



**CITY AND COUNTY OF SAN FRANCISCO
TECHCONNECT COMMUNITY WIRELESS BROADBAND NETWORK
March 15, 2006**



Public Access



Public Safety



Public Works

Agenda



- Introduction to Team
- Proposal Highlights
- Financial Summary
- Products
- Marketing and Sales Strategy
- Digital Inclusion
- Network Overview
- 802.11n and 4.9 GHz Discussion
- Questions

Introduction to EarthLink



- Established in 1994, largest independent ISP in the US
 - 5.4 million subscribers
 - 1.5 million broadband subscribers
 - Provision over 70,000 broadband subscribers per month
- First non facilities-based ISP to offer DSL, Cable, Pop Up Blocker, VoIP
- Award winning customer support and customer satisfaction
- Financially stable, \$1.3 billion revenue in 2005
 - \$173 million free cash flow
 - \$422 million cash balance and no debt
- Established EarthLink Municipal Networks division focused on municipal Wi-Fi
- Selected to launch municipal networks in Philadelphia and Anaheim
- Finalist in Minneapolis, Portland, OR, Arlington, VA, Brookline, MA, Pasadena, CA

Introduction to Google



- Established in 1998, most popular search engine in the world
- Handle 55% of global search referrals across more than 115 domains
- Global IP backbone connecting North America, Europe and Asia
- Peering relationships with Tier 1 telecommunications companies worldwide
- Over \$6 billion revenue in 2005
- \$8 billion cash and equivalents and no debt as of Dec. 2005
- Location based applications to enhance utility and enjoyment of Wi-Fi networks
- Currently deploying a network in Mountain View, CA
- Headquartered in Bay Area with over 500 employees living in San Francisco

Introduction to Motorola and Tropos



Motorola

- Global leader in the communications industry for 75 years
- Foundation of service, innovation, quality and collaborative relationships
- 700 locations in 70 countries, 60,000+ employees
- More than one billion radios deployed worldwide
- Over 300,000 Canopy radios deployed

Tropos

- Market leader in delivering Wi-Fi mesh network products
- Platform has been successfully deployed in over 250 networks in eight countries
- Tropos and EarthLink have been working together since 2004
- Supported the development of EarthLink's municipal Wi-Fi architecture

Proposal Highlights



- A technically innovative network design
- Leverage City assets wherever possible including street lights, buildings
- Use of local business subcontractors in deployment and ongoing operations
- Dedicated General Manager point of contact for City and liaison to the community

- Low cost and free broadband alternatives for residents, businesses and visitors
- Secure roaming access for municipal workers and public safety personnel
- Support for Open Access ISP partnerships
- Support for Digital Inclusion programs
- A standards based platform on which to launch future applications

- EarthLink and Google will fund the network build and ongoing network upgrades
- Best of breed partners with a strong commitment to make SF network a success

Financial Investment



- Estimate capital expenditures required to deploy network are **[Content Redacted]**, and total amount of EarthLink and Google capital investment to support the network over the course of **[Content Redacted]** years will be more than **[Content Redacted]**.

[Content Redacted]

- Budget supports upgrade of **[Content Redacted]** of network per year.

Compensation for City Assets



Rooftops

- Explore the value and condition of assets, availability of shelter, etc.
- Rates around **[Content Redacted]** per rooftop, depending on the radio clusters / poles deployed

Pole arms

- Value of assets is driven by characteristics
- Citywide poles and/or certain locations
- Available electricity, suitability for mounting
- Permitting, inspection process, 24 hour access
- Industry averages suggest rates between **[Content Redacted]** per pole per month

Offset value of pole mounting rights with services

- Access for municipal and public safety personnel
- Discounted rates on T1 Alternative products
- Walled Garden for municipal use and City portal links
- Support of mutually defined Digital Inclusion programs

Product Offerings



Public Access



- **Who:** Citizens, Businesses, Educators, Visitors
- **Features:** Affordable fixed and portable Wi-Fi access
- Premium product speeds of 1 Mbps downstream and upstream
- Wholesale Open Access for local and national ISPs and hotspot firms
- Available monthly, hourly, daily, or even consumption or capacity basis
- Google free Basic Service at 300 kbps downstream / upstream
- T1 Alternative – 1.5 or 3.0 Mbps service at less than 50% land line rate

Public Safety



- **Who:** Police Department, Fire Department, Homeland Security
- **Features:** Enables fast, secure access to central databases, fingerprints, GIS, and photos, etc.
- Priority and throughput SLAs, use of network in disaster scenario

Public Works



- **Who:** City Inspectors, Utility Workers, Parking Meter Readers, etc.
- **Features:** Enables city workers to take their offices into the field, accessing the network to interact with municipal entities as well as citizens.

