The Local Oscillator

The Newsletter of Crawford Broadcasting Company Corporate Engineering

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Better Than Ever

It's hard to believe that another year is in the books already. All those budget numbers, projects and plans for 2011, which seemed to be so far out there when the plans were being laid, now stand out in stark relief on the paper as schedules begin to be set and orders placed. I keep thinking that I sure could use some more time to prepare, but time is a non-renewable resource. We're only given so many ticks of the clock, so many heartbeats to get our life's work done.

As we begin the New Year, I am more optimistic that I have been in several years. Maybe part of that is the new Congress and the hope that some of the mistakes of the previous term will be corrected, but I really think that it has more to do with what I call the "new reality." The glory days of the roaring economy are gone and somehow we have come to terms with that. We seem to have settled into a quiet acceptance of the way things are rather than struggling to regain what was, and that has allowed us to get back to work, back to the business of radio.

We have made internal adjustments over the past couple of years. Our company is smaller than it was, but it is more efficient. We are all working harder, doing more, but by God's grace we are still here. We still have jobs and paychecks. We continue to serve God and country, providing quality and relevant programming to our local communities, and we are doing it better than ever before.

If you haven't quite gotten your thinking adjusted to the new reality, let me suggest that you make a conscious effort to do so. Dwelling on the past and what we've lost is nothing more than a distraction; it will produce nothing constructive. Take the admonition of the Apostle Paul to heart: "But one thing I do: Forgetting what is behind and straining toward what is ahead. I press on toward the goal to win the prize for which God has called me heavenward in Christ Jesus" (Philippians 3:13-14). That's the ticket. And if we do that, we can move on to the next level, a place where we're better than ever. I'm excited about 2011. Are you?

Another MoM App

Last month I mentioned that one of my goals for the New Year is to get as many of our directional arrays as I can licensed under the moment-method modeling rules. The reasons for this are myriad, but getting rid of troublesome monitor points certainly tops the list. Even as 2010 was wrapping up I moved one step closer to this goal, modeling and filing a 302-AM for the 810 kHz 4-tower KLVZ-night facility in Denver.

This particular model and application were unique because the KLVZ-N array shares the same piece of dirt as the two-tower KLZ directional array. In fact, it was accurately described in one trade publication as an "array within an array." Indeed the four KLVZ-N towers are all situated between the two KLZ towers. Each of the towers has a pass-reject filter, and each of the KLZ towers has an additional 810 kHz pass/560 kHz reject filter followed by an 810 kHz detuning network. The KLVZ-N towers are so short on 560 kHz that I didn't bother with detuning; we simply float those towers on 560.

The 810 kHz pass/560 kHz reject filters in the KLVZ-N ATUs are between the feed tubing to the towers and the ATU output (where the sample transformer is located). As such, in addition to the antenna model I had to create a circuit model that included the filter components, static drain choke, series feed inductance and base insulator capacitance. Nodal analysis using this circuit model showed what we could expect in terms of amplitude and phase shift of the current through these circuit elements. The shift was not great, but it is important.

This particular model was also interesting in that we had to treat the two KLZ towers as "detuned" in the calibration and antenna models. Normally one

would either float or short the other towers, but because of the height of the KLZ towers on 810 kHz (132 degrees), that put them out there in a "no man's land," electrically speaking. As I wrestled with how to treat these towers I asked Ben Dawson, who taught me much of what I know about AM array modeling, what he would do in such a case. He said he would detune the towers. That made the most sense to me and it was certainly the easiest thing to do in the field as we were making measurements.

As usual, the reference field strength measurements and the paperwork took most of the time. The application document ended up being close to 60 pages.

That leaves only one array in Denver that is not moment-model licensed, and that one is next on my agenda – the 50 kW 670 kHz four-tower KLTT array. All we need is a little good weather, something that is usually in good supply in La Niña years. After that, you're next – you know who you are, you with all the towers and monitor points!

CAP/EAS Units

We have ordered the new Sage Endec CAP/EAS units and they may well ship this month. I will keep an eye on this and notify our chief engineers by email as soon as I have word. In the meantime, begin making preparations to install the new units.

One thing the new units will need that the old ones did not is an Internet connection. Since most of our control rooms likely already have a LAN connection with an Internet gateway somewhere upstream, the easiest thing to do may be to purchase and install a small (5-port) switch right in the control room.

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

Hello to all from Western New York! It is hard to comprehend that another year has gone by! It seems that the older I get, the faster time seems to go.

2010 was a good year, engineering wise, for CBC's Western New York stations. We were able to avoid any major catastrophes, and several projects were completed that had been delayed for some time. For the past two years, we have been trying to get the WDCX(AM) towers painted but were unable to do so because of poor weather conditions. In the early summer of this past year, Western Antenna & Tower was finally able to get this long awaited project completed.

The only other work at this site that still needs to be done is the replacement of the doghouse roofs and fascia / soffits around the roofs. Unfortunally, this work was not included in the 2010 budget, so it will have to be completed in the spring of 2011. At the WDCX-FM transmitter site, we had a failure of one of the antenna bays. One of the arms of the ERI roto-tiller style antenna had broken at one of the mitered seams, and rested on the supply arm of the antenna, causing arcing between the two elements. We had to replace the entire arm, but were very fortunate that no moisture had entered the antenna. As a precautionary measure, we purged the antenna several times with nitrogen to ensure that no moisture had gotten in and made its way throughout the antenna.

One other project that I was able to get done this past year was the re-galvanizing of the tower anchor points. The turnbuckles, cleats, mounting plates and guys were cleaned with a wire brush to remove any oxidation and sprayed with a commercial grade of galvanizing spray. A thorough inspection was also done of the grounding system and enclosures to ensure that all were in good condition.

