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New P3s May Finally Bridge the Digital Divide.

Many municipalities are forming public-private partnerships to bring high-speed Internet to long-neglected places. Their approaches, however, vary widely.

Andrew Dean remembers counting down to "Ting Day." That was the day in December 2014 when Dean's Maryland software business was getting hooked up to the kind of high-speed Internet that most Americans only dream about. Ting, the company that would replace Comcast as the office's Internet service provider, offered a new fiber-optic connection that promised to be incredibly fast: a gigabit per second. That's about 26 times faster than the average U.S. Internet connection. Gigabit fiber is so fast that users can download a full-length, high-definition movie file in two minutes and can watch five video streams at the same time. A user can upload a file to the cloud faster than she can save it to a thumb drive attached to her computer. For Dean and his co-workers, Ting Day couldn't come soon enough.

At first blush, Dean's software company might not seem like the kind of business that would attract such a coveted asset. Open Professional Group, where Dean is the president, employs 19 people and is located in Westminster, Md., a quaint town of about 18,000 people half an hour north of Baltimore. The area was largely rural and blue-collar when Dean grew up there, but these days it's better known as a bedroom community for commuters to Baltimore or Washington, D.C. In other words, it doesn't have the kinds of institutions, like a major university or a big corporate headquarters, that would require fiber-optic networks.

But the city of Westminster has struck a deal with Ting that, it hopes, will result in a citywide network of fiber-optic connections to every home and business. Under the terms of their public-private partnership, the city is laying all the fiber itself, which Ting is then paying to lease for customers, whom it is responsible for signing up and serving. The more fiber the city installs, the more customers Ting can reach. The more customers Ting signs up, the more the company pays the city. Eventually, other service providers will be allowed to compete with Ting on the network as well. "We may not be curing cancer," Dean says, "but the technology provides us with a tool that allows us to do what we do faster, to do what we do better and to be able to do more of it. That means I get to hire more people and we get to grow."

Right now, the Westminster project is perhaps the nation's most closely watched public-private partnership trying to deliver high-speed Internet access. Many other local governments are also looking to public-private partnerships for broadband to spur development in places where the private company won't provide it on their own. The approaches vary widely, and many are still in their early stages. But if they're successful, these P3s could finally crack the code of how to bring next-generation Internet to people in rural communities and other long-neglected places on the wrong side of the digital divide.

Ever since browsing the Web has required more than a modem and a dial-up connection, vast swaths of the United States have struggled to get the state-of-the-art infrastructure they need to keep up with new technology. While utilities in many big cities offered higher speeds, small towns and rural areas were left behind. The phone and cable companies were reluctant to upgrade existing lines in

those areas because they typically can't turn a profit. The low-density development, low subscriber rates and long distances between customers mean higher upfront installation costs.

As a result, some cities decided to build out their own fiber-optic systems. More than 400 municipalities, mostly ones that already owned their own electric utilities, started offering broadband services. Lots of those efforts were successful, but the most prominent was Chattanooga, Tenn. It became the first city to offer a gigabit Internet connection in 2010, despite legal challenges from Comcast and AT&T. The lightning-fast service helped revive its fortunes, spurred the creation of an "innovation district" downtown and attracted companies like Amazon, OpenTable and Volkswagen to open or expand operations there. Meanwhile, the Obama administration tried to spur the building of "middle mile" networks in its 2009 stimulus package, with the hope that building high-speed networks that connect schools, government buildings and other major institutions would make it easier for private providers to extend those networks to homes and businesses.

But the real game-changer turned out to be Google. The tech giant made a big splash in 2010 when it announced it would provide one city with gigabit fiber service to homes and businesses. It was a bold goal, because it depended on installing a whole new layer of infrastructure on the city grid. For Internet access, most of America still depends on electric signals that travel down copper wires laid decades ago by telephone and cable companies. But Google wanted to build its Internet network with fiber-optic cables, which use laser flashes that race through thin glass wires to convey information at nearly the speed of light. The wires can carry virtually unlimited information, and they can be upgraded as technology improves. Enthusiasts say that makes fiber-optic networks "future proof."

Google was by no means the first carrier to use fiber-optic networks, which already make up the backbone of the Internet and are used by many big institutions. For example, some Verizon home customers have fiber-to-the-home through the company's Fios (fiber-optic service) product, but Verizon largely stopped expanding the areas where it offered Fios in 2010.

Still, the Google competition made it seem possible for almost anywhere in the country to make the jump to high speeds. Even better, customers would initially only have to pay $120 a month for Internet and TV service, about the same rates most customers pay for connections a fraction of the speed. Roughly 1,100 cities entered Google's competition. Many took drastic steps to stand out from the crowd. Topeka, Kan., renamed itself "Google" for a month. The Duluth, Minn., mayor jumped into Lake Superior in February wearing only shorts and a T-shirt. University of Missouri fans waved Google signs during a nationally televised basketball game. In the end, Google chose Kansas City, Kan.

Google Fiber, which is now officially called Alphabet Access, has since expanded across the state line to Kansas City, Mo. It has also added another eight cities and plans to build networks in two more. But last year, the company put all other expansion plans on hold. It hired a new CEO and laid off hundreds of workers, leading some watchers to speculate that Google might be getting out of the fiber business altogether.

Still, nearly everyone agrees that the introduction of Google Fiber was a turning point. It made local officials all around the country think seriously about the benefits of installing super-fast Internet connections in their cities. Municipal leaders quickly realized that broadband could be the backbone for smart cities and connected vehicles, the foundation for advanced telemedicine, or the means for schoolchildren to explore the world far beyond their classrooms. In competing for Google, cities realized they wanted a fiber-optic network, regardless of whether Google provided it. "People got all excited about Google Fiber, which was very useful, because it opened people's eyes to the country's need for world-class, cheap data. But Google Fiber was never going to reach every city in America,

because it's not in their company's interest to build basic infrastructure," says Susan Crawford, a Harvard University law professor who specializes in Internet and communications law. "It is in the interest of every local government to ensure economic growth and social justice for its citizens. And the only way to do that is for the city or the local government to take matters into its own hands."

