

Ways to Expand Fiber Optic Infrastructure Nationwide

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Fiber optics is a broadband technology that not only adds bandwidth and speed over Cable and DSL, but also makes 4G, LTE, Wi fiMax, and other wireless technologies more accessible. However, the technology is lacking in penetration in the U.S. and the govt. needs to step in order for the U.S. to become a more competitive nation in wireless technologies.

According to [OpicalZonu](#), “The use of optical fiber links to distribute RF signals from a central location to Remote Antenna Units (RAUs) is the basis of RFoF Technology for wireless applications... Enabling remote locating of the base stations via fiber optics, and centralization of RF signal processing functions, enables equipment sharing, dynamic allocation of resources, and simplified system operation and maintenance.”

The importance should not be understated enough to expand this infrastructure in all regions of the nation, beyond just metropolitan areas.

[AGLMagazine](#) reported that Hunter Newby from Allied Fiber told an audience at the Tower and Small Cell Summit in May that fiber penetration is only at about 30% out of more than 300,000 possible antenna sites in the U.S. This must be resolved before nationwide LTE networks really take off.

He also emphasized that business access to fiber optic networks is also not where it could and should be in the U.S. It is only at 36.1 %, thus leaving about 64% of the business world out of the loop.

“The root of the problem, according to Newby, is the unwillingness of investors to put their money in fiber-optic infrastructure,” Newby said.

Solutions to the Problem

Many investors may not want to bear the costs, but what about the federal government? That is a solution that should be self evident, especially with President Obama's [recent push](#) for broadband access in the classrooms.

The federal govt. can give grants or subsidies to companies willing to invest in building fiber optic infrastructures and expanding reach. This would be particularly useful in less dense areas that are not cost effective for companies to move fiber infrastructure into, in terms of ROI, without government subsidies.

The Telecommunications Industry Association (TIA) has wrote an open letter to President Obama on January, 2012 and you can read it [here](#). The letter mentioned the creation of new jobs, as well as growth of businesses, as a result of expanding infrastructures related to communications. It also supported [R&D tax credits](#) as well as federal research plans that drive investment in next-gen technologies (which you can guess probably involve fiber optics).

During June of 2012, Obama signed an [executive order](#) related to broadband expansion that you can read here. The goal of this executive order was to lower broadband deployment costs and give incentive to companies looking to build more infrastructure. The way this executive order aimed to achieve this was to by granting access to government lands and assets to companies looking to expand broadband networks.

Obama also called for a nonprofit partnership of govt. agencies, educational institutes, private companies, and municipalities to come together and create 60 advanced, next-gen apps capable of running on giga-bit broadband networks.

The partnership resulted in other commitments. An example of this was the expansion of the Global Environment for Networking Innovations (GENI) project. This is a project ran by the Natural Science Foundation (NSF) -- a federal agency for US Ignite --that serves as a virtual laboratory and testbed for research on next-gen networks capable of hosting various applications.

These are all great steps for extending fiber optic reach, but the initiatives need to emphasize it over just broadband expansion as a whole. Still, the fact the President is pushing faster speeds and greater access around the nation with various incentives for investment should help fiber optics gain some ground.

Google is a company that has taken charge in helping fiber optics become a reality among U.S. cities such as Austin, TX and Kansas City, KS. It is doing this through a program called [Google Fiber](#).

For the next true bandwidth evolution to take place we need fiber optics to be adapted on a wide scale. This will not just benefit students and schools, but all telecommuters and professionals living in busy urban environments.

This is why Google's program and expansion into large cities will help drive the technology. Google is boasting speeds 100 times greater than average broadband speed in the U.S. The costs are also not astronomical for professionals and businesses. You can get a Gigabit + TV package in Kansas for \$120 a month right now in Kansas. This includes no data caps and a two-year contract.

Google's plans may one day make it easier for us to be able to work comfortably in libraries and coffee shops while overcoming the limited bandwidth we face today with many users sharing networks simultaneously. The gov't. needs to continue to give other, less financially secure, companies incentive to expand fiber optic networks as well in order for us to start catching up to Asia in this regard.

Fiber optic cables in theory can even reach speeds of 100 terabits-per-second, which have already been tested, according to [Popsci](#). Besides Google, companies like Verizon and AT&T are also currently investing in its expansion.