The transmitter building is only two years old and is, for the most part, maintenance free. However, the steel trim that was installed where the exterior wall meets the roof edge was rusting pretty badly. I was able to get most of the rust removed with a wire brush and painted the entire drip edge with several coats of Rustoleam aluminum paint.

Aside from the normal computer problems, which I'm sure everybody has, our studio facilities did not experience any major breakdowns throughout the year.

In years past, I had gotten into the habit of making New Year's resolutions for one reason or another. In almost every case, I seemed to start with a full head of steam and the best of intentions, but soon fizzled out and returned to my old ways. This year, I vowed to not declare any resolutions of any kind. That way I cannot be disappointed with myself for falling short of my goals. It's not that I don't want to improve myself, I just finally realized that after all the years I have spent on this earth, if I haven't changed it by now, I am never going to!

There were two areas in my work-life that I had a hard time adjusting to, and it took a long time to get my mind set in the right direction. One was asking for help. I have worked alone for so many years that it seemed almost impossible for me to ask another engineer for help. In my mind, it seemed like I was admitting that I couldn't do my job to the fullest. It made me feel inadequate to admit that I couldn't fix a particular problem or figure out why a piece of equipment was acting weird. After a long period of frustration, I began to inquire on the minds of other engineers and found that they, at times, have had to ask for help from fellow engineers, too. I finally realized that asking for assistance from someone who is knowledgeable in that particular field is in fact a learning experience, and we all want to learn and experience as much as we can.

The second and most important work facet I had to continuously work on was patience. When faced with multiple problems or several projects to do, I used to get pretty uptight and continuously worry about getting everything done at once. I have always been very good at prioritizing my "to do" work lists, but I had a tremendous problem with events beyond my control, such as working on a project and having to stop because of multiple emergencies. I would begin to feel overwhelmed, and the stress factor would go out the roof. It took many years to learn that everything would get done, and by stepping back to see the big picture and taking each event one step at a time, each situation would be addressed and rectified in time. It has been only in the past year or so that I have gradually embraced patience. And believe me, I feel much more confidence in performing my job and interacting with other engineers in the industry.

WDCX-FM Buffalo; WDCX(AM)/WLGZ-FM Rochester

Years ago when I started at CBC, Ed Dulaney hated Burk remote controls and didn't hesitate to tell everyone so. I am quite confident that Ed still feels the same way, even after all these years. Anytime there was a remote problem, Ed would proclaim that he had been "Burked again" and that "Burk IS a four letter word." I could never understand why Ed had such a problem with the Burk ARC-16. I have used them for years and found them to be quite reliable. Until now.

For some reason, the WDCX-FM Burk remote control keeps calling me with an upper/lower alarm for the HD transmitter's forward power. I would call in and clear the alarm, check the reading only to find that all is normal. This would happen perhaps four to six times per day (but mostly at night, interrupting a good night's sleep). After several nights of broken sleep, I began to look into the problem. The sample voltage provided by the BE FMi-106 transmitter was stable going into the Burk relay panel and all connections were tight between the transmitter and remote control. Several more days went by with the alarms continuing, so I pulled the I/O card out and replaced all of the chips on the card from my spare parts kit. So far, a couple of days have gone by with no alarms. I am hoping the change out of the chipset did the trick.

At WDCX-FM in Buffalo, we were slated to replace the aging STL tower on the rooftop of our studio building this fall. The order was placed for a new aluminum Glen Martin roof top 27-foot tower along with a non-penetrating roof mount kit. The tower and accessories were back-ordered from the factory and did not show up here until the last days of November. The weather quickly turned bad, eliminating the opportunity to quickly install the tower. I have assembled the two top sections and one-half of the lower section in my office, and am waiting for a break in the weather to get the tower up on the roof. I estimate that it will take me a couple of days to complete the installation, provided we have a good break in the weather, but after all, this is Buffalo, and I have learned to have patience.

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 and have a very Happy New Year!

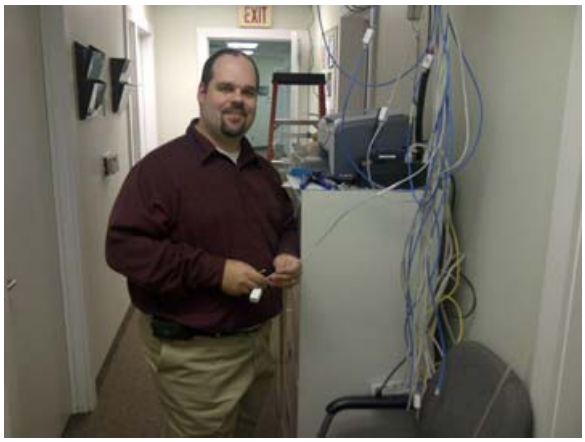
The Motown Update
By
Joseph M. Huk, Jr.,
P.E., CPBE, CBNT
Chief Engineer, CBC–Detroit

This month we have made some major improvements to our stations Internet infrastructure. So far the improvements to our office LAN have been very good. However, the portion of our LAN that uses the AT&T infrastructure is still in need of improvements. In addition, Santa was very good to me. She delivered me a new Radio Shack All-Hazards Weather Alert Clock Radio with Skywarn.

