

# Push Is on for Fiber to the Cell Site

Wireless carriers need backhaul to support the explosion of mobile data – and that creates new opportunities for fiber-based transport carriers.

By Joan Engebretson / *Broadband Communities*

**A**s mobile data usage grows and as wireless carriers roll out high-speed, fourth-generation networks capable of supporting higher data rates, the carriers are finding they need to increase the bandwidth of the backhaul networks that transport traffic from cell sites to a high-speed network backbone.

In North America, cell site connectivity traditionally was supplied by T-1 circuits delivered over copper phone wiring. But as data traffic climbs, wireless carriers are finding that copper connections are no longer adequate. Another concern is that all major U.S. wireless carriers have begun to or plan to deploy 4G networks based on LTE technology, and copper connections generally are inadequate to support LTE except over relatively short distances – and even that requires considerable kludging.

Take all these factors into consideration, and it's easy to see why network operators are undertaking major initiatives to bring fiber to North America's estimated 300,000 cell sites.

Estimates of the number of cell sites that currently have fiber vary from one analyst firm to another. According to Heavy Reading, about 40 percent of U.S. cell sites had fiber backhaul as of year-end 2012, with 50 percent served by copper and 10 percent with microwave. Infonetics Research sees wider availability of fiber, estimating that more than half (56 percent) of North American cell sites in 2012 had fiber, with 30 percent fed by copper and 14 percent fed by microwave. (Microwave, like fiber, has seen a boom in recent years as it can be quickly installed and can support higher data rates than copper for limited distances.)

Most people agree fiber-to-the-cell-site deployments haven't occurred at the same pace nationwide. Infonetics estimates that 90 percent of cell sites in major cities are now fiber-fed – which suggests the percentage of fiber-fed cell sites in rural areas is considerably lower.

Allied Fiber CEO Hunter Newby believes the percentage of fiber-fed cell sites in rural areas is below 30 percent – or even as low as the single digits. Allied Fiber aims to build a wholesale dark fiber network nationwide and has already completed a large part of the work on phase 1, which will connect Chicago with New York City and Ashburn, Va.

Newby expects substantial demand from carriers that will use the Allied Fiber network to support fiber deployments

to cell sites. Carrier customers will be able to connect to the network virtually anywhere along its length because there will be access points every 3,000 feet, and once on the network, their traffic could easily reach major exchange points.

Allied Fiber's carrier customers are likely to consider deploying fiber to a cell tower if the length of new fiber needed is no more than 5 miles, Newby says. Using this rule of thumb leads him to believe tens of thousands of cell sites will be within easy reach of phase 1 of Allied Fiber's network. Assuming that the majority currently lack fiber, Newby sees a substantial opportunity for network operators – including some new players – to build fiber infrastructure to a large number of these towers.

Newby argues that because of consolidation in the fiber network business, there are not currently enough network operators to bring fiber to all the cell sites that don't currently have it. He believes the fiber-to-the-cell-site opportunity will encourage the creation of new fiber-based transport carriers.

### FIBER THROUGH THE BACK DOOR

Some communications industry stakeholders argue that once fiber is brought to a cell site, broadband service providers can more easily justify the deployment of higher-speed Internet connectivity to nearby homes and businesses because the cost of providing backhaul connectivity for those networks is substantially reduced.

Newby says that scenario has indeed unfolded in some communities. "It's not theory – that's a fact," says Newby.

Newby also notes that "once fiber-based transport makes a business case to bring fiber out 5 miles, the new point of reference is that point – the next 5-mile build could be from that point."

What's "fun about the whole 5-mile thing," Newby says, is that people who aren't near the Allied Fiber network (or, presumably, an access point to another fiber network) can estimate when they might get fiber by assuming that network operators will build fiber out in additional 5-mile increments every year or two. ❖

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