Wireless Solutions for a Connected Community
Agenda

- Cisco Wireless Mobility Portfolio
- Wireless Trends in State and Local Government
- Indoor Wireless Solutions
- Hotspot and Building to Building Solutions
- Pervasive Outdoor Wireless Solutions
  Trends, Business Models
- Next Steps
Wireless Mobility for State and Local Governments

What if you could:

- Empower employees to stay connected anywhere in the building or when they are mobile
- Provide emergency first responders with real time access to all network applications
- Differentiate your community and enhance economic development
- Narrow the digital divide
- Reduce response times and management costs for mobile workers
- Increase citizen satisfaction and increase revenue capture
- Manage and track vehicles and assets
- Put cameras anywhere, read meters remotely, and deploy all types of sensors
Wireless Trends in State and Local Government
Government: Top Applications Driving Wireless Adoption

- Parking/Traffic: 27%
- SCADA: 30%
- Utilities AMC: 34%
- Education: 36%
- Asset Tracking: 40%
- Public Works: 49%
- Building Inspection: 51%
- Public Safety: 65%

Key Drivers for Wireless Deployments

- Enhanced Safety Security
- Improved Gov't Productivity
- Improved Services to Citizens
- Emergency Response
- Economic Development
- Digital Inclusion
- Interagency Communication
- Intelligent Transport
- Traffic Management
- Lower Telecommunications Costs
- Remote Management for Public Utilities

Source: W2i/Yankee Group Digital City Survey, 2005
Outdoor Wireless Is a Booming Market

- U.S. market will see a compound annual growth rate of 134 percent between 2004 and 2007 as more municipalities, including larger cities, embark on wireless initiatives.
  

- Hundreds of U.S. cities are setting up metro-scale wireless networks and more than 1000 local governments worldwide have similar plans.
  
  The Wireless Internet Institute (W2i)

- Outdoor Wireless market in state and local space is expected to grow from $500M in CY05 to $2B in CY07
  
  Input Inc.
Cisco Mobility Solutions for a Connected Community
Cisco Mobility Portfolio

Category/Components

Cisco Wireless Mobility Solutions consist of a rich portfolio of secure Wireless LAN, Hotspot and Pervasive Outdoor products

Value

Removes the limits of wires for employees and citizens to provide secure, wireless network access to information and applications

Provides convenient access in indoor and outdoor environments and the flexibility to allow all forms of information (data, voice and video) to be accessible from multiple devices

Benefits

Improves service effectiveness, productivity, economic development, and public safety by allowing employees to accelerate decisions, solve problems and streamline tasks on the spot
Cisco Mobility Portfolio

Unified Advanced Services
Cisco Wireless Location Appliance, Advanced features of Cisco WCS, Cisco SDN, VoWLAN phones.

World-Class Network Management
Cisco Wireless Control System (WCS)

Network Unification
Cisco 4400, 2000 Wireless LAN Controllers and Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Wireless Controller Module for ISRs.

Mobility Platform
Cisco Aironet Access Points: 1500, 1300, 1240AG, 1230AG, 1100AG, 1000

Client Devices
Cisco Compatible Client Devices
Governments are Leveraging Mobility to Enhance Their Capabilities to the Benefit of the Community

- **Public Safety and Security**: Empowers first responders with critical information and resources at the point of need
- **Service Effectiveness**: Increases employee productivity by allowing them to be connected when they are on the move
- **Citizen Empowerment**: Provides citizens with easier access to services from government
- **Economic Development**: Differentiates community and allows business and visitors to get access on the move
- **Social Inclusion**: Allows more citizens an economical way to get broadband and be connected to the community
Cisco Mobility Solutions for State and Local Governments

Enhance Service Effectiveness, Field Productivity and Public Safety

Indoor Wireless Solutions

Hotspots & Building to Building Solutions

Pervasive Outdoor Solutions

Built on a Secure IP Foundation
The Secure IP Foundation

Components
Industry leading routers, switches, optical and security solutions that form the basis of a secure, Intelligent Network Foundation

Value
Provides the reliability, adaptability and resiliency to connect people across the community to vital information and resources

- **Reliability**—protects network from outages, service degradation at peak loads and security threats as the network scales to support user demand
- **Adaptability**—supports voice, video and data with the ability to introduce new service and application capabilities via wires and wireless
- **Secure**—integrated security across all levels of network – from the core to the end user

Benefits
Allows governments to extend reach of rich government resources to the entire community, reducing operational costs and increasing service effectiveness; built in security at all levels; provides a security strategy for both today’s network and tomorrow’s growth; enables all advanced communications capabilities across the organization
Indoor Wireless Scenario
Cisco Indoor Wireless Solutions

**Components:**
Cisco Indoor Wireless Access Points and Controllers

**Features:**
Removes the limits of wires to provide secure network access for employees with all types of devices indoors

**Benefits**
Enables governments of all sizes to increase productivity, responsiveness and collaboration
Allows employees to work in conference rooms or in other buildings, provide guest user access, kiosks in lobby for citizens, etc.
Easy to deploy, manage and secure
Enables asset tracking and RFID capability
Provides proven ROI and reduced Operating Expenses
School District Gets Wirelessly Connected

The Challenge
- Teacher productivity limited because network/application access constraints
- Continued desire to make the learning experience more dynamic and compelling
- Need to improve system wide productivity and efficiencies

The Solution
- Wireless LAN throughout the buildings
- Laptops with wireless for teachers and students

The Benefits
- 2500+ faculty members can be connected in any of the schools facility which has increased productivity, efficiency and job satisfaction
- Enhanced student instruction and use of multimedia content
- Students are getting controlled access to internet
Hotspot and Building to Building Scenarios
Hotspots and Building to Building

Components
Cisco Outdoor Wireless Access Points, Controllers, Bridges

Features
Provide secure wireless network access around certain buildings or facilities in a small geographic area (Hotspots)—parking lot, quad, park, etc.
Connect remote buildings wirelessly (point-to-point)

Benefits
Increases responsiveness and productivity of employees by establishing secure wireless connections to the network outside the building
Enables employees to access richer resources and applications—(uploading large reports, pictures, video, etc) outside and be closer to the citizens
Easily extends/integrates with existing indoor wireless
Allows connectivity to remote buildings which cannot get economical wired access
Advanced management and integrated security reduces the costs and risks of deployment
Can be used in conjunction with existing low bandwidth systems (EVDO, etc)
Can be open to citizens or tourists for general access
Hotspot Example One: Increasing Service Effectiveness in Greensboro

Challenge
- Extend the quality of information services to mobile city employees
- Improve service availability, responsiveness and reliability

Solution
- Deployed 25+ hotspots throughout city
- Upgraded some switching infrastructure and new Access points, controllers and management.

Benefits
- Wireless technology enabled field workers to work in the field
  - Added two to three hours per day per each of 32 inspectors—equivalent of adding eight inspectors
  - Provides field workers access to itineraries, email and reports in the field
- Field workers using wireless technology saves office space because workers can be in-the-field
- Increased service effectiveness and productivity
Hotspot Example Two: Baltimore Police Department Enhances Public Safety

Challenge
- Officers spending too much time in the station doing paperwork
- Decreased officer presence in the field

Solution
- Upgraded portions of network to make it a secure IP infrastructure
- Deployed Access Points, Wireless Clients

Benefits
- Savings of at least one hour of each officer’s time per 8-hour shift—time they can spend on the street rather than in the station
- Increased officer access to critical information—mug shots, video, etc.
- Increased security and confidentiality of communications
- Increased service effectiveness and productivity
Hotspot Example Three: Fredericton Uses Wireless to Stimulate Economic