LAN/Internet Reconfiguration

As I mentioned in *The Local Oscillator* a few months ago, Larry Foltran and I were making improvements to our Internet and internal intranet infrastructure. The plan was to remove the existing Internet connection from the office portion of our LAN and replace it with a new high-speed Comcast Internet service. The existing AT&T service was retained for exclusive use by the audio delivery part of our plant (i.e. Nexgen, streaming and control). Larry made a very good point that having Internet service from two separate vendors arriving at the facility from two separate infrastructures, allows us good backup capability when one of the two services goes down.

In preparation for the upgrade in service, we had been implementing new switches, upgrading our router, and moving the IT equipment to our telephone room where we have a good power conditioning power back up system (APC UPS).



So far we have seen a major improvement to our office LAN. Depending on the time of day, you can obtain upload speeds and download speeds as high as 8 MBPS. On average, we see upload and download speeds between 3-5 MBPS. This is compared to the AT&T DSL connection which yields approximate speeds between 2-3 MBPS download and 400KBPS- 1 MBPS upload. At times, we are not obtaining even the throughput mentioned above. It seems that the service from AT&T is very inconsistent. Sometimes the speeds are less than 500 KBPS. With the constant streaming load on the upload portion of this connection plus the inconsistent speed of the AT&T service, making ancillary FTP uploads of audio files to our corporate servers across the Internet is a very frustrating task for our operations and production departments.

What we have learned from past experience is that AT&T's infrastructure is predominately copper from our facility to the central office. The neighborhood is old and there are many abandoned homes. AT&T is therefore very resistant in improving the infrastructure with a low chance in recouping the investment. Therefore, most likely, we may have a copper pair that is weathered and possibly electrically degraded. Going forward, we are going to try to work with them to increase the existing speed and ensure its stability or consistency.

Larry and I have discussed the possibility of swapping the Internet connections between the office

and audio delivery LAN. The only added effort would be to reconfigure our streaming servers so that they handshake with our streaming provider, Liquid Compass. As with any project, we are going to look at all the contingencies to ensure we don't have any unplanned network outages during the switch. Hopefully in the months ahead we can report some good news on our adventures with AT&T.

Radio Shack All-Hazards Weather Alert Clock Radio with Skywarn

Ham radio operators not only love to learn, design, build, and operate their communications equipment but use their talents to give back to the community to provide needed emergency communications during storms and other dangerous situations. As broadcasters, we have the Emergency Alert System (EAS) to inform the public, though a network of EAS equipment. The National Weather Service (NWS), FEMA, and broadcasters encode and pass decoded messages to ensure that the public is informed of an emergency.

While the broadcaster typically interrupts programming and provides a warning, I always wondered if radios would be designed to not only warn the public verbally but give the same data warning we see on our EAS decoders. Someone might call this radio the poor man's EAS decoder system. It has a broadcast band AM, FM, and narrow band VHF/UHF tuner. These tuners are always active and monitoring channels that have been programmed to ensure the user that they receive weather warnings and watches from many sources. The hope is that the information will make it in from one of these many sources.

Like a commercial EAS decoder, the alarms on the Radio Shack All-Hazards Radio can be programmed to go off when there are emergencies in many regions or be selective to only include a few

communities. It uses the FIPS codes and emergency type descriptors to filter only the traffic the alarms will pass.

What I think is most impressive is that it will also go automatically to a set of Amateur Radio frequencies. These frequencies have Skywarn repeaters on them and let the listener hear the trained spotters give the weather information first hand as the authorities compile their information. The trained Amateur Radio operators are the eyes and ears for the authorities and our communities. My wife, who is my Santa, blessed me with this great radio on Christmas. What a wonderful treat!

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

News From The South
By
Stephen Poole, CBRE, CBNT, AMD
Chief Engineer, CBC–Alabama

Greetings and a warm "God Bless" to everyone! It's a new year and I trust that everyone had a great Christmas. (Not "holiday," *Christmas*.) As we start this brand new 2011, let's remember that everything that we do should be as "unto the Lord." I consider my job a ministry and I'm very, very grateful for it.

Global Warming?

We start with an editorial comment. If you've been watching the news, you know that recently experienced some of the coldest and most unusual weather ever. Records have been broken all over the place. Columbia, SC, where my sister lives, had its first white Christmas in recorded history. We even had a somewhat-white Christmas in Alabama. While we didn't have much accumulation

and what snow we did get soon melted, the fact that it snowed at all on December 25th was another one for the record books.

A Pseudo-White Christmas In Alabama!

I've mentioned before that I enjoy browsing the geek websites and forums. Not surprisingly, there are many Global Warming adherents in these fora, and it has been fun watching them try to cover this latest blast of unprecedentedly-cold winter. (It snowed in Phoenix, AZ, for crying out loud!) Some argue that the trend is still for slowly-increasing temperatures over the past few decades. Others try to insist that, while North America and Europe have admittedly suffered unusually-cold weather, other parts of the word are warmer than usual. Yet still others are claiming that the oil spill in the Gulf has disrupted the Gulf Stream, causing a change in climate. And so on, ad infinitum, *ad nauseum*.

Folks, I will now make a prediction. The scientists are eventually going to return to pure science. They're going to rebel against the strong peer pressure and funding that have forced them to support man-made global warming, because the *totality* of the evidence simply isn't there.

Are we harming our environment and do we need to move away from fossil fuels? Absolutely, in many ways and for several reasons, respectively. But friends, look at the biggest proponents of drastic measures against man-made climate change. Not all of them are socialists by any stretch of the imagination, but many of the most vocal proponents of immediate, drastic action are. This latter group has been sort of muddling around since the collapse of communism, and has been dreaming of some way to implement their agenda. Therefore, from their point of view...