Wholesale Strategy



Commitment to an Open Access Network

- Open Access is a key component of our growth strategy
- EarthLink is passionate about being a premier open access partner. One of our Guiding Principles for our Business Partnerships is:

We will be a premier open access partner, offering a truly **level playing field**, we will treat our wholesale partners as members of the team – they are not competitors but an extended growth opportunity

- Deliver trusted ISP brand choices to residents via local and national ISP's
- Provide a turnkey solution for small and large ISP's to wholesale network access
- Trusted company to partner with; currently provide wholesale ISP services to two major telecommunications companies, and purchase from 13
- National ISP's trust our financial stability and experience as a network operator.

Retail Business



The Channel Sales Engine – Multiple Points of Registration

- Active conversations with national retailers for local market selling; very excited about EarthLink's approach to Municipal Wi-Fi as it offers a brand selection strategy with some of their existing ISP partners.
- Actively pursue local retail partners
- Engage in relationships with colleges as wholesale or channel partners
- Actively pursue affinity and other local organizations
- Channel sales programs have a proven track record and EarthLink is touted as being a great channel partner.



Market Launch Tactics Summary



[Content Redacted]

Digital Inclusion



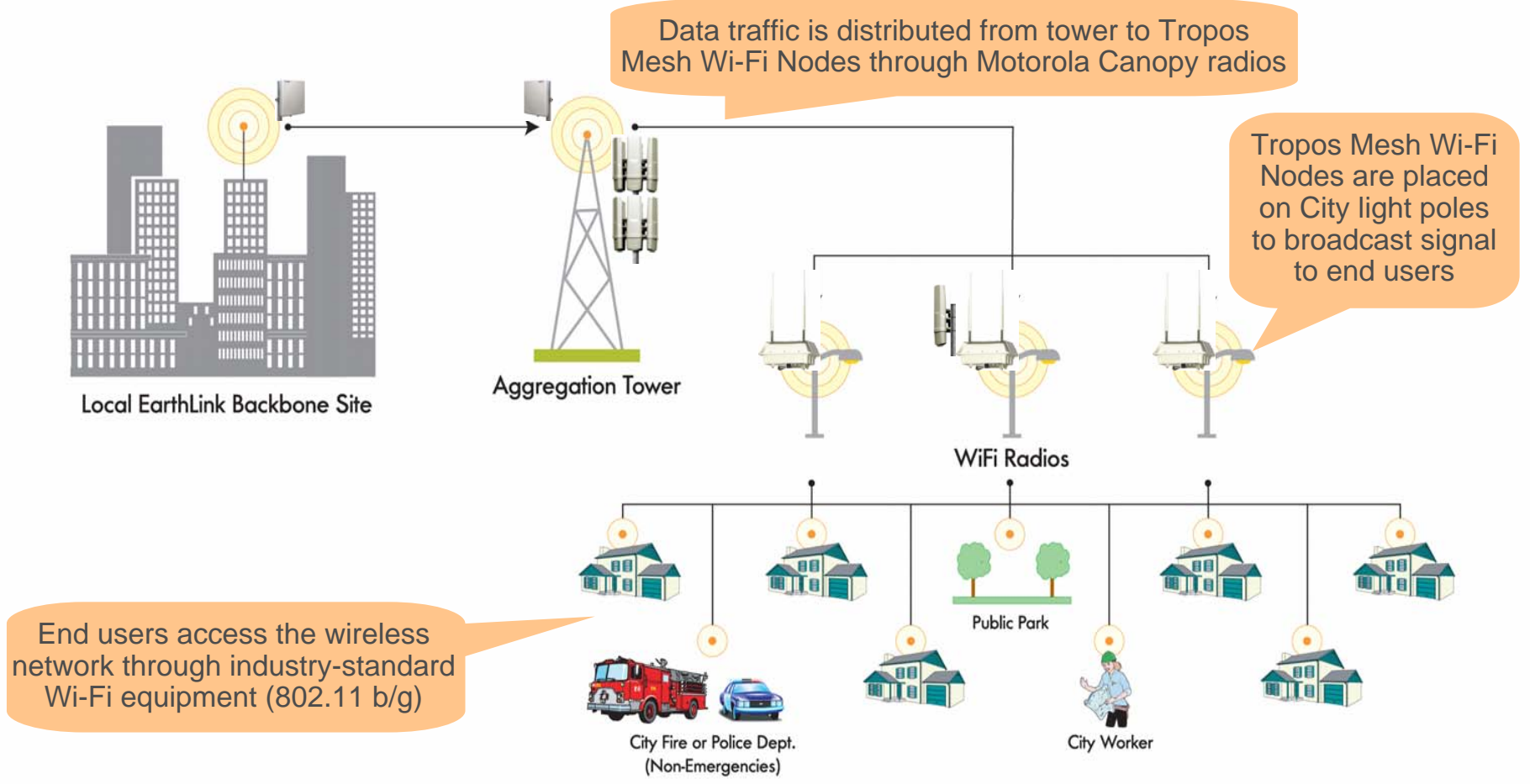
EarthLink and Google Support for Digital Inclusion Programs

