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SHOULD FIBER-BASED INTERNET ACCESS BE A UTILITY?

San Francisco Blue Ribbon Panel on Municipal Fiber
Subcommittee on Technology & Infrastructure

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The Municipal Fiber in San Francisco Reports

These reports evaluate the prospect of deploying a fiber-optic network citywide, in support of San Francisco's longstanding effort to guarantee every single resident of San Francisco affordable, high speed internet service.

In this installment of the series, our panelists seek to explain why fiber-optic internet should be treated as a public utility, fundamental to the economic and social life of the entire City. The panel explores international examples of success stories and addresses the risk inherent in maintaining the status quo.

In the installments following this one, the panel will continue to assist the City to frame its ongoing consideration of whether and how to improve internet connectivity across the City. What business opportunities are available to the City to ensure a fiber optic network operates a revenue-generating community asset? What financing mechanisms are available to the City? What privacy, governance, and security protocols will ensure ISPs that operate in San Francisco deliver a network that lives up to San Francisco values? Explanatory publications addressing each of these crucial questions will make certain that policymakers and residents are empowered to make an informed choice about the future of the internet in San Francisco.

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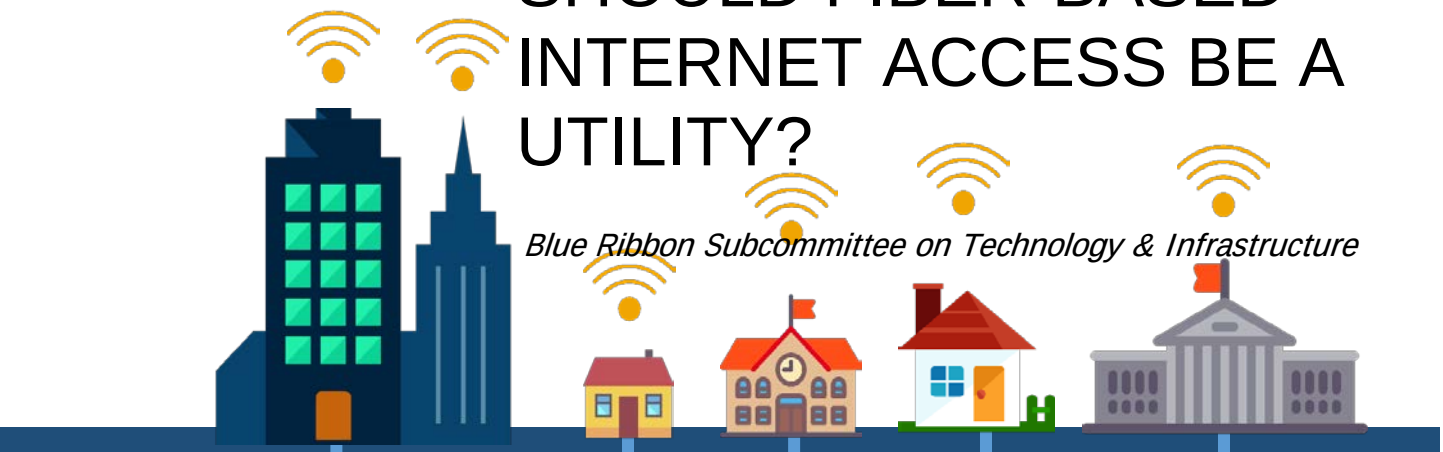


What Is A "Utility"?

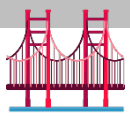
Defining "Utility". A "utility" (also referred to as a "public utility") is a service that (1) relies on a physical network of some kind and (2) is recognized by the local, state, and/or federal government as a basic, fundamental input into both domestic and economic life.

Special Treatment of Utilities. When a community decides about the role of government in providing basic services to everyone, such as electricity, water, gas, or sewage services, utilities are subject to special treatment and attention. Utilities can be sold by private or public entities, but they are always subject to public obligations to reach everyone at a reasonable price with a service meeting public quality standards.

The Key Question for San Francisco: Is Internet Access a Utility?

Utility v. Demand Driven Model. San Francisco currently faces an important question about the future of internet access across the City. Specifically, the City is considering two different approaches to building out its fiber-based network: utility-based and demand-driven.

A utility-based approach would require a fiber connection—likely provided on a wholesale basis, as described below—as essential physical infrastructure under the City's authority to require that it reaches everyone. The logic goes like this: if the City can influence when, how, and to whom the basic network is built, and at what cost that wholesale facility is made available to private competitors who want to directly serve customers, all premises across the entire City could have access to modern essential internet service at a reasonable cost.



A Lesson From U.S. History: How Electricity at Home Became a Utility

Services that start off as luxuries can become utilities as their centrality to life becomes clear. Electricity to the home was initially a luxury. It was sold by private companies following a "demand-driven" model – meaning that where investors saw the possibility of a reliable stream of revenue that met their expectations, they would borrow or put up the initial sum of money necessary to wire businesses and homes with electricity.