1. We need to reduce carbon emissions. Drastically. Now. It's an emergency. Oh, no!

2. We can't do that without destroying an already-struggling economy, though, so…

3. Obviously, we need to give the government greater economic control.

See how neat that is? It's actually a very common approach. (It was used in the late summer and fall of 2008 with the banking meltdown.) But lately, those who've been working the global warming angle have become almost frantic because the science is starting to collapse around them. It would be comical if it weren't so serious.

Incidentally, speaking from experience, I will receive emails about this. Someone, somewhere, will hit this issue of *The Local Oscillator* in a web search, if nothing else, and will send a passionate missive about how I'm a misinformed dunderhead. This is one of their most endearing characteristics: the sniffing sense of superiority, the barely restrained guffaws as they put an unwashed bumpkin like me into my place. After all, even *NASA* believes in man-made climate change!

But to save them the bother, first and as a practical matter, the American people simply aren't going to agree to more government control over the economy. The trend lately has been toward less government, not more. If you are a socialist who has been hoping that global warming would be the "good crisis that should never go to waste," as it were, it's a moot point and a lost cause, anyway.

Those of you who aren't socialists but who've been having real doubts had better move back toward real science lest you are accused of "crying wolf" (or worse), quit while you still have a reputation.

Second, even if we were to scale back to a horse-and-buggy, 19th-century lifestyle, it would have surprisingly little effect on *total* greenhouse gas emissions. Most such gases are emitted naturally, by things over which we have absolutely no control. That's a proven fact and one which the "emergency action now" proponents conveniently gloss over.

Third, some scientists are finally saying, "Whoa, wait a minute." A growing body, for example, is now asserting that climate change could be dependent on periodic solar cycles (one article that I recently read insisted that we were heading into another Little Ice Age). The sun is God's Own Nuclear Weapon, a (barely) controlled thermonuclear explosion that depends on the complex interaction of dozens of different forces; there will naturally be variations.

Again: this doesn't mean that we don't need to move away from fossil fuels; I'm all for that. We can certainly make our energy cleaner and more

efficient. (But don't get me started on the ethanol boondoggle.) All I'm saying is, we shouldn't allow Cassandras and alarmists – and those with a completely socialistic agenda – to destroy the economy to do it. A thoughtful, gradual and *free-market based* plan to eliminate our dependence on hydrocarbons is the answer.

Y2K -- Eleven Years Later

Now for some reminiscing. I haven't said a lot about this over the years, because, to be honest, once the Y2K debacle was over, I was glad to put it behind me. But with this New Year, I found myself musing about the Y2K Doom Circus and the small part that I played in debunking the gloom associated with it. By mid-1999, I was fairly well-known in the Y2K community as a debunker, with a website devoted to shattering the myth that the world would (or even *could*) end because of a stupid computer bug.

I had any number of arguments, but the one most often repeated was simple. The Doomlits and Gloomlits would point to a computer system and say, "If this thing should fail, bad things would happen!" I would ask, "Okay, so what happens when it fails *now?* Or do you assume that computers only fail due to Y2K bugs?"

I primarily focused on so-called "embedded systems" (the catch-all term used by the Doom and Gloom crowd to refer to industrial controllers in general). If the banks had suffered problems due to Y2K bugs, the effects would have been mostly economic. But if industrial controllers had failed on a widespread basis, as some Y2K Doom Gurus were predicting, that's when the lights would have gone out, the water would have stopped flowing and industrial accidents would have scattered toxic chemicals across the countryside.

But I often asked a simple question: "Why can't we just set the clocks back on really critical controllers, if we're that worried about it?" Those of you who were with our company on Jan 1st, 2000 may recall that Cris ordered us to do just that with our Dalet automation systems. We weren't the only ones to do it, either. The fact that Y2K Doomers completely (and willingly?) ignored this *obvious* workaround was quite telling to me.

Many people were convinced by my arguments. I received a number of gratifying and humbling emails from people, thanking me for calming them down. But there were others who simply would not be persuaded. In spite of the fact that one trigger date after another passed without incident (for example, the Federal Government actually changed to FY 2000 in October with no problems), they continued to Believe.

We had our own Cassandra at our stations. This guy devoted at least one segment in each of his daily talk shows to Preparing for Y2K (capitalized out of reverence). I complained at the time that he was only interviewing people who supported the "doom" point of view. Afterwards, he would occasionally (and very grudgingly) bring in someone who argued that Y2K would be a non-event, but for the most part, his show was as alarmist as could be. We even had a couple of advertisers cancel in protest, but the guy was undeterred. From his point of view, he was performing a Public Service.

This fellow took vacation time over the 1st, no doubt huddled in his bunker with his red winter wheat and water filters while I finished up the year on my website with a cartoon that summed up what I had long since concluded: the transition from Dec 31st to Jan 1st, 2000 would be a complete non-event. I didn't even expect scattered power outages. In response, I received (as I had been receiving, all along) flaming emails that accused me of wanting people to die, of personally being responsible for thousands of deaths… you name it.

And of course, Y2K was indeed a complete non-event. My favorite memory from that time is Sam Donaldson in the government's official Y2K "bunker," telling Peter Jennings, "We're growing cobwebs here!" The glum and bored expressions on the faces of the government workers behind him were equally priceless. "We could have been at home watching the bowl game."

I initially became interested in debunking Y2K gloom because, as a Believer, I was astonished and dismayed at the number of Christian leaders who had bitten into it, hook, line and sinker. Some of them were people who, before Y2K had ever come along, I deeply respected (such as Michael Hyatt). I knew that they were, with the best of intentions, setting us up for another fall. There was a very real danger that the Christian community would once again become a laughingstock. So, I charged in with both feet dancing.

