Hello, and greetings from the Central Office! The Great Toilet Debacle of 2018 continues pungently apace. As you might recall from my last column, the giant cottonwood trees on our property line have grown their root system across the parking lot which wreaked all sorts of havoc on the sewer line. It wasn't a simple call to a plumbing company. We need an entirely new sewer line, haven't had working toilets in months, and I'm getting tired of visiting what we've named "Bella," the port-a-potty in our parking lot.

I thought I'd be able to fix more problems when I went into management. To some degree, I have (accelerating fiber-to-the-node deployment has both penciled out from a business perspective and provided better service to customers), but Central Office managers operate under considerable constraints. Even if I have a surplus, I can't move money around between different budgets, particularly between regulated and unregulated services (that's a big no-no). Flushing toilets in the Central Office are part of the company facilities budget, which is different from the collocated facilities budget, which is different from the various network, staffing, and vendor budgets. Since I already spent most of this year's facilities budget on keeping the roof from leaking this winter, I can't fix the sewer line unless I can convince the bean counters in Denver to let me do it. In all honesty, this probably wouldn't be a problem, but there are only two of them, and they work every request in a queue. The company does prioritize requests, but these are based on customer impact and protection of company assets. And although the company claims employees are its biggest asset, providing a port-a-potty is sufficient "protection" to keep my request at a lower priority in the queue. I'm guessing I'll finally get approval a week or two before the fiscal year resets on June 30th and I could have just taken care of the problem without any extra approvals. And yes, I know there's a backhoe in the yard, and we have most of the supplies to fix this on our own, but we're a union workforce and nobody's union contract involves fixing sewer lines. Don't even get me started on how much trouble I'd get in if I tried to work around that.

But I digress. It's merger time again and that means more visitors to the Central Office. Under the Telecommunications Act of 1996, we were legally required to lease space to other phone companies and provide them the ability to interconnect with our networks. The original idea was to allow competitive local exchange carriers (CLECs) access to our networks, both on a resale basis (wherein we'd operate the services but they'd bill for them - sort of a "white label" or "private label" service) and on a facilities-based interconnection basis. In the 1990s and early 2000s, the most popular facilities-based interconnection was competitive Internet service providers offering ADSL services. They'd pay to lease "last mile" copper from us, and we'd terminate it at their DSLAM collocated in our Central Office. This business model began to go by the wayside in the late 2000s, as ADSL ran up against the technological limitations of an old copper network. We made the decision to invest in fiber to the node, and in an incredible gift from both the FCC and the state utilities commission, we weren't required to support "line sharing" ADSL on lines where we made this investment. This runs at speeds that are competitive with cable, but as we have slowly bled off the number of circuits where it's even possible to compete with line sharing ADSL, and as ADSL technology has failed to advance when running over long distances, an increasing number of competitors have merged, gone out of business, or begun reselling our services. They cut their customers over, then clean out their colo cage. Most of the cages are empty these days.

Even though far fewer competitive telephone companies collocate in our facilities than did even ten years ago, all of the major wireless carriers have a physical presence in my Central Office. They use this presence to connect their towers with their own networks; we operate the facilities in between the Central Office and their tower, but they pick up the traffic at our Central Office and drop it off onto their network. None of this stuff is configured as conventional voice trunks and none of it runs over the public Internet or frame relay networks. Instead, they have provisioned varying speeds of very expensive dedicated data circuits, sold at regulated prices. That's great for us here in the Central Office, because as wireless users' data
demands increase, the size of these circuits just keeps getting bigger - and the more we can charge for them. In fact, one of the big reasons why mobile data service is so expensive is paying for local telephone company charges to get that traffic from local networks out onto the public Internet.

Given the high costs involved, one of the first things mobile phone companies look to do when merging is to downsize duplicate infrastructure. Two major wireless carriers (let's call them "Yellow" and "Purple") have both been engaged in an on-again, off-again attempt to merge for over a year. Well, it's on again, and network planning teams are making almost nonstop tours to my Central Office trying to figure out what to do. And they have a big, ugly integration problem on their hands.

One of the two companies, "Yellow," has been through a merger before. It was a tough, gnarly, drawn-out merger. The networks never really merged. There were entirely different technologies involved in almost every respect, and given that the acquired company had out-of-date technology, the eventual plan they arrived at was to leave most of the legacy infrastructure in place and sunset it (which finally happened late in 2013). However, the company made a real effort to consolidate duplicate infrastructure in the meantime. This was a lot easier said than done, though. The acquired company was technically using taxi dispatch frequencies which meant that some telecommunications services they used were heavily tariffed differently and couldn't be intermingled across services. Of course, this was great for us, because it meant that "Yellow" had to pay us twice for services they could have otherwise consolidated. There is an entire unit at our company dedicated to ensuring that tariffed services are correctly charged, at least when the billing isn't in our favor!

This time around, it's far more complicated, because even if the merged company chose to build a 5G network and sunset the rest, it's going to be a long time before that can really happen and it'll be a Herculean engineering effort to accomplish. It's also a complicated business proposition. The "Yellow" company, having fallen on hard financial times, spun off its network some time ago as a separate operating company (a few years after it sold off most of its towers to Crown Castle and American Tower). The status of this operating company and its future within the larger organization is very much in question at present, which is one very awkward wrinkle. No technician wants to work on legacy technology with a fixed sunset date and no job at the other end of it!

Another wrinkle is that the "Purple" company has historically had a very different approach to both technology and network design. This isn't a network that can easily be glued together; one 4G network was built on top of an existing CDMA network and the other 4G network was built on top of an existing GSM network. What's more, the CDMA network on the "Yellow" side is still in use for carrying voice calls; "Yellow" never successfully implemented VoLTE. While this isn't particularly meaningful to us here in the Central Office, it does mean that it's a harder network to integrate. It won't be possible to just flip a switch and integrate this network; the mobile telephone switching offices support entirely different technologies. This means that redundant infrastructure will likely need to exist for as long as CDMA is still supported.

From a network perspective, some changes are relatively easy to accomplish. For example, "Purple" doesn't have its own long distance network and uses its competitors' networks to complete long distance calls. By acquiring "Yellow," they'll gain in-house long distance network capability (although this is in and of itself a sticky business question involving partially owned subsidiaries). Switching to this can be as simple as specifying a different gateway for long distance call termination (or additional routes in the dial plan). It's also possible to consolidate roaming agreements and billing arrangements with other carriers. Generally speaking, in a merger like this, the merged company will seek to maintain the most favorable agreements from each company going forward (although history shows that while cost savings may be realized, the prices charged to consumers are unlikely to change).

Other things are much more complicated. I am not worried about the newly merged company's footprint in my Central Office shrinking, at least not in the near term. And my financial plan for next year reflects the status quo. For one, there is no guarantee that the merger will happen. The federal government has yet to approve it. For two, even if approval takes place, the stuff in my Central Office is difficult and expensive to fix. The cheap, easy stuff will take at least a year to get done, and none of that work is here.

And in the meantime, key people at both companies are worried about losing their jobs. Visitors to the Central Office often ask if we're hiring. "We're hiring someone to clean Bella," I reply, gesturing forlornly to the port-a-potty in the parking lot. Thus far, nobody has taken me up on the offer. I'd say the sun-ripened odor of chemical toilet wafting across the parking lot is a character-building experience, but we have a better one here in the Central Office: Icky-Pic! Have a hackerful summer, and I'll see you again in the fall.