

Re: Phone Line Interfacing – FCC Part–68

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- *From:* "Michael A. Terrell" <mike.terrell@xxxxxxxxxxxxxx>
 - *Date:* Wed, 28 May 2008 03:03:04 –0400
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rickman wrote:

On May 27, 3:37 am, "Michael A. Terrell" <mike.terr...@xxxxxxxxxxxxxx> wrote:

rickman wrote:

In urban areas, it is **not** the same right of way. A phone company may have right of way for the poles, but that does not give them the right to dig up and bury lines. But the real issue is money. It is very expensive to take out equipment and bury it.

Beleive whatever you want. In some places the conversion is cheaper than constant repairs, and onlpy bean counters can't see this.

Please don't be insulting. It is not a matter of belief. It is a matter of fact.

Sorry, but the facts are that you are way out of date on the technology. You are stuck in the '60s, or even earlier.

You can do an incredible amount of repairs to equipment before it becomes cheaper than wholesale replacement and burying.

Not when usable equipment can be salvaged and used for repairs at

other sites that aren't growing, or growing as fast. I can see that you don't see the big picture. Do you have any idea what it costs to run a fleet of service trucks? Or how many more you need, if you have to support multiple obsolete technologies? The extra labor costs, because your repair efforts are ineffective?

Florida Power found that out the hard way after the last round of hurricanes hit Central Florida. At least a dozen different types of fusing and switching equipment were still in use, so the people brought in from other parts of the state, and outside contractors spent more time finding the right parts, than doing repairs. The 60 A 7200 line feeding my street was repaired, then it took another 24+ hours to locate a fuse for it, because almost all of that style had been used.

Different sections used different equipment and under normal circumstances, trucks & crews were assigned to service an area that had only one or two types of equipment. Not only did it cost a lot more to restore everyone's power, but people who had no power for two weeks or more didn't say, "Well, since you are such nice guys, we'll pay for a normal month even though we barely had electric for a week." If the equipment was standardized, they would have to warehouse less spare parts, have fewer trucks on the road, less line crews and make the dispatch office a lot more efficient.

Have you ever run a component level repair department for a major communications corporation, with physical plants in a dozen states and almost 100 cities? Sometimes a system gets all new equipment just so the old equipment can be tested and shipped to other plants for spares. I did that with commercial grade C–band microwave equipment, so the oddball equipment could be replaced with the same brand and model as all the others at those sites. All defective equipment was sent to my office where I either repaired it, or parted it out to keep other equipment working. Some of the local managers didn't like it, but it saved us a couple million dollars in four years.

For instance: Rockwell/Collins wanted \$1500 for the stud mounted bipolar microwave transistor used in the 4 GHz LO, and told us that we had to buy them ten at a time. then wait up to 14 months for enough orders to accumulate before they tested and shipped a batch. They wanted everything shipped to their repair depot, and required you to rent a loaner for \$150 a month, and the average turn around on repairs was a little over six months. I started repairing them in house, some in under 15 minutes from the time they failed. they hadn't even cooled off before the bad parts were replaced, the flux cleaned from the PC boards, and they were stuck on the spares shelf in the head end.

I could buy brand new Microdyne 1100 LPR receivers which were drop in replacements for \$1200. They had a better noise figure, used less AC, and generated about 10% of the waste heat. Seven of thirteen of the Rockwell/Collins receivers were shipped to me with the promise that if we couldn't fix the five they needed within two weeks they could have

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any new equipment on the market. I got them that Friday, and shipped six back on the following Monday. I scrapped, and used the others to repair over 20 other units that failed. Average cost to repair was under \$50 each. In four years over 10,000 pieces of CATV, industrial computer (Character generators & terminals) and test equipment went through my shop, where under 1% was scrapped, but a lot was transferred from one system to another as upgrades were done.

I think I already said that they did that here in a part of town, not because it would save any money, because the city paid for it in order to improve the looks of the downtown. The phone and power companies would have *never* done it on their own because of the enormous cost of tearing up sidewalk and burying lines.

Did you ever see early overhead phone lines? Have you ever heard of "Phantom Circuits"?

<http://www.middletonlibrary.org:8080/cgi-bin/viewer.exe?CISOROOT=/Crout&CISOPTR=1502&CISORESTMP>

This is what was used before they were scrapped for the lead covered cables. This is another time they scrapped something that worked, for newer and cheaper technology.