In return, I was called every name in the book. One fellow believer here in Birmingham invited me to lunch just so that he could roast my ears and brain with one "factoid" after another. He was amazing: I had heard the old saw about people who could talk without breathing, but I didn't believe it until I met this guy. I finally managed to interrupt him, made my excuses and left, but I was truly depressed, then. I had seen the Belief System that was Y2K Gloom, and I realized that there was no

way I could penetrate it. The True Believers™ would simply have to wait for January 1st, 2000, to see how wrong they were.

But they couldn't say I didn't try to warn them. Folks, be careful what you believe and the conclusions that you reach. Test it against Scripture... and then test it against common sense. Be willing to prayerfully consider other points of view, even if they come from sources that you might personally dislike.

NexGen

Finally, some current news! As I mentioned last time, we have been working on transferring our NexGen file servers over to new hardware. This has been a whole lot more involved than we ever expected, primarily because NexGen simply isn't set up to handle people who know how to do things like this.

I've been on vacation the past couple of weeks and Todd has been swamped with the usual engineering issues (including non-stop trouble with our streams, since we switched to Ando, but I will *not* get into that one here!). We hit the first snag just installing Windows Server 2008 R2 on the machines; Microsoft now expects you to download the ISO from their Website, burn it to DVD yourself, and then install from that. Once we did that, we ran into two problems. Without going into the gory details, I can summarize. In a nutshell:

1. NexGen has an install CD that supposedly automates a lot of what is needed when building a new file server, but that CD is not available to anyone but their own field technicians. We've had to do it by hand. We've looked at the existing file servers in Chicago and St. Louis to see how they were laid out, because remember, our old servers here in Birmingham used Novell.

2. There are several passwords that are needed to make the software work, and several steps that aren't covered in the instructions that I received from NexGen. We've had to muddle along, beg for passwords and use trial-and-error, to finally get the new file servers working.

But the good news is, just before I left on holiday, Todd and I did in fact get the file servers up and running. We have a spare ASERV connected to them, both primary and secondary databases, and everything appears to be working just fine. We have been able to transfer files from the existing NexGen system over to the new fileservers and they appear on both the primary and secondary. Good news!

Those of you who've been waiting for us to finish the final "how to" for your own file server moves need only be patient for a bit longer. Our goal is to be done by the end of the first week in January, at which point we'll send out the (very detailed!) step-by-step instructions for this. Be warned: you will need a foil-lined propeller beanie to do it right.

Finally, it's Alabama, After All...

Here's a nice image that helps sum up the Alabama Attitude. This was taken at a fireworks shop (a single wide trailer off the side of the road, actually) near our house. Until next time!

Only in Alabama!

Valley Notes

By
Steve Minshall
Chief Engineer, KCBC

The end of the year brings a close to a few small projects at KCBC. The most notable project was the installation of a new NexGen machine. The computer provides increased redundancy and more features to our system. The other end of the year projects were replacing a toilet that has been slowly cracking in two and repair of wind damage to a tower fence.

On the personal side of things, the last month has been a whirlwind of activity. My wife, Ann, had a routine annual mammogram which revealed breast cancer. Thus began a very busy December.

What followed was a fast-track of appointments with various specialists. Due to the types of cancer detected with a needle biopsy a mastectomy was required. The surgery was performed almost immediately.

I always imagined this sort of thing as being devastating. However, once we were immersed in the problem it looked much different. It really came down to the same sort of decision making process that we are engaged all the time: a problem was discovered and defined, then the appropriate plan was put in place to correct the problem.

She did exceptionally well in the hospital. In fact she actually enjoyed her time there. One of the nurses even commented that she had never seen a patient have such a good time in the hospital! Most of the reason she had a good time was all the visitors that came. She ended up in the best room on the floor and at one time we had about 40 people in the room which included a choir of Christmas carolers that had been singing in the halls. I asked them if they would come in her room and sing to her.

The final pathology report indicates that all of the cancer was removed. Thanks to early detection, the cancer was still in early stage one. She will not need any radiation or chemotherapy. Reconstructive surgery will be done later this year.

In one month's time, she has gone from having cancer detected to being cancer free. She had literally thousands of people praying of her and that, no doubt, had a lot to do with how smoothly this went.

That's it from the California Central Valley. Have a blessed 2011!

Catalina Tales

By
Bill Agresta
Chief Engineer, KBRT

Greetings from Santa Catalina Island! We have gotten and continue to receive more rain here than I have ever seen in Southern California in such a short time! Thank God I decided to clear out the retaining wall behind our building because our back hill unleashed a river of mud like we have never faced before. The retaining wall diverted the river of mud around our building and into our driveway, but it began to get so deep than it threatened to enter through our front doors! The mud in our driveway was so deep that neither 4x4 truck nor tractor could get through.

This created a lot of issues as I needed to move the mud away from the facility but could not get through it to do so. Even those who came to help got their vehicles stuck until we finally had to rig a cable and pulley system to a winch then take a window out of our building to anchor it to. There was literally nothing that we could use for an anchor. Anything we tied to would either get pulled into the mud or pulled from the ground because it was so saturated.

We did finally manage to get all vehicles out of the mud, at least to mud that was not as deep. Then came the 911 as the mud began to flow up onto our front concrete and all I could do was jump in and shovel manually, the old fashioned way. Somewhere along the line with the shovel getting stuck in the suction of the mud, I just let it go and went all out literally swimming in mud to push it away by hand. I finally managed to get enough pushed over our front hill that I created a flow and like a river it began to wash down to the lower field. I only wish there was someone who was not too covered in mud to operate a camera because the pictures would have been just too funny.

