Connecting Cambridge

Why doesn't Cambridge, Mass., have a next-generation network?

By Saul Tannenbaum / *Cambridge Broadband Task Force*

It's a strange experience to go to the 2015 **BROADBAND COMMUNITIES** Summit and announce that you are a member of the Cambridge Broadband Task Force. After people make sure you meant *that* Cambridge, they're surprised that Cambridge doesn't already have a next-generation network.

Is it local government interference? Robert Metcalfe, the co-inventor of Ethernet – technology at the foundation of all high-speed computer networks – reminds you that you live in the city in which the Internet was invented and asks what's taking you so long. Of a libertarian bent, he's sure it must be government interference. No, you explain, anyone who might want to invest in a better Cambridge network has been invited in, and all have declined. He's still not entirely convinced. You point to Kendall Square, an area he knows well in his role as an MIT trustee, and suggest that if Cambridge were as anticorporate as he imagines, it wouldn't have what many have called the most innovative square mile on the planet.

Is it state government interference? Representatives of small towns seek you out to understand what the barriers have been,

certain that it must be state legislation preventing you from moving ahead. Unlike 19 other states, Massachusetts has no laws keeping a municipality from investing in high-speed networks.

Is it money, they ask? If so, there are interesting public-private partnerships available. Creative financial engineering is also possible to bring this within reach.

No. Cambridge has had an AAA bond rating for 16 years and builds schools without state aid, all fueled by a thriving commercial tax base.

IT'S NATIONWIDE MARKET FAILURE

The United States is suffering from nationwide failure of the telecommunications marketplace. Because there is no competition, incumbent telecommunications companies collect ever-increasing subscriber fees without investing in higher-speed networks. This position, formerly voiced only by academics and activists, has now become a cornerstone of government policy. President Barack Obama, speaking in Cedar Falls, Iowa, voiced this, as has Federal Communications Commission Chairman Tom Wheeler.

Along with acknowledging a market failure, both Obama and Wheeler urged the same solution: community networks.

It may be no surprise that former community organizer Obama called for community networks as a solution, but Wheeler, formerly an industry representative for the telecommunications companies, certainly raised eyebrows when he told the **BROADBAND COMMUNITIES** Summit that "[w]hen commercial

There's no local or state interference. The city has plenty of money. The absence of a next-generation network in Cambridge must result from market failure.

providers don't step up to serve a community's needs, we should embrace the great American tradition of citizens stepping up to take action collectively."

Community networks turn out to be a viable business. Because incumbent telecommunications companies offer poor service at artificially high prices, building a business around higher-speed networking at reasonable prices is quite feasible.

There's no better indicator for that than the day-long "Financing Fiber Networks" session. The list of potential financing mechanisms is quite long. Though Cambridge has the financial strength to fund a network through traditional methods of infrastructure funding – selling bonds – many cities do not have that option. Private funders – corporations, investment banks, private equity funds – are increasingly prepared to risk capital on these investments.

WESTMINSTER, MD.: OWNING THE NETWORK

It is a bedrock assumption of government officials involved in next-generation networks that a municipality needs to retain ownership of the network it builds. Use a private partnership to mitigate risks and provide services, but retain ownership and create an open-access network to stimulate competition.

Westminster, Md., is doing just that. Expecting to spend $15 million to build an open-access fiber network, Westminster is leasing the network to Ting, which will sell service directly to residents. Robert Wack, Westminster's city council president, is quite clear why they're doing it: "We want to blow this thing up, and we want disruptive services at disruptive pricing. We've got Comcast and its usual suite of services, Verizon DSL with its patchy service areas, and dish and satellite services. Nobody is happy with any of it, and none of it has the capacity we need to take this city into the future."

DIGITAL INCLUSION

A community-owned network can build network services that reflect local community values and priorities, not

> A municipal network in Cambridge could represent the city's values and priorities better than a large, publicly held telecommunications company could.

the values of large telecommunications companies answerable to stockholders.

The Cambridge City Council went on record as early as 2005 as wanting to close the digital divide. Comcast has demonstrated no true interest in this, offering its low-cost Internet Essentials as what some have called a "crass PR stunt."

A Cambridge-controlled community network could – and should – make some level of Internet service available to all, regardless of the ability to pay. It could – and should – make sure that this service has first-class connections to the public schools, library resources and other city services. It could operate in the spirit of the early Internet: free and open, seeking only to recover most costs rather than to monetize every element.

COMMUNITY NETWORKS: THE INNOVATION ECONOMY

It is an open secret among advocates of gigabit networks that today there's little for which anyone really needs a gigabit network. The justification given for building networks of this speed is future-proofing. We'll need it in the future, they say, and if you're digging up a community to bury cables, it makes no sense to invest in technology that will soon be obsolete. Instead, build a fiber-to-the-home network.

Cambridge is an exception.

Cambridge has companies and institutions for whom high-capacity, high-speed networks are mission critical. MIT, Harvard, the Broad Institute, Google, Microsoft, Biogen, Novartis and many others that are not yet household names move large amounts of data as part of daily work. With partners like those, Cambridge can become a true test bed for the network of the future. Cambridge,

where the Internet was invented, can be where the next Internet is developed.

It's not just the upper end of the research and education sector of the economy that can benefit. Ubiquitous high-speed networking enables health monitoring of the frail and elderly that's not currently feasible. Vivid, lifelike, real-time video interaction can provide support for caregivers and for aging in place.

REINVENTING A FREE, FAIR AND OPEN INTERNET

Respondents to a Pew Research Center report, Killer Apps in the Gigabit Age, identified two basic problems with this future:

- a new digital divide as only economic elites get new network services and the poor do not
- the reluctance of incumbent telecommunications companies to embrace the future.

Cambridge is uniquely positioned to overcome these obstacles. It pairs a legacy of being on the frontiers of social justice with an economic sector whose future health requires a free and open Internet. It is a rarity in Cambridge politics to find the interests of our innovation community and our social justice community to be so closely aligned.

To this unique opportunity, one can only repeat Bob Metcalfe's question. What's taking us so long? ❖

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