Why do you think they strung the lines in the first place, because it is so cheap to do it that way.

The lines were overhead because the early lead & paper covered trunk lines were not suitable for underground installs. Even overhead, they caused problems. A pinhole would let water in and cause crosstalk between pairs, or even worse, migrate through the early plastic and cause electrolysis. that is why you see the large bottles of dry nitrogen used to pressurize lines and keep any moisture out of any possible leak.

Add the fact that not every house on the block had a phone, and they went with the cheapest possible technology. In some places, only one or two houses on the block had a telephone. That thinking included a terminal block that was inside a splice housing on the overhead cable. When I was a kid, there was one or two per block, and that old hard rubber covered steel drop wire could run to the other end of the block before being dropped between 'P' hooks. It doesn't make sense to keep patching aging and failing plant, no matter what business you are in. Otherwise no one would replace old delivery trucks, they would still use mechanical cash registers, and you would still have to use a rotary dial to call the operator to place a call. Why do you think they created

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direct dialing? The equipment work, and the switchboards didn't need much maintenance. They scrapped that system to go to the stepper or crossbar central office so they could eliminate most of the operators. The same thing happened with the ESS Electronic Central Office. It was smaller, had some diagnostics built in, and didn't require the same skills that repairing or cleaning contacts in a mechanical C.O. The mechanical exchange in Middletown Ohio was built out of parts designed 60 years earlier, and there were no new spares. It was pieced and patched together with salvage from old C.O.s that were being torn down. They said it would be another ten years before they replaced that crap with ESS. Then their biggest customer told them they had exactly one year to fix everything, or they were going private with their 10,000 numbers. here is a picture, before they grew to require that many phone numbers:

<http://www.middletownlibrary.org:8080/cgi-bin/viewer.exe?CISOROOT=/Crout&CISOPTR=2299&CISORESTMP>

A lot of small phone companies refused to do anything, till they reached the point they couldn't afford to do anything and ended up selling out to a bigger company, rather than spend time fighting the PUCO over customer complaints.

I have no idea why you say, "everyone shares on copper".

All the copper lines here had up to 16 phone numbers per pair.

If you are on copper, you typically have a connection directly to the switching office.

That was the old 'DC pair' concept and was no longer available in some areas 30 years ago. A line card multiplexes the customers, and another card at the CO breaks it back into an equal number of subscriber lines. Call your phone company and tell them you 'DEMAND' a DC pair and prepare to be cursed at, or laughed at for being a fool. I used to have two way radio customers, with remote heads on leased lines, and a local fire department that used a leased line to control a siren at a paper mill a mile away. All of them had to be converted to RF links or tone signaling equipment when Ohio Bell eliminated all DC pairs. The fire department was easy. The county already had a 'Plectron' selective tone control system to be able to set off any fire or civil defense siren, as needed. We simply put an antenna at the paper mill and moved that receiver to the paper mill. The radio systems could still get a

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dedicated connection, but it was not a DC pair. We had to use Motorola tone squelch reed relays on some systems, and others required major modifications. Even the city police and county sheriff's radio systems had to be converted, there were no exceptions to the new technology.

The process started right after Ohio Bell finished their conversion from a mechanical to an ESS C.O. They ripped up all the sidewalks in downtown Middletown and burred concrete conduits, then started replacing all the overhead lead cable.

That is why they call it "copper". Anything else requires

conversions from A to D and back to A. In my case the A–D–A is done between me and the CO. Then it is digitized again in the ISP's modem, but the levels have already been quantized and they don't line up with the modem's levels. So they can't use the V.90 technology and the rate is much lower..

At least you have it. DSL is only something I hear about... a lot!

I have yet to see good performance from DSL, compared to cable. Some is barely 128k, and my cable is a little over 7m most days.

We really aren't communicating. I don't care how slow DSL is compared to cable. It is absurdly faster than dialup and lame dialup at that! Around here DSL is 512 and higher for most folks. Of course that varies with your distance from the CO. But at some distance they just won't give you DSL because of the speed problems.

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<http://improve-usenet.org/index.html>

If you have broadband, your ISP may have a NNTP news server included in your account: <http://www.usenettools.net/ISP.htm>

Sporadic E is the Earth's aluminum foil beanie.

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