

The Final Mile

It is only a mile from Madison Square to Union Square in New York City, and in 1880 this stretch of Broadway was one of the first electrically lighted streets in America and the world. A generation later in 1902, it was dubbed the Great White Way; the brilliance of the many illuminated signs captured the imagination of visitors from around the world. Fast-forward half a century when the brilliance and prosperity associated with electrification permeated most of the western world, but access was not equitably distributed. By 1934 nearly nine out of every ten farms in France and Germany had electricity while nine in ten American farms were still without. The energy that drove the many innovations of the Roaring Twenties was enriching and enlivening much of America, but for many, that prosperity was many miles away.

Similarly, in 2020, access to prosperity is intricately connected to a community or an individual's ability to connect with the World Wide Web. The dot-com expansion of the nineties opened doors for much of America and the world. Internet connectivity enhanced many aspects of people's lives. Economically, supply chains were opened, encouraging productivity and innovation. Culturally, barriers to the global exchange of ideas were eradicated, and recipes, ideas, and fashions spread at record speed. Socially, people became connected in many new ways regardless of geography. Perhaps most importantly, the ability to learn about anything and everything has opened up to those with access. For the last thirty years, access to the internet has become the central measure of sophistication and affluence. Those with access are ahead of those who lack access in terms of their ability to achieve on almost every standard.

The most important and effective of the New Deal programs was the Rural Electrification Administration, or REA, authorized by President Roosevelt to address the inequities created by limited access to electrification. Within six years of implementation, the 90% of American farms without electricity was transformed to less than half, and a decade later, almost all were connected to the grid. This transformation also introduced two important new quasi-governmental institutions—the cooperative and the public benefit (or service) corporation. In the name of public welfare, infrastructure was extended, resources were allocated, and important services found their way into every corner of America. The resultant economic expansion made America the greatest nation in human history.

We Are Faced with a Similar Challenge

Now we are faced with a similar challenge. Internet access has become virtually universal, but there remain pockets where access is limited or lacking. Internet access can range from 10 megabytes per second (Mbps) to download and 1 Mbps to upload on a dial-up access to 1 Gigabyte per second (1G) down and up on a fiber-optic connection. The average American internet access speed is 55 megabytes per second (Mbps). In Arizona, average access speed is much slower at 36 Mbps. While we have seen dramatic improvements in rural access, the technological challenge continues to be keeping up with constantly moving goalposts. The goals articulated four years ago, for greater access at the 25Mbps/3Mbps standard, fails to recognize that being future-ready looks more like 100Mbps/100Mbps—a standard most of the nation and almost all of rural America is far from reaching.

We Have the Tools to Do It

The tools exist to move rural Arizona from where we are today to the standard needed to ensure all children have access at home to the tools required to access a quality twenty-first century education. First, the technology exists. We have identified tools that will enable the establishment of a network of fiber linked nodes capable of reaching all the households within a seven-mile radius. Within each home, access points can be installed capable of providing 100Mbps/100Mbps access to wireless devices. Second, programs exist to provide the funding to erect the network. Through the Rural Utility Service, the descendant agency of the REA, grant funding is available for just such a program. Management of the service would be provided by either a non-profit organization or a governmental or quasi-governmental (public service corporation) agency. It is possible that management could be contracted with private providers, cooperative agencies, or municipalities. There are some regulatory questions still to be addressed. Third, models are currently being developed to demonstrate the efficacy of the technology. These models are being set up in several rural communities across Arizona. Based on their performance, we will be able to answer many of the questions.

In Conclusion

We must keep in mind the importance of ensuring universal access to a quality education. In response to the obstacles to educational opportunity created by segregation almost a century ago, the U.S. Supreme Court responded, "Today, education is perhaps the most important function of state and local governments. Compulsory school attendance laws and the great expenditures for education both demonstrate our recognition of the importance of education to our democratic society. It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the very foundation of good citizenship. Today it is a principal instrument in awakening the child to cultural values, in preparing him for later professional training, and in helping him to adjust normally to his environment. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms." Brown v. Board of Education, 347 U.S. 483, 1954 (at 493)

This sentiment applies just as well to the importance of providing access to internet connectivity. More recently, the court considered the importance of state action to provide equitable access to educational opportunities and found, in the words of concurring Justice Harry Blackmun, "In my view, when the State provides an education to some and denies it to others, it immediately and inevitably creates class distinctions of a type fundamentally inconsistent with those purposes, mentioned above, of the Equal Protection Clause. Children denied an education are placed at a permanent and insurmountable competitive disadvantage; for an uneducated child is denied even the opportunity to achieve. And when those children are members of an identifiable group, that group—through the State's action—will have been converted into a discrete underclass. Other benefits provided by the State, such as housing and public assistance, are of course important; to an individual in immediate need, they may be more desirable than the right to be educated. But classifications involving the complete denial of education are in a sense unique, for they strike at the heart of equal protection values by involving the State in the creation of permanent class distinctions." Plyler v. Doe, 457 U.S. 202, 1982 (at 234)

The extent to which technology in the home can effectively deny a child access to an education has expanded exponentially over the last few years, and we are in a position to establish patterns of service that will overcome the potential deficit. In 1882 the technology existed to light the first mile from Union Square to Madison Square, and those who could, traveled to marvel at what had been accomplished. Now we have the opportunity to reach out and bring access to the prosperity made possible by a more interconnected world to those in rural Arizona by bridging the gap and taking it the Final Mile.