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Viewpoint

Making the Case for Fixed Wireless Technology

Tired of rambunctious RBOCs and finicky CLECs? Then maybe it's time to consider fixed wireless: It may be a better way to link LANs than shelling out for a T1 landline. Don't worry, this isn't cellular, satellite, or wireless LANs we're talking about. These are point-to-point and point-to-multipoint connections. Better yet, fixed wireless means no more monthly telco charges: The only thing corporate customers will have to pay for is the gear—and that's a one-time purchase. Still not sold? Then consider this: More and more of the world's communications infrastructure is based on wireless technology. The companies that installed it as an interim solution until the arrival of fiber or cable are finding that it works just fine—so reliably, they're leaving it in place.

RBOCs, CLECs, Business Case, Wireless

Ready for more selling points? It can be deployed much more quickly than carrier-based technologies. Transmission ranges are on the rise thanks to recent changes in FCC regs that allow higher antennas. Data rates for products that take advantage of unlicensed spectrum include 1, 2, 5.5, and 11 Mbit/s (and in licensed frequencies can be as high as 155 Mbit/s). There are more and more vendors of equipment, which will make for even faster deployment and, possibly, lower prices. ISPs are looking at it as a possible way of

connecting more customers, and it's even opening the door for a new breed of wireless carrier.

In other words, fixed wireless has a lot to offer. And by getting a fix on the business case now, network architects can learn how to save.

Comparing the Costs

Wireless technology pays for itself quickly, compared with leased lines. Consider a company with two buildings three miles apart (and assume there's a line of sight between them). As quoted by one RBOC, a T1 (1.544-Mbit/s) link between them would cost about \$625 to install and \$320 in monthly bills. Not bad, maybe—but don't forget the two CSU/DSUs, which come in at about \$700 each. (Routers are necessary as well, but they are also needed for wireless links.)

Now look at the wireless expenses. First, there are the two 2-Mbit/s wireless bridges, which cost about \$4,000 total, including antennas. Throw in another \$1,000 for installation, and you end up with wireless costing \$2,975 more upfront. At first glance that's a lot more than the wireline costs. But don't forget those are one-time expenses: Without the monthly telco charges, customers can see a wireless payback period of less than two years.

Of course, there are plenty of factors that can influence the payback period. These include distances, data rates, the type of antenna, the length of cabling to the antenna, and the cost of the wireline service. But even with all of those things to consider, corporate networkers should normally expect to see a payback periods that ranges between 6 and 18 months.

Multiple Benefits

The case for point-to-multipoint wireless is even stronger. Take a campus environment in which one central site has line of sight to multiple locations. It's then possible to set up an access point at the central site

with either an omnidirectional or a wide-angle antenna. At the remote locations, wireless bridges fitted with directional antennas that point back to the central site can be deployed.

Now the incremental cost for a remote connection comes to only \$2,500 for 2-Mbit/s connectivity, half of the cost of a complete link. Contrast that to a wireline configuration—where a complete T1 circuit is needed. Thus, for a central site with two remote nodes less than three miles away, the break-even period is only five-and-a-half months. Of course, that 2 Mbit/s of bandwidth is shared among multiple sites, so at some point corporate customers will probably want to look into higher performance wireless technology.

It's only fair to mention that other factors can affect the equation, both on the wireless side and wireline side. For the wireless circuit, customers who who need an extremely high level of dependability should expect to pay an additional \$1,000 per bridge for a redundant power supply. A 300-foot high-reliability cable between the bridge and antenna can add another \$1,000. Bridges that can handle 11 Mbit/s cost about \$6,000, and those with routing capabilities built in will typically cost more than those with just simple bridging. There also can be extra costs on the wireline side. Keep in mind that crossing LATAs (local access transport areas) can add significantly.

However, there are also ways of saving money. If the other building is less than a quarter of a mile away, wireless signals can be shot through the window. Meanwhile, new wireless carriers are beginning to offer T1 circuits for as little as 15 percent below tariffed rates.

Beyond the Money

Saving money is great, but it shouldn't necessarily overshadow some of the other wireless issues that might arise. Many network managers, for instance, simply don't feel comfortable with wireless. One major

concern is that the connection can't be monitored the same way a telco can monitor a T1 line. Maybe here it will help to listen to those who've been there: Users of fixed wireless know they're dependable, and they've found the management features satisfactory.

Specs are something else to keep in mind. Higher protocol overhead means that a wireless connection will not deliver the same throughput as Ethernet; expect about 75 percent of that level. There's also the issue of roof rights, as well as the steps that are involved in mounting an antenna. In addition, there may also be local government ordinances that corporate customers have to contend with.

And don't forget about the weather either: While rain and snow are already factored into the ranges for these wireless products, customers should avoid mounting antennas where ice might build up on them. Some final words of advice: Start small, setting up a pilot for one connection. Chances are good that the technology will prove both reliable and cost-effective.

And remember: Even if pricing for such wireline services as DSL falls, wireless products' costs are guaranteed to drop as well.