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Wi-Fi For The Masses

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Could Buffalo be next?

Every city wants new economic activity, new residents, a growing tax base and a strong economy. Municipal wireless internet access—or muni wifi—has been touted as the way for new communities to stay ahead of the curve, and for old ones to become competitive.

In the last few years, city governments around the country have jumped on the muni-wifi bandwagon, devising plans to turn entire cities into hot zones. The record so far is mixed, but promising.

Philadelphia has long been the poster child of the movement, unleashing its pilot wireless program in 2004. A brainchild of Philadelphia's Chief Information Officer Dianah Neff, the wireless broadband project supplemented Mayor John Street's Neighborhood Transformation Initiative, aimed at revitalizing the city and promoting economic growth.

Business leaders, community stakeholders, and interested residents met in small groups and open forums to identify the key components of Philly's ideal network. They ultimately settled on what became known as the Cooperative Wholesale model, in which a newly formed nonprofit, Wireless Philadelphia, raised the funds to construct and maintain the network. The nonprofit was designed to own the wireless infrastructure and outsource its construction, management, and use to private service providers, thus insulating the municipal wireless setup from any single private entity's whim. Likewise, the nonprofit would be there for "digital inclusion," leading a computer distribution program and technological literacy training.

However, when the Atlanta-based service provider, Earthlink, offered to foot the proposed $10 million bill for the 135-sqaure mile network construction in exchange for its ownership—and future subscriber revenue—all of Philadelphia's conscientious planning for public ownership went right down the tubes. The city accepted the Earthlink deal in hopes of placating those fearful of spending tax revenue on the network. And any money Wireless Philadelphia would raise could go directly to digital inclusion. It seemed a win-win situation.

On the plus side, Wireless Philadelphia negotiated a deal with Earthlink in which customers at 150 percent of poverty level get wireless subscriptions discounted to $9.95 per month, versus the normal subscription rate of $19.95 per month.

It was a great deal while it lasted. But it didn't last. Earthlink pulled the plug on the entire project earlier this year. Earthlink officials report losing $200,000 per month in operating costs since the number of subscribers totalled only 5,942, a far cry from the expected 100,000. As of June 12, 2008, the network is defunct. The city of Philadelphia does not have the money to support the network and there are no private buyers for the $17 million enterprise. According to a comprehensive report issued by the New America Foundation, it was the city's turn from its initial Cooperative Wholesale model that foreshadowed this demise.

Better luck in Boston

Muni wifi planners in Boston learned from Philly's woes and are now unrolling a business plan that grants the nonprofit Open Air Boston full ownership of the network.

The key in Boston was understanding where the money really goes. In 2006, the Boston Wireless Task Force found that for a given monthly broadband access fee, an outrageous 92 percent goes to oligopolistic middle-men who control the connections between regional networks, neighborhood networks, and individuals users. Only $3 of every $40 broadband bill is spent on backhaul, or the connection to the internet backbone. In owning this mid-level infrastructure, Open Air Boston grants wholesale network access to competing ISPs, lowering the barriers to market entry and diversifying the provider profile. Ultimately, high-speed access in the pilot network costs only $9.95 a month, a relative steal.

Boston's nonprofit plan has suffered its own snags, however. Without a single corporate sponsor, Open Air Boston shoulders all of the $16 million to $20 million fundraising burden. As of April, Open Air Boston had raised less than a tenth of the money it needs, which explains the pilot's slow roll-out. The goal was citywide access by 2008, but this past spring saw only the first completed pilot network—a square-mile area in the Roxbury, Dudley Square, and Grove Hall neighborhoods.

But slow and steady progress may pay off for Boston. Small hot zones give planners the opportunity to test various technologies and to tailor service to neighborhood-specific needs. Successful, critically evaluated pilots should buffer the risk for funders, who are still skeptical about throwing millions into hypothetical Boston-wide wireless.

Buffalo's experience: a very, very small study is underway

Plans for municipal wireless in Buffalo have thus far tacked between elements of these two models. There's a small-scale study underway to see how relevant the service could be to private users in a low-income neighborhood. But a promising start foundered when the county administration changed.

Between 2000 and 2005, the nonprofit Buffalo Wifi, in conjunction with the Erie Country Industrial Development Agency, received public funding to provide wireless access in locations including Niagara Square, Ellicott Square, the Erie Basin Marina, and parts of City Hall. Plans to extend wireless to the Elmwood Strip eventually dissolved when a change in ECIDA leadership left the entire wifi project in the dust.