As the storms hit so did the usual T1 and phone issues. We lost our T1 right when we could have really used it for STL as the very strong winds, rain and cloud cover worked against our Ku-band satellite audio feed and it began to glitch a bit. I was actually surprised at how well it hung in there, however, considering the magnitude of the storm. A little pop here and there maybe once every ten to fifteen minutes was about as bad as it got, so we remained on-air and listenable throughout the storm and most no one would ever have any idea of all that was going on here at the transmitter plant.

Cold weather has been another issue here, though what we call cold is laughable to most of you. Our issue here is that our building is made from concrete block that radiates the cold right into the building. I do keep a radiator heater on in my bedroom, but it does not make sense to try to heat this entire place like that, so I just bundle up. For the island, when the sun is not shining and the temperatures fall below 70-degrees Fahrenheit, things are not good and it's time to hibernate for most of the islanders. The nice thing for me is, I can walk right into the store, grab what I want (provided the barge ran and brought food), then check out without seeing a single person but the checker. As with each winter, downtown turns into a ghost town and by 7:00 PM you can walk down Front Street the entire length of town and not see one soul. It can be a bit eerie at times and is enough to drive most people bonkers but me. Well, I have already been there.

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.

The Chicago Chronicles

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

Project Scheherazade

Now just what was the relevance of last month's question: "Under what administration was the EPA created?" As anyone who's been around Broadcast Engineering should know, it *is* germane, because environmental stewardship *is* part of the job. From dealing with lead paint on towers and the issue of PCBs in the large components of an older transmitter, to the proper disposal of old CRTs, we engineers find ourselves thrust into the ranks of the environmental army, like it or not.

I'm all for protecting the environment. Growing up in Pontiac, Michigan in the fifties and sixties, within two blocks of the Pontiac General Motors assembly plant and its smoke-belching foundry will do that to anyone. However, I am opposed to the government forcing it down our throats, and more importantly, *how* they're going about it. Environmental stewardship should start as a matter of education about doing it in one's own enlightened self-interest. But of course, anytime one says this, the accusation is that one is "digressing" or "dreaming." So?

Oh: The answer to the question is, the EPA came into existence during the Nixon administration. Enough said.

Next month's question is: "In standard 110-ohm digital audio cable, the red and black wire colors (for + and -, or "phase" and "anti-phase," respectively) have been replaced by the colors blue and white. Which wire color is used for which polarity and which XLR pin? (Shield still goes to pin one, of course).

Clashing Realities

What do God and computers have in common? My answer: Change. God changes our physical universe, and so much else, constantly. The earth, His Church, *we* as humans have been changing since time immemorial. Computers are changing constantly as well. A generation in computer terms is about 18 months, maximum. That desktop or laptop you're using becomes obsolete in that short amount of time. I would suggest that this also points up a problem in the any professional equipment which is designed around the use of a personal computer, no matter which operating system is used. I remember vividly how one (nameless for this narrative) manufacturer of equipment built much of its product line around hardware which was ubiquitous at the time. What happened? The entire concept of its design become obsolete in a matter of a very few years. Trying to find replacement parts became a major chore. We finally gave up on that company. Whether the obsolescence was planned or not, we found that finding matching parts such as hard drives with original manufacturer spec was impossible, and from the OEM, very expensive.

We've run into that problem again, this time with our HD generation equipment.

Using MTBF as a rule of thumb, the average life of a good hard drive is about five years. That's a little more than three generations of computer aging. Naturally, the first thing which comes to mind when it comes time to replace the hard drive is to just get one from the local or on-line computer emporium and drop it in place. Well, as our promotions director would say, "Not so fast there, bucko!" The joker in the deck is that "ancient" BIOS, which has plenty to say about this.

In our case, we wanted to put a 160GB hard drive in place of a 20GB in our BE FSi-10. We put it in, loaded the FSi-10 software, and let 'er rip. Rip?? Huh! The system barely got into the program with a small cloth tear before the box shut down and re-booted – and did it over and over again. In a case like this, where the OS is Linux and the system is relatively old, the place to go is the BIOS. So, to the BIOS we went, and found a BIOS which was totally unprepared for the kind of hard drive we had installed. Worse yet, we learned, the BIOS on the Intel STL-2 motherboards used as just one type in the FSi-10 is not upgradable to accept larger drives or do anything else. The only solution? Replace the motherboard in the FSi. Cute. Expensive, too. But,

when the box costs well in excess of $20,000 a pop, the cost of a new motherboard and the mods needed to make it IBOC-ready is a mere drop in the bucket.

But, there's another side to this as well. When IBOC equipment was introduced, the design was almost entirely by Ibiquity, and the actual end manufacturer of the equipment didn't have all that much say when it came to the kinds of components that were used in the hardware. That may be less true today, though Ibiquity still calls the shots from a software standpoint. However, no matter what the reason, the choice of components which made up the various IBOC generators manufactured at the time was, in my retrospective view, not well thought out.