So, even though San Francisco's streets were first lit with electric light in 1876, it wasn't until 1899 that the first home had electric lighting. [1] Rather than provide electricity directly to residents and businesses, City Hall largely relied on private investment and granted private companies the right to build and use utility poles and lay electric wires. [2] Fifty years later, and electric service was still not available to most homes in San Francisco. This was the demand-driven model in action.

At that point, at the beginning of the 20th century, electric service was not available to most other homes across the country either. The electrification of America, by and large, followed a set pattern: businesses and government offices first, wealthy urban dwellers next, then poorer urban dwellers in far less well-off areas of town.

Electricity became a major domestic policy issue for the country. **The demand-driven electricity model created social inequities that were viewed as harmful to both economic growth and social justice in America.** In 1928, as public concern rose about the size, prices, and practices of the private electric companies, the Federal Trade Commission carried out a four-year investigation of the so-called "Power Trust" and its far-flung empire. The FTC documented a range of abuses, including financial manipulation, stock watering, padding of operating expenses, overpayment of executives, questionable transactions with subsidiaries, milking of operating companies, and massive lobbying and propaganda campaigns. [3]

Today, after government intervention in the electricity marketplace and decades of treatment of electricity as a utility subject to public obligations, we take electricity for granted as a service available to every home and business, like water, gas, and sewage service, at a reasonable cost. Houses are built for a peak electricity use so that everybody can plug in their devices and appliances, function in the modern world, and live a safe and secure life.

Change of Perspective: Cities That Eliminate Barriers to Internet Access

Today, fiber optic Internet access is available at a reasonable cost to 100% of residents in several East Asian cities (most notably in South Korea, Japan, Hong Kong, and Singapore), and China is prepared to connect 100 million homes with fiber in short order. [4] Sweden also has extraordinarily high fiber adoption. **None of this happened by accident; none of these places used a "demand driven" model. Cities in all of these places treat internet access as a utility.**

Economists who study these examples will point to the existence of a “natural monopoly” to validate the decision to treat internet access as a utility. The company with the first internet wire serving an area is likely to be able to wire additional houses at a lower cost than any new upstart possibly could, because it already has many customers and can buy equipment in bulk. Another way to explain this important point: once a house is wired it can become prohibitively expensive for a competitor to show up and build a second wire.

The "natural monopoly" connection all the way to a home or business is the most expensive part of a network to build. Where the market is not solving that problem by itself in a particular area, government intervention can introduce measures to fix the problem and foster market competition.

International Success Stories: Singapore and Sweden

Consider Singapore in 2002-03. Internet service for Singaporeans at that point was high-priced and provided primarily by two private companies: DSL from a telephone company and cable modem service from a cable company. Though the local cable company was selling relatively fast download services (about 100Mbps, compared to the 10 Mbps being offered by the phone company) to subscribers, and indeed was the only entity providing these high-capacity services, it was charging $80 or $90 a month and its network's upload capacity was sharply limited. [5]

The government of Singapore was receiving many complaints from both residents and businesses about this state of affairs, and decided that its citizens needed inexpensive, two-way, virtually unlimited fiber capacity. So, after visiting cities around the world to investigate their fiber plans, the government decided to ensure that many retail fiber competitors served all of their residents and businesses. The way to do that, Singapore determined, was to build a fiber connection to homes and businesses and have it made available at a reasonable wholesale cost to retail providers. Competition would come not from having many lines running into homes and businesses, but from having at least one fiber line in place that could be used by any retail player interested in directly billing customers and providing services. [6]

The Singapore government put out a request for bidders to build this fiber that offered about $750 million in government support in exchange for a promise that the winning bidder would connect fiber to every home and business in Singapore. The winning bidder was not itself permitted to sell services directly to consumers and businesses, and the maximum price it could charge for wholesale fiber was set by the government. [7]

Today, Singapore's "natural monopoly" problems have been decisively solved: gigabit symmetrical (equal upload to download) fiber subscriptions are available for about $30-$40 a month, there are many competitive providers selling services at different levels of capacity and cost, and no one has been left behind. Singapore has stopped measuring residents' capacity and subscription rates for cable or copper (telephone line) high-speed Internet access: these numbers are no longer relevant. [8]

This same model has been realized, with great success, in other countries as well. In Sweden, for example, the city of Stockholm owns the entity that lays the basic fiber facility that anyone, including businesses, access providers, and service providers, can use. As in Singapore, this approach has led to increased competition in the delivery of telecom services and has driven the adoption of high-speed Internet access. [9]

A Utility Approach in San Francisco: Build a Network Any Company Can Serve

Citywide fiber is basic, utility infrastructure at this point in other advanced economies. To rank among the fastest Internet cities and countries in the world, a utility-based approach would require San Francisco to reach every premise with basic fiber-optic infrastructure. In the simplest terms, the City would ensure that fiber is available to every premise (like a street grid) but would not itself provide service over the network.

