From: jim@foa.org [jim@foa.org]
Sent: 8/27/2024, 6:46 PM
To: bead@ntia.gov
Subject: Choosing the right mix of technologies to achieve Internet for All

Re:
Choosing the right mix of technologies to achieve Internet for All
https://www.ntia.gov/blog/2024/choosing-right-mix-technologies-achieve-internet-all

As President of The Fiber Optic Association (FOA), the international professional association of fiber optics and the certifying body of almost 100,000 techs who build the world's fiber optic networks, I do have an opinion to share.

Backgrond
FOA has been working to create a competent certified workforce for fiber optics since our founding in 1995. I personally have been involved in the technology since 1978. i have some experience in fiber to the home (FTTH) too, having helped Verizon develop training and recruit contractors to start FiOS nationwide, consulted on what is probably the most "rural" FTTH system in Anza, CA and the first "Terabit City" of Solana Beach, CA. I've also produced several books on the topic for FOA, including Fiber Broadband and The FOA Fiber To The Home Handbook. And I led a cooperative effort at FOA to create a new SOC for Telecommunications Technicians last year.

My Comments:

Bringing broadband to unserved and underserved areas is a noble goal but a daunting task.

Cost is only one problem, time is another. It takes 2-5 years to design and build a small fiber optic network. A focus on the moddle mile and wireless can bring service to users faster while longer term fiber networks are being implemented.

There has been a focus on manpower issues. FOA has been working on that since 1995. We have proven that local community and technical colleges can build the workforce needed as the fiber networks are designed and built. Kentucky is the best example.
(https://foa.org/workforce/index.html#role_of_FOA)

Some rural areas are easy to build FTTH networks, especially small towns where 90+% of rural population lives. Aerial cables and drops to homes are the easiest way to make connections. CATV coax with a hybrid fiber coax system are quite good. And most small towns already have fiber optic middle mile connections, but if they don't, that must be addressed first.

Rural areas served by electrical utilities or coops are also fairly easy to build FTTH networks. ANZA had no wireline phone service, but installing fiber along the existing poles was easy and

relatively inexpensive. Connecting homes was more difficult since some homeowners did not want aerial cables, but methods to install drop cables underground easily exist. ANZA was really rural, 4,000 subscribers in a 500 square mile area! Mostly “fiber to the ranch!” (Connect Anza and the “treabit city” are featured here https://foa.org/tech/ref/appln/FTTH-DIY.html)

Some rural areas that are mountainous have proven the viability of line-of-sight WiFi. Many areas in the California regions have depended on it for years.Properly built it can provide adequate bandwidth for normal purposes.

Cellular wireless can work well in urban areas and since most users, especially in low income areas use smartphones for Internet, are a viable solution as long as costs are reasonable.

Until 2017, we lived on a farm in rural San Diego County. We were the last subscriber on the CATV system, did not get DSL for years, but used VIASAT geostationary satellite service. It was most reliable, fast enough for almost everything but streaming video entertainment. Why do VIASAT and Hughes satellites not get considered, only the new low-earth-orbit satellites that are relatively unproven?

It’s easy to get hung up on “gigabit” service, but most online tasks can be done with 20Mb/s service.

A bigger problem is the speed everyone talks about is only the speed from the local ISP to the end user, but many ISPs have congestion at their had ends. We’ve done tests that show that some ISPs connect users to their head end at high speeds but speeds to servers on the outside of the sytem are much slower. Speed tests are easy to manipulate.

Devices for low income users are an issue. Has anyone thought about the secondhand market for smartphones, tablets and laptops? They are a good solution for connectivity at a fraction of the cost of new devices.

Sure, we’re the Fiber Optic Association but all these broadband services rely on fiber backbones and middle mile. We beleive that having an open mind will lead to the best solution.

Regards,
Jim Hayes, President

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