When any business, no matter what the size or market, buys any equipment for the kind of money we're talking about here, some thought has to be made to how long that equipment is going to have to last, if only from an accounting standpoint. I'm no accountant, but that much I know. With that in mind, the choice of an off-the-shelf-based PC platform for the equipment has to be at least problematic to the folks in accounting. Why? Most accountants prefer to amortize value of hard assets for a lot longer than that. [I know of one old-line large-market group broadcaster, long gone from the business, who amortized their vintage 1950, 50 kW AM transmitter for *70 years*!] Any assets which cost like this, but with a generational lifespan of eighteen months and an MTBF of maybe five years, simply cannot be amortized over a reasonably lengthy time span. In a mission-critical application such as IBOC, for instance, that means, in a well-run technical facility, a change of hard drive has to be done at intervals of between three and five years. To have the entire system become obsolete merely for a change in a hard drive is not proper attention to detail in the design process, and should have been questioned from the get-go by the manufacturers themselves. No wonder the mom and pop operations have a hard time justifying investing in HD Radio at this stage of the game. In short, maybe the concept has to be better thought-out.

How well hindsight works. Then again, look at how much IBOC-ready hardware has advanced since the time, six and a half years ago, when the first HD generators were put on-line. There's less dependency on the use of PC-based technology in the design of such equipment. That's really the best way to go. In my opinion, there is no longer a reason to utilize a hard drive in either the importer or the exporter in an IBOC system. The hard drive is there in the HD generator itself to hold the Linux operating system (*that* part they got very right!) and of course the IBOC application itself. The hard drive, I am told, also includes an ever-growing ASCII file of all the error messages the system ever generates. I am told that the error message file is not accessible by mere mortals, and I've been told on more than one occasion to *not* remove or touch that file. Needless to say, I tried that. The results were ugly. The program and the importer stopped working when I did it. Why was that? Just how is that mega-file useful? Or needed? All of that doesn't take 20 GB of hard drive space for storage, let alone the 160GB which is the low end of off-the-shelf hard drive capacity at the present state of the art. Much better to have a *premium-quality* USB thumb drive (or memory stick, pick your label) which is sized at, say, 16 GB, and delete whatever messages have been put into that ASCII file which are more than so-many days ago. It might more sense than what we have now? The result would be cheaper, longer lasting, and with the thumb drive, you could have a backup sitting off site for use in case of the failure of the thumb drive living in the importer or exporter. Is anyone doing that with the design of either the importer or the exporter? Nautel, maybe? I really don't know. But all the manufacturers should looking that way. Just my opinion.

Making "Camp Desolation" Less So

One of the projects which was *supposed* to be finished in 2010 was one to create paths through the Burnham site property, from the transmitter compound out to our guy anchors. This has become a big deal with me since I found out some years ago that the site is immediately adjacent to a sizable, active petroleum pipeline, and that our far north guy anchor cuddles up pretty close to it. The folks who did the installation of our present tower in 1986 had the foresight to encase all of our guy anchors in concrete, right up to the surface, which tends to alleviate such a problem. However, there is no counter-electrolysis system in place to counteract any possible corrosion which may occur. For that reason, I've always wanted to be able to visually inspect the anchors every six months or so. However, that hasn't been possible for the majority of those anchors, because the foliage out there has always been so thick as to make even Sleeping Beauty's handsome prince veritably weep with frustration.

The plan was to get the paths bulldozed and fabric and rock put down to prevent the twelve foot high cattails from coming back. That includes inside the guy anchor fences. But the project had been delayed a couple of times, and for the best of reasons: we kept finding ways to do it less expensively.

The undersized Bobcat loader left a deep rut when it got stuck.

Warren McFerren, our remote engineer, was, shall we say, the 'chiseler-in-chief' on this job, finding ever-cheaper rock to put down, and cheaper ways to bull-doze the paths, although the first attempt, with a wheeled Bobcat, was a disaster, necessitating an expensive tow and replacement of one of its tires. See picture of the rut that the Bobcat left. However, we ended up with an even-less-expensive bulldozer to finish the job. Fortunately, finding the least expensive fabric was even less of a chore.

The bottom line is that the project's bottom line shrank, even with the disastrous use of said undersized Bobcat, From a $3,200 original estimate, we ended up paying well less than $2,000. I like doing that for the company.

As you can see from the pictures, the big Caterpillar 'dozer worked, we have plenty of rock, and now that the money-spending part is done, we're going to spend the few weeks, while it's still winter and the ground is hard, laying in the fabric and covering it with both rock and with asphalt shavings.

Clear paths to the guy anchors are needed for regular inspection and maintenance.

The rock is cheap enough so that if we need more we don't have to make it a capital expense project to get it.

I like it when a plan comes together like that.

Next month, if we can get it done in time for publication, I'll tell you about the installation of the new Nautel NV-40 at WPWX. Yup, we got it, and all of us here are SO proud of it!

Until then, Blessings!

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

I trust each of you had a Merry Christmas and a Happy New Year, too! Wow. 2011. I can't believe it's already 2011. The month of December was a nice one. There was only one major issue that had to be dealt with. Because of this, I got the chance to focus on the smaller things I have needed to get done.

We did get our new chainsaw in and were able to get that tree cut up that fell at the KLZ site. That new Stihl saw cut through the tree like a warm knife through butter. It is a very nice unit. Now one project that lies ahead of my for January is finding a tree company that will come out and chip the downed tree branches left by the city when they cleaned their canal out. It has made out property look like a

dump in some places. I have received one estimate which is rather steep in my opinion. If it looks like the price from the other places will be steep, we may be renting a chipper and cleaning up ourselves.

Keith has done a great job getting the shelves looking great at KLZ. I haven't been able to get any pictures of the shelves finished due to being sick, but I have no doubt they look great. Keith has put in several hours of going through everything and sorting the equipment.

We should be getting our tractor back this month as well. The brakes were 100% gone, which certainly explains why they weren't working. We assume the brake lock was left on and the fields were mowed while it was set. Basically, you push the brakes down and then push a lever down to lock them down. It's an emergency brake of sorts. So those will be fixed and the hydraulics will be fixed as well. It will be nice having it back. After we get it back we will need to buy the part needed to get the snow blower working with it. Then we can really have fun. Hmmm…maybe we won't need a wood chipper after all.

