Climate Change, Outages And Networks

As the frequency and force of storms increase, network operators need to prepare for recovery of essential broadband service. Fiber is an important part of the equation.

By Barry J. Walton / *Corning Optical Communications*

Although I've been retired from a telephone company for a few years, old habits die hard, so I followed the January 2017 ice storm in New Brunswick, Canada, with great interest and concern. In my 37 years of experience in telecom, I have never seen that extent of damage from an ice storm. More than 600 broken utility poles had to be installed in the storm-affected area in the aftermath.

The ice storm capped a 10-year period in which there has been a noticeable shift in the frequency of storms, their force and certainly their effects. I'm fortunate not to have lost a home or loved one in a natural disaster, so I recognize it is a luxury that I've spent a lot of time thinking about climate change, outages and networks.

At my home in New Brunswick, we've weathered our share of storms, but it wasn't until five years ago that we finally put in a generator. We had reached a point where the cost of purchasing and installing a generator was lower than the costs associated with repeated, prolonged loss of power and connectivity. I am not arguing that everyone in the world, or even in New Brunswick, should get a generator. I tend to wear my business hat even when it comes to home investments, and I recognize that cost calculations vary with business strategies – especially on the loss side of the equation.

In talks with industry contacts, I've learned that network operators are monitoring climate impacts on their businesses, assessing their emergency preparation strategies and in some cases making different decisions than they did 10 years ago. The business climate and the actual climate have changed since then, so the best decisions made in the last decade may not necessarily still serve their businesses well today.

LESSONS FROM THE ELECTRIC UTILITIES

In many ways, the operators' climate readiness work is similar to that of power companies. There are lessons to be learned from these utility partners, which also manage infrastructure weakened and susceptible to damage. Here are a few I consider important:

Make strategic infrastructure choices. Though power companies face updating their electric grids – an undertaking that comes with a price tag over the billion-dollar mark – network operators, fortunately, just have to avoid regrettable, reactive spending. If they have commercial generators in their central offices and a passive, no-power-required fiber optic infrastructure extending, in most cases, to about a mile from homes and businesses, only the "last mile" poses higher risk of network failure. In this last network segment, passive fiber optic cabling transitions to copper infrastructure that is susceptible to water intrusion and shorting out. Even when severed, fiber optic cable can often be repaired more quickly and cost-effectively

than copper cable, particularly if the cable has paper insulation that has become compromised.

Shift from restoration to preparation. Because climate change impacts are relatively new, many network operators may not yet have restoration plans at the local access level, but the power companies offer a good model of what such plans involve. Labor availability, already a potential challenge with rapid network expansion and overbuilds, is more critical than ever when an entire region is impacted by a storm. Carriers may need to mobilize labor forces as power companies have done, enabling them to activate a plan (rather than making one in the moment) and leverage shared work agreements for crews to come in to help from outside the storm zone. Emergency preparation efforts include materials, too, because you don't want to run out of poles.

Rethink essential services. Today's trends would have seemed like science fiction when I started my career. The device counts, wearables, autonomous cars, and the internet of things emerging around us all point to an ever-increasing dependency on connectivity in our lives. So, just as a power company prioritizes hospitals and schools but still pulls in crews from distant states to restore power to remote single-family units, network operators increasingly recognize the importance of restored broadband for everyone. In the aftermath of a storm, for life to get back to normal, broadband connectivity is part of the equation along with electricity, water and HVAC.

Aside from connectivity's critical role in regional and community operations, particularly following a storm, there's a need for people and businesses to get back to work, kids to complete school assignments and families to connect with loved ones. Broadband really has transformed to utility-level demand today – an essential service.

Carriers know how much their subscribers depend on the networks they operate. Many carriers are now committing to their emergency preparation with the same dedication that power companies used to tackle outage prevention and improve their emergency responses. These network operators recognize they are at a tipping point, with the importance of connectivity surging right alongside the frequency of powerful storms. ❖

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