MUNICIPAL WIRELESS NETWORKS

Brookline, Massachusetts

Presented By
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4.9 GHz Licensed Public Safety Frequency

- Dedicated Frequency Spectrum for Public Safety and First Responders
  - Licensed, So It Is More Secure With Less Noise (Interference)
- Mesh Network Providers Now Integrate 2.4 GHz (Wi-Fi) and 4.9 and other radios in the same unit – Build The Network Once!
- Get Your License!-Apply On-Line:
- [Http://wireless.fcc.gov/uls](http://wireless.fcc.gov/uls) (No Cost for Public Safety)
Public Safety Applications

- Public Safety’s 4.9 System
  - Wirless LAN access for: Uploading reports accessing criminal databases, downloading video and images of missing and wanted persons...
  - Special Event communications and monitoring, setting up on-the-fly Incident Command Center. (Boston Marathon)
  - Video Surveillance and On-scene cameras
  - Mobile Data: Laptops, Handhelds, and PDA’s
- Access to GIS data in the field: Building schematics (public buildings, schools, colleges)
  - NetMotion Software keeps the session persistent.
Public Safety Applications cont..

- RMV/NCIC information – license checks, stolen vehicles, warrants etc...
- Training documents and videos.
- Emergency Management Databases.
- COM Stat Reports, Policies, General Orders
- The units on the WIFI network are part of the LAN – making it easier to manage: Anti-Virus Updates, Active Directory rules for users, Web filtering.
What Does It Look Like
Cruiser 4.9 Antenna
Brand – Huber+Suhner
Strix Mobile Unit

Strix Radio
Infrastructure Topology

- Flexible Service Delivery
  - 5 GHz mesh backhaul
  - 2.4 and 4.9 GHz Wi-Fi access
  - Transparent network infrastructure
- Supports Multiple Applications
  - Data access
  - Video surveillance
  - Voice over IP (VoIP)
  - Mobility
- Network Segmentation for Multiple User Groups
  - Virtual LANs
  - Traffic prioritization
  - Traffic filtering
Items to Consider

- Support for 2.4 GHz and 4.9 GHz (Licensed Public Safety) Access
- Number of Radios at Each Node (Brookline will have 6).
- Mesh Capacity to Backhaul Traffic
- Upgrade Path to New Technologies (700Mhz).

- High Speed Mobility
- Cost Users
  - Laptops
  - Handhelds
  - Police Cruisers
  - Fire Apparatus
- Start Thinking About Applications
  - It’s not just the network
Thank You

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The Brookline “Deal”

- Procurement from Statewide Contract ITT13
  - Simple Procurement
  - Open Process
  - Awarded to Galaxy Internet Services (Newton, MA)
- Mixed Use Public Safety, Municipal, and Commercial System
- Free Service in Commercial Hot Spots / Zones
- Free Services in Public Parks
- Free Services for Municipal Workers
- Free Services for Public Safety (Police and Fire)
- Limited Free Services to Public Housing Residents
- No Capital Costs to Brookline Residents
- Licensee (Galaxy Internet) Makes Money on Paid Commercial Customers
Wireless Business Models (1)

- Municipality Invests In Infrastructure
  - Operated and Maintained by Municipality?
  - Operated and Maintained by Private Company?
  - City Offers Services and Tech Support?
  - Private Company (ISP) Offers Service and Support?
    - Cost Recovery for Municipality (Percentage of Revenue)

- Private Entity Invests In Infrastructures
  - Operated and Maintained by Private Company
  - Private Company Handles Support
  - Private Company Looks to Recover Investment
    - Selling Commercial Services
    - Selling Services to the Municipality (Anchor Tenant)

- Non-Profit Invests in Infrastructure (Boston Model)
  - Need to Raise Money
  - Non-Profit Pays to Install, Operate, and Maintain Network
  - Non-Profit to Cover Costs by Selling Wholesale to Private Entities

- Hybrids
  - Anything goes – this is a new world!
Wireless Business Models (2)

- Typically Some Kind of Public-Private Partnership
- Often an Exchange of Rights to Use Municipal Assets (Poles, Fiber, etc.) for Something

Factors for Private Investment

- Population Density
  - Lower node count (cost) per potential subscriber
- Projected Take Rate
  - Economic Demographics
  - Availability of Other Services
    - DSL, Cable, FiOS
- Deployment Issues
  - Terrain & Foliage
  - Municipal Facilities
    - Poles (Power)
    - Fiber
Why Wireless
(Why Wi-Fi)

- Improve Public Safety
- Improve Municipal operations
- Economic Development
  - Free Hot Spots
    - Commercial Districts
    - Public parks
  - Digital Lifestyle
- Community Development
  - Closing “The Digital Divide”
  - Access to municipal resources
- Increases Broadband Competition