I was informed that the December electric bill for the Brighton KLVZ-day site was much higher than it normally is. We guessed something happened with the AC unit, since we had one other issue a couple months ago. After going out to the site, we found the fan on unit #2 would not shut off. So the fan was running constantly on the second unit. We called Choice Mechanical to go out and fix it. As it turns out, the relay that turns the fan on and off was fused shut.

I ended the year like many people across the U.S... sick. Thankfully it wasn't anything serious, just a cold, but annoying nonetheless. Who wants to start off a year sick? Who likes to be sick in general? Now that January has begun, I am on the mend, figuring out what I want and need to accomplish for 2011 personally and at work.

That's about it for this month. So until next time… that's all folks!

Digital Diary
by
Larry Foltran
Corporate Website & Information Technology Coordinator

Some Geeky Tech Gadgets for the Shopping Season

Happy 2011! It still shocks me to see that we are already eleven years into the millennium. Feels like just yesterday when the big tech concern was whether we would be instantly be left without a working computer as a result of the Y2K bug. I still recall watching the Times Square ball drop on the TV on 12/31/99 and pausing for a second or two, expecting the lights to shutoff. We can obviously laugh in retrospect, but it does show how integral technology was in our lives and how much more it is only eleven years later. That being said, I sincerely pray that this will be a prosperous year for our company and our country.

While scanning some tech news during my long weekend off from work, I spotted an article showing that Google's Chrome Internet browser finished up 2010 with 10% of the worldwide browser usage. It may not sound like much compared to Microsoft Internet Explorer's nearly 60% of the market and Mozilla Firefox's steady number two position, but it is significant considering that Chrome barely held 1% of usage just over a year ago.

So what's the big deal? Why do computing powerhouses such as Microsoft, Apple, and Google spend some much development effort in these "free" browsers, especially when there are so many options to choose from? Although some may say it is simply done for the sake of corporate ego, it goes much deeper than that. For those of you who use Microsoft products on a regular basis, I'm sure you'll agree that there is a Microsoft way in which things operate. A certain methodology that you become accustomed to and would like everything on your desktop to fall in line with and be integrated with each other. Enter MS Internet Explorer.

The fact is that it actually goes even beyond that. Some of you may remember Netscape Navigator which was on nearly every computer just over 20 years ago. Their profits were driven by charging Internet Service Providers $5 per copy for their browser. In 1996 alone, Netscape earned nearly $200 million from this licensing arrangement. Do you remember American Online (AOL), the company that charged you by the hour of Internet usage? Much of the money they collected from you went towards paying for Navigator licenses.

Even during that time and the infancy of the Internet, Microsoft was very concerned that computing would be all Internet based, eliminating its market for operating systems. The push was made to focus on developing an Internet browser platform that would eliminate Netscape's reign as king. So concerned was Mr. Gates that it is reported that Microsoft spent upwards of $130 million every year and had over 1,000 software engineers working on the project by the time we were panicking over Y2K. Rather than charge ISPs for use of their browser, Microsoft offered the application for free and even paid some ISPs to push their users to switch from Navigator to Internet Explorer.

Although Microsoft's profits from the use of Internet explorer are indirect, other companies profit directly from their browsers. Mozilla, developer of the popular Firefox browser, earned a reported $78 million from their "free" Internet browser. In reality, the browsers default search provider is Google, which partners with Mozilla. More eyes seeing Google's ads results in more money for Google and Mozilla.

Even though Microsoft continues to lead the pack in terms of Internet browsing, my guess is that they're watching the expanding usage of Google Chrome very carefully. Google has become much more than simply a search engine in recent years. Google has actually developed into what Microsoft feared Netscape would become. Whether it be cloud computing or their Android mobile phone operating system, Google has a hand in it. I rarely see email addresses with the hotmail domain anymore, but Gmail is everywhere. Should Microsoft be afraid? In my opinion, yes!

Google has become the McDonald's of the PC world, offering numerous different applications, solutions, and services. Some have been developed in-house and others have simply been purchased, such as YouTube and Blogger as prime examples. Microsoft has returned fire with additions such as Bing, their search engine alternative to Google, and Windows Live to compete with Google Apps Cloud.

I suspect Microsoft and Google will continue to do battle during 2011. As Google continues to push its Chrome operating system and Microsoft lunges at Google's smart phone dominance with Windows Phone 7, it will definitely be interesting to watch these giants go at it. All in all, I think the consumers end up on the winning end of this battle. As each company pushes its wares into the technology market, we should see development of new features we just "can't live without" as a result.

…until next month. Happy New Year!

KBRT • Avalon - Los Angeles, CA
740 kHz, 10 kW-D, DA
KCBC • Manteca - 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
690 kHz, 1 kW-D/18 W-N, ND
WDCX • Rochester, NY
990 kHz, 5 kW-D/2.5 kW-N, DA-2
WDCX • Buffalo, NY
99.5 MHz, 110 kW/195m AAT
WDJC-FM • Birmingham, AL
93.7 MHz, 100 kW/307m AAT
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, 3.8 kW/126m AAT
WYCA • Crete - Chicago, IL
102.3 MHz, 1.05 kW/150m AAT
WYDE • Birmingham, AL
1260 kHz, 5 kW-D/41W-N, ND
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
WXJC-FM • Cordova-Birmingham, AL
92.5 MHz, 2.2 kW/167m AAT

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