It seems as if each time we transition from one year to the next, we promise ourselves to make changes in those areas of our lives that could use improvement. Call it a resolution or whatever else

you wish, the beginning of the year always seems the perfect time to turn things around. I find myself working to get more organized in terms of clutter. Let me clarify this though. I'm confident in my skills at de-cluttering when it comes to the cyber world. My files are organized properly within each computer and server, and my emails are typically sorted to help me find anything I need quickly. My problem is with items outside the computer namely my desk and file cabinets.

The first area of focus for this year will be organizing all of my computer software. Whether you become the latest victim of a hard drive crash or one of your frequently used applications becomes corrupt in some way, you'll need to find the installation disks. If you are anything like me, you have a box stacked tall with retail software boxes and

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another desk drawer full of jewel cases, scattered without any sort of order at all. What about the OEM re-installation disks you get from the manufacturer when you purchase a new computer? Do you have any clue where those are and, most importantly, what computer each disk is associated with? That's a problem I've been slowly working to eliminate at the local station as well. We have dozens of OEM recovery disks thrown into a drawer and no one has a clue what computer it goes to. The issue isn't when re-installing the OS. That license certificate is typically located on the machine, so that's no problem. The problem is re-installing some of the productivity software. Finding the correct disk and license code can be nearly impossible.

We will first need a plan, and that will be to organize the OEM recovery software by computer and throw it into its own properly labeled zipper bag. Then organize the specific software that's installed on that machine and throw those into the zipper bag. When all is said and done, each computer will have a dedicated zipper bag that will contain all of the OEM disks and any specific application disk that is installed on that machine. If the machine crashes, simply throw in a new drive, pull the correct zipper bag, and start installing!

Of course, there is the issue of downloaded software. Whether it's free or purchased, it can be tough to track these down. For these applications, I have developed a spreadsheet that shows the name of the application, the license information for re-install and the web site I purchased it from. Rather than digging through old receipt emails in search of your license info, it's all in one handy spreadsheet. Just don't lose the spreadsheet.

As for the application installation files, I have saved them on both the general file server and on a dedicated 6GB flash drive that is stored away safely. If for some crazy reason the server crashes and your dog ate your flash drive, you can simply refer to the spreadsheet and find where you downloaded the software in the first place.

I also tend to have trouble collecting extra computer parts. The kind that you're sure you may use again some day and you simply throw them into a large box or plastic bin. Yes, it's time to go through that nightmare as well. Aside from throwing out any computer parts manufactured prior to 2003 (I'm being quite generous there), the plan will be to separate the monitor cables, power cables, and USB cables into specific containers. They will all reside on the same physical shelf, but the contents of each will be focused rather than labeled as General Computer Parts.

Finally, all cables should be labeled on both ends. Although I've done this in the past, labels tend to disappear as time goes on, especially those that are plugged and unplugged on a regular basis. Each label should include what component and which computer it is associated with. In the station environment, computers can be identified by their static IP addresses, also labeled on the front and rear of each case. But your home network may not have dedicated IP addresses assigned to each computer. In this case, you can simply give each machine a name and label it accordingly.

Getting your computer gear in order can definitely become overwhelming without a good plan. Hopefully I've given you some ideas to get that plan moving in the right direction. Of course, the key will be to stick with it throughout the year. If not, we'll need to have the same chat come this time in 2011.

…until next month!

KBRT • **Avalon - Los Angeles, CA**
740 kHz, 10 kW-D, DA
KCBC • **Riverbank - San Francisco, CA**
770 kHz, 50 kW-D/1 kW-N, DA-1
KJSL • **St. Louis, MO**
630 kHz, 5 kW-U, DA-2
KKPZ • **Portland, OR**
1330 kHz, 5 kW-U, DA-1
KLZ • **Denver, CO**
560 kHz, 5 kW-U, DA-1
KLDC • **Brighton - Denver, CO**
1220 kHz, 660 W-D/11 W-N, ND
KLTT • **Commerce City - Denver, CO**
670 kHz, 50 kW-D/1.4 kW-N, DA-2
KLVZ • **Denver, CO**
810 kHz, 2.2 kW-D/430 W-N, DA-2
KSTL • **St. Louis, MO**
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WDCX • **Rochester, NY**
990 kHz, 5 kW-D/2.5 kW-N, DA-2
WDCX • **Buffalo, NY**
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WDJC-FM • **Birmingham, AL**
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WEXL • **Royal Oak - Detroit, MI**
1340 kHz, 1 kW-U, DA-D
WLGZ-FM • **Webster - Rochester, NY**
102.7 MHz, 6 kW/100m AAT
WRDT • **Monroe - Detroit, MI**
560 kHz, 500 W-D/14 W-N, DA-D
WMUZ • **Detroit, MI**
103.5 MHz, 50 kW/150m AAT
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, 6 kW/65m AAT
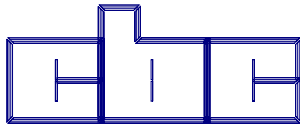**WYCA** • **Crete - Chicago, IL**
102.3 MHz, 1.05 kW/150m AAT
WYDE • **Birmingham, AL**
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WYDE-FM • **Cullman - Birmingham, AL**
101.1 MHz, 100 kW/410m AAT
WXJC • **Birmingham, AL**
850 kHz, 50 kW-D/1 kW-N, DA-2
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