Municipal Wireless in the US: Lessons from San Francisco and Beyond

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San Francisco Context

- **Population about 777,000**
  - **Highly diverse:**
    - **30.8% Asian; 14.1% Hispanic; 7.8% African American**
  - **Median income about $55k**
- **Area 49 sq. miles**
  - **Numerous hills**
  - **High proportion of multi-unit housing**
- **Existing broadband providers**
  - **DSL incumbent: AT&T**
  - **Cable broadband provider: Comcast**
- **Digital Divide in SF**
  - **Significant gaps in computer and Internet access for:**
    - **Low income**
    - **Lower education levels**
    - **Hispanics and Blacks**
  - **School access:**
    - **SF ranks last among California cities:**
      - **in computers/100 students;**
      - **in Internet access per 100 students**

San Francisco TechConnect

- **Established mid-2005**
  - **"strategy to promote digital inclusion by ensuring *affordable Internet access*…"**
- **September 2005: RFI/C:**
  - **"Universal, affordable *wireless broadband* internet access is essential to connect all residents of SF…"**
- **December 2005: RFP**
- **April 2006: winner announced: EarthLink/Google**
- **Late April 2006: Task Force on Digital Inclusion established**
- **January 2007: Contract Signed**
  - **Needed approval by Board of Supervisors Deadline? Six months after contract signing; extended to Oct. 07: NEVER APPROVED**
- **July 2007: Mayor's office intends to put project on November ballot**
- **August 2007: EarthLink backs out**
- **October 2007: Mayor says new initiative to be announced "in a few weeks"**

SF Bidders and Contract Highlights

Five Major Bidders:

- EarthLink/Google
  - With Motorola, Tropos
  - Ad-based model for free level
- MetroFi
  - Has built and operated other WiFi networks
  - Founded by former CLEC execs
- SeaKay
  - Cisco, IBM, nonprofit
  - Had no business plan: would finance from inkind and monetary donations
- NextWLAN
  - Would use connections to existing DSL for indoor access
- RedTAP
  - Wireless co-op model
  - Strong emphasis on community training and access centers

Contract Highlights:

- Four year term with 3 renewals
- Network Access:
  - network access: open access for wholesale to other SPs
  - at least 3 service providers

SF Contract cont'd…

- **Non-exclusivity:**
  - city may grant rights to other operators
  - City is not obligated to use network for municipal services
- **Service Levels:**
  - Basic: free 300 kbps or 15% of highest speed, whichever higher
  - Premium: 1 mbps symmetric min
  - Occasional use: 1 mbps
  - will introduce 3 mbps fixed service
- **Digital Inclusion:**
  - Digital inclusion product 1 mbps symmetric discounted to increase access
  - 3200 digital inclusion products at $12.95 per month
  - CPE provided to city at cost or $100, whichever is lower: City or third party or customer responsible for cost
- **User Privacy:**
  - Opt-out model
  - Location data to be held no longer than 60 days

Other Bay Area Wireless Initiatives: Wireless Silicon Valley

- Pop. ~2.4 million; area 1740 sq. miles
- 40 communities in Santa Mateo/Santa Clara counties
- RFP specifications:
  - Only outside access required; may be free or "low cost"
  - Other services "desired": enhanced outdoor, indoor, government, public service
  - These other services may be fee-based
- EarthLink refused to bid:
  - Cited requirement for free layer throughout area
  - QOS: cost of building high quality network
  - Need to update and upgrade network:

    "We do not believe that user needs five years from now will be the same as they are today"

Wireless Silicon Valley Update

- **Winner: Silicon Valley MetroConnect**
  - **Cisco, IBM, Azulstar, fronted by Seakay (nonprofit)**
    - **group that came third in SF)**
  - **Total cost estimated $200 million or ~$125k/sq.mi.**
- **First phase to be two pilots**
  - **Have not raised $500k for pilots**
  - **Only contributor is Cisco**

“Half a million dollars is peanuts around here -- Intel takes in that much cash every 8 minutes. So Wireless Silicon Valley’s inability to scare up the money says a lot about our civic and corporate leaders as well as our place as the purported center of the technology universe.”

***San Jose Mercury News*, Nov 4/07**

Other Bay Area Wireless Initiatives…

Mountain View:

- Population 77,000; area 10 sq. miles
- Provider: Google (Aug 06)
  - Business model: free for customers– ad supported
  - Customers buy own CPE for inside access: Meraki equipment
  - Google pays city for pole access
  - Google has testbed: collecting usage data

Cupertino:

- Population 52,000; 50% Asian
  - Median income $100k; home of Apple
- Provider: MetroFi
  - Non-exclusive installation and service contract
  - Business model: subscription-based; MetroFi as wholesaler
  - Coverage 75% of community

Santa Clara:

- Population 110,000; area 19.3 sq. miles
- Provider: MetroFi
  - Business model: subscription proposed; changed to free ad-supported
  - Half city covered; full coverage by end of year

Lessons from the SF Experience

- **Confusing the Means with the Ends:**
  - ***Universal Internet access* becomes *universal wireless broadband access***
  - **So much too ambitious RFP requiring citywide coverage including inside multistory buildings**

- **Understanding the Context:**
  - **Demand:**
    - **Little known about reasons for low take-up among lower income, disadvantaged before RFP**
    - **Recent studies show limited Internet access among low income, disadvantaged**
  - **City Politics**
    - **SF government structure: weak Mayor**
    - **Mayor vs. Supervisors**
      - **Whose idea?**
      - **Stalling tactics: ownership, privacy, pole attachments**

What wasn't learned from SF
(despite media accounts)…

- **Business Models for Muni Wireless:**
  - Free services, ad-based services? (Google's interest)
  - Changing consumer needs: more bandwidth? Other options?
- **Is Muni Wireless a Threat to Incumbents?**
  - QOS inferior to incumbent networks
  - Capture of local government business
  - Crowding out vs. stimulation of competition
- **Are there Opportunities for CLECs, independent ISPs?**
  - Failure of resale
  - Intermodal competition: elusive third pipe?
  - Testbed for new services and markets
  - Wholesaling allows entrance for smaller providers

Muni Wireless and Mobile Broadband…

- **Will mobile 3G/4G eclipse muni wireless?**
  - availability of broadband on mobile devices could wipe out significant part of public WiFi demand
  - Transition to 3G devices and services
    - iPhones
    - Google (open) phones
      - » Internet and other broadband content
      - » Largely ad supported
  - But also Hybrid 3G/WiFi or WiMax devices

- **Will municipal wireless networks become the freenets of this decade?**
  - Stimulating demand, but eventually dying or being absorbed by commercial services


Questions?
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