While cities' appetite for gig fiber grew, they were confronted with a conundrum. On the one hand, building and running a city-owned network is extremely difficult. Those cities that don't already operate a utility, like a local power company, often don't have employees with the technological expertise to run an Internet service, says Jim Baller, president of the Coalition for Local Internet Choice. City employees, Baller says, often are "not on a day-by-day basis versed in the industry changes in technology, finance and services that you provide in the communications world." Another limitation: Thanks in part to intense efforts from telecom lobbyists and lawyers, at least 19 states have laws that restrict or prohibit cities from offering municipal broadband services.

On the other hand, as the experiences with cable and phone companies showed, cities had learned they couldn't rely solely on the private sector to provide high-speed connections. And even if private companies brought gigabit speeds to every big city in the country, they'd never be a viable solution for getting faster Internet to the small towns and rural communities that need upgrades the most. That's why so many cities have turned to public-private partnerships, using a mix of public resources and private know-how to achieve what neither sector could do on its own.

So far, the approaches vary markedly. "We are in such early stages of innovation that every project is developing its own model," says Joanne Hovis, the president of CTC Technology and Energy, a consulting firm that has helped states and cities, including Westminster, develop public-private partnerships for broadband. "I think many of them will become models and be replicated by other communities. But there is not yet a standard way of doing this, as there is in, for example, P3s for toll roads, where there's 20 years of experience and lots of data."

At one end of the spectrum are the cities in Mississippi that lured fiber networks built by C Spire, a regional wireless carrier based in the state. C Spire started offering fiber to communities because it was inspired by the example of Google Fiber. It even initially modeled its selection process after Google's by hosting a competition among cities. Like Google, it stressed the importance of streamlining the regulatory process in cities it chose, so it could build its networks with minimum hassle. "We found pretty quickly that was the easy part," says Jared Baumann, a manager who led C Spire's efforts to develop franchise agreements with cities and towns for the fiber networks. "It was far more important to have the city and volunteers within the cities really taking this to the next level."

The mayor of Ridgeland, for example, organized a "Tour de Fiber," with dozens of cyclists riding through neighborhoods to encourage residents to sign up for C Spire's service. The mayor of Quitman, a town of fewer than 2,300 people, went door to door to encourage residents to get the fiber connection. In the town of Clinton, a group of two dozen residents "made it their goal in life" for several years to promote the new service, Baumann says. "In many ways, the mayors of our towns, and their staff members and their volunteers, were more of a sales force for us than our own sales force was. That was key," he says. "Mayors were knocking on doors just like campaign season, saying this is only coming to town or your area if you sign up."

Other states have used more traditional P3 approaches. Kentucky is installing 3,000 miles of fiber-optic lines through a public-private partnership. The new network will link every county in the state to faster Internet connections, although it will be up to local Internet providers to link end users to the new "middle mile" network. Macquarie, an Australian bank, will build and operate the network for 30 years. It will recoup its costs by selling access to universities and state government over the

course of the deal, but Kentucky will own the network when the deal is over.

In Minnesota, local governments in two counties are using an old model to deliver new technology. Seventeen townships and 10 cities have formed a co-op to build fiber and wireless Internet connections over a 700-square-mile area, much as rural areas used co-ops to bring electricity to farms during the Great Depression. The co-op RS Fiber got its initial funding when the 10 cities issued bonds for half the cost of the first phase of its project. The co-op built wireless towers to cover farms in the area while it constructs a fiber network in the towns. With the money the co-op generates from providing service in town, it will then start building fiber to the farms. A local Internet provider runs the day-to-day services.

But it's the public-private partnership between Ting and Westminster that experts are watching most closely these days.

The effort to bring higher-quality Internet access to the Maryland city started more than a decade ago, and the city considered all options, even the idea of installing and offering broadband on its own. Ultimately, it decided to partner with a private provider. Westminster had a few advantages that helped make it more attractive. For one, the city had enough cash on hand to fund a small pilot project. And Westminster found that businesses in town were very excited about getting the service. More than 90 percent of companies signed up when it became available to them. One of the things that distinguishes Westminster's approach is that the city is building and keeping control over the physical fiber network. The strategy, says Councilman Robert Wack, who has worked extensively on the issue, is "perfect for municipalities. We are in the long time-horizon business," he says. "We build water treatment plants that have a useful life of 40 years. We dump millions of dollars into pavement and nobody bats an eye because everybody understands how important good roads are for economic development. Why would building fiber be any different? We're basically building a road for data."

For Ting, selecting cities to work with comes down to both objective measures, like demographic data, and subjective judgments, like how easy a city is to work with. One thing that stood out about Westminster, says Monica Webb, the company's director of government relations, was that the town was not just eager for service but also willing to do most of the hard work of financing and then installing the fiber all the way up to buildings.

But Webb cautions that there are not enough private companies like Ting to partner with all the cities that want high-speed Internet. After the Westminster deal went through, Ting received more than 2,000 requests from residents or public officials to come to other communities. Currently, Ting serves just five cities, with a few more in the works. "Sometimes, the best thing cities can do is to do it themselves," she says. "There needs to be a plan B."

Wack says communities like his don't have a choice. They have to find a way to build better data connections. "This is the barebones, basic infrastructure of the 21st-century economy," he says. "Communities that have this infrastructure will thrive, and those that don't will wither and die. It's just that stark."

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