What's left? According to Buffalo's acting Chief Information Officer, Raj Mehta, the Brown administration just challenged telecom firm Johnson Controls to prove the feasibility of a WiMax network.

WiMax, short for Worldwide Interoperability for Microwave Access, is a long-awaited alternative to traditional wireless broadband and is heralded for its wifi speed and cellular range. WiMax infrastructure requires a downtown tower with a five-mile signal radius. Access points within the radius filter the signal to wireless users within 1,000 feet of the point. Jason Amos of the city's IT department works this out to about 17 access points per square mile. Grand Rapids, Michigan—a much smaller city—was among the first to sign a WiMax development contract, but as Raj Mehta points out, the technology is cutting-edge and there is still no gold-standard for WiMax implementation.

No tower has been installed yet in Buffalo, but Johnson Controls did begin a proof of concept study earlier this month. In line with Deputy Mayor Donna Brown's anti-poverty agenda, the study seeks to evaluate not only the technology, but also the sociology, behind 1,000-foot access points.

In contrast to Buffalo Wifi's focus on a typical hot-spot geography, the study now underway is investigating what connectivity might mean in low-income neighborhoods where personal computer ownership is small or non-existent. The study has placed access points at School 74 Hamlin Park Elementary and at the Frank A. Sedita Academy School. Principals of those schools have selected a total of 10 students who live within the password-free access range and did not have computers at home. Decommissioned city desktops were given to the students, Microsoft Up donated software, and the muni-wifi consulting company One Economy provided a required 1.5-hour training session to all 10 families. Jason Amos describes the goal of the training as teaching the families how to access the information that is most pertinent to their lives. NFTA bus routes, social services applications, and city media were among the Web sites included in the training.

Each family is given one month to use the computer, during which time the students complete special internet assignments and teachers look for changes in student performance. And Johnson Controls wants to make sure that the network performs. They will be evaluating such parameters as network accessibility at various times of day and the efficiency of video streaming sites like Encarta and MSNBC. Some families have yet to begin their four-week trials, and so results of this digital inclusion experiment aren't expected until the fall.

A one-time New York State technological efficiency grant covers the costs associated with the proof of concept study, but Mehta cautions that any further plans must be

adequately funded initially and annually. One solution to the money crunch is to put the network to revenue-generating public use.

Meanwhile, in Texas, regional connectivity

Corpus Christi, Texas, could be the model for Buffalo.

In this metro area of about 420,000, the city's municipal wireless beams water and gas meter readings to City Hall twice a day, which has allowed Corpus Christi residents to say goodbye to estimated bills, stolen utilities, and the meter-reader's gas money.

Out-of-office employees are always connected to City Hall without paying an AirCard service fee. Communication lines are clearer. Efficiency has increased. On the public safety front, broadband connections allow police to download 500 to 700 kilobites per second, enough to quickly access maps, 3-D aerial imaging programs, and sex-offenders databases on command, while digital video offers a host of new time- and life-saving possibilities to law enforcement agencies.

(Buffalo's digital video is up-and-running, as the 60 white boxes mounted on poles throughout the city prove. Unfortunately, public safety agencies use a 4.9 gigaHertz frequency while the WiMax frequency is only 2.4. Initial plans saw the cameras and access points cohabitating, but this needs to be rethought).

What Corpus Christi is proving is that, in the end, an investment in municipal wireless is money in the bank.

Likewise, cities may look to co-anchor tenants such as hospitals as funding sources. For a patient en route to the hospital, Corpus Christi's wired streets mean that information will soon be sent from the ambulance to the emergency room, prepping ER docs for their newest arrival. If future patients opt to participate in an electronic medical database, EMTs could access patient records immediately via the network and thus reduce the risk of administering counter-indicated treatments. Revenue earned through co-anchor tenants could then fund the network's private-use expansion.

As Mehta explains, regionalization of wireless networks maximizes public-use benefits. A dead zone between two municipal networks is inconvenient for private ISPs and a challenge to county or state workers who must pay for network access in just one small space. County and state funding for wireless would help avoid these service gaps, though powerful telecom lobbies bully state-funded initiatives. Nevertheless, Minnesota is currently working on a statewide wireless program.

As Buffalo IT director Raj Mehta puts it, "You have to cover the region in order to really get the true benefits."