This approach (called a “dark fiber” approach) would create a clear distinction between the physical wires that make up the new network—controlled and maintained as a utility—and numerous operators lighting the network. By covering the high upfront costs necessary to make the more competitive parts of the network function, a dark fiber setup would trigger far greater price competition for internet service in the City. A utility-based, City-driven strategy would open the resources of a fiber network to the widest range of innovators.

In contrast, a less ambitious approach, known as a demand-driven buildout, would be guided entirely by residents and businesses who can afford subscriptions. Under this approach, the City would connect individual premises to the fiber-based infrastructure only when a customer subscribed to Internet service. Instead of a fiber-optic line running to every home, business, and nonprofit, only the parts of San Francisco with the means to pay the very high subscription fees now commanded by the existing incumbent internet access providers would be connected to fiber. All other areas, regardless of future ability to pay, would be left out. This would result in, essentially, what we have today across the U.S.—a patchwork of connectivity concentrated in the wealthiest parts of the City, with drastic differences in quality on a block-by-block basis.

The risk is that if San Francisco were to pursue a demand approach, the City would perpetuate and amplify existing disparities in opportunity. Lack of internet access is both a cause and a consequence of unequal access to economic and social resources. Although inequality will not be solved by fiber Internet access, without utility fiber in place it will be impossible to take on all the other issues that underlie inequality, including workforce development, healthcare, and education. High-capacity, reliable Internet connections will be essential to all of these sectors.

Panelist Insight

“With more and more government services moving online and becoming digital, it's incumbent upon San Francisco to deliver a citywide fiber network that will give its residents the opportunity to access services and communicate with their government in the 21st Century."

Professor Allen Hammond,
Chair, Subcommittee on Technology & Infrastructure

Public Opinion: Internet Access Should Be Treated as a Utility

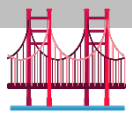
Respondents from across the political spectrum tend to agree that high speed Internet access is fundamental to daily life today. Seventy-eight percent of voters believe that equal Internet access is a right, with large majorities of Democrats (88%), Independents (71%), and Republicans (67%) on the same page. [10]

A substantial majority of the public (70%) believes local governments should be able to build their own high-speed Internet access networks if existing services in the area are either too expensive or not good enough, according to a Pew survey conducted earlier this year. [11]

In the United States, almost one-in-two Americans describes high-speed Internet access service as essential (49%). [12] There is strong evidence that this number would be much higher if people without Internet access at home were connected. Individuals who now have Internet access connections place a higher value on high-speed access: 52% of current users describe the service as essential, compared with 36% among non-users. [13]

Across the globe, four in five adults (79%) regard Internet access as their fundamental right. A poll of more than 27,000 adults across 26 countries found that 87 percent of those online felt that Internet access should be “the fundamental right of all people.” [14] More than seven in ten (71%) non-Internet users also felt that they should have the right to Internet access. [15] Countries where very high proportions regarded Internet access as their fundamental right included South Korea (96%) and China (87%). [16]

Today, thirty-four percent of Californians who lack Internet access at home cite expense as the greatest barrier. [17] Only a utility-based approach to last-mile fiber can both ensure that modern communications infrastructure reaches the home and workplace of every San Franciscan and produce more robust competition and transparent pricing policies for retail services.



Municipal Broadband in SF: Preparing to Treat Internet Access as a Utility

In order to ensure a brighter connectivity future for its residents, the City must take seriously its local government role. It is not the incumbent carriers' peer. It is not a business. Instead, it has a public service obligation to facilitate the thriving, safe, and productive lives of its residents.

Cities like San Francisco are uniquely equipped to call for the construction of local fiber networks that take advantage of existing public rights-of-way and connect directly to all homes and businesses. The City has assets at its disposal: it controls rights of way, has access to its streets, and can require the fulfillment of certain service obligations.

The existing cable and telco companies selling services in San Francisco have no plans or particular incentives to connect every premise to fiber optic lines. [18] Instead, logically, it is in their interest to sell the services they already have in place for as long as possible, without investing in expensive, substantial upgrades to fiber or expanding their networks to serve additional customers. And if they do upgrade to fiber, they will want to have de facto exclusive rights to the premises they serve, which would not be in the interest of residents who would like to have an array of choices of providers.

To serve the public interest and increase competition and choice, the City should:

- gather and control access to its public rights-of-way, so as to lower the costs of installation of a utility last-mile fiber network;
- consider offering substantial public funding to support a wholesale fiber network;
- require the winning bidder to serve every home and business in the City (such service should be nonexclusive; where a private provider wants to run its own additional fiber network, it should be allowed to);
- set pricing for the winning bidder's wholesale offering, so that retail competition can emerge (such pricing to be subject to frequent review of equipment costs etc. to ensure that it remains reasonable); and
- require the winning bidder not to sell "downstream" services (retail service), to remove any incentive for that winning bidder to favor its own services.

The City is the one actor that can ensure the network reaches every premise on a non-discriminatory basis. A strong Citywide network of open access fiber would foster a vibrantly competitive marketplace for services to everyone.

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