- There are various components to a successful DI program, access is just step one
- EarthLink is working with an experienced Digital Inclusion partner offering customized training and content per municipality
 - Training focus: technology use, finances, employment and more
 - Content to support: training topics, health, education and more
 - Fundraising, grants and financing to facilitate computer and CPE purchases
- Leverage EarthLink and Google relationships with OEM PC Manufacturers, CPE vendors, and alternative hardware providers such as MSN, Sony, MIT
- EarthLink and Google are committed to work with the City to create the most compelling and viable programs to meet the City's Digital Inclusion needs.

High Level Network Overview



Municipal Mesh Wi-Fi Network Solution



Architecture Key Points



EarthLink's solution improves on typical mesh Wi-Fi architecture in 3 key ways:

Use of up **[Content Redacted]** Wi-Fi nodes per square mile

- Improved coverage, indoor coverage
- More radios per square mile **[Content Redacted]**

Additional backhaul capacity **[Content Redacted]**

- **[Content Redacted]**
- Reduces the amount of node traffic supported by each gateway
- Decreases the average number of hops in the mesh to reach the gateway

Powerful **[Content Redacted]** CPE with high gain antenna

- Node broadcasts to CPE at great distances, but CPE not back to Node **[Content Redacted]**



Single Radio Architecture



Manageability

- Dual-radio has higher throughput with fewer backhaul attachments than single-radio mesh
- However, performance advantage comes with the cost of Line of Sight requirements
 - 5.x GHz mesh links do not work reliably around corners or through foliage
 - Cannot use transmit power or modulation to make up for propagation differences
 - Dual-radio design may work adequately in environments with few trees or in small deployments where links can be tweaked during deployment and foliage seasons
 - “Babysitting” of 5.x GHz links difficult to support over time.
 - The scale of networks that EarthLink proposes to build requires a design which is reliable by nature and not by brute force or by careful tweaking and ongoing management.

Cost

- Single radio nodes typically cost less than dual-radio nodes
 - Allows budget for performance enhancing features such as antenna diversity
 - Allows more nodes per square mile to be deployed
- EarthLink continues to evaluate solutions and provides detailed feedback to major vendors
- Note predominant dual-radio vendors (e.g. BelAir, Cisco) announcing single-radio solutions

802.11n and 4.9 GHz



802.11n

- Upgrade to 802.11n as stable carrier grade hardware becomes available
- Expect chipsets meeting the 802.11n draft specification to emerge soon
- Enterprise grade equipment available toward latter half of 2007
- Interoperable with 802.11 b/g devices
- Systematic upgrade in high density / use areas and via maintenance / replacement

4.9 GHz

- San Francisco multi-use 2.4 GHz network designed to support various user types
- May also be able to use 4.9 GHz spectrum in backhaul and/or capacity injection layer
- Allocated exclusively to public safety use, end user link still through 2.4 GHz
- Propagation issues with 4.9 GHz, requires line of sight

- 4.9 GHz mesh not technically or economically viable, but may be feasible as backhaul
- Willing to explore further, gain understanding of City needs and available funds

Best of Class Partnership



City of San Francisco

- Mounting assets
- Anchor tenant for services
- Vision and endorsement

EarthLink

- Experienced leading ISP
- Open Access understanding
- Award winning satisfaction

Google

- Industry leading technology
- Strong community ties
- Free access service with high utility applications

Motorola

- Canopy platform
- Unparalleled design and deployment experience

Tropos

- Leading Wi-Fi mesh product
- 250 proven mesh Wi-Fi deployments including largest networks in US



Supplementary

[Content Redacted]



[Content Redacted]



[Content Redacted]



Sensitivities



[Content Redacted]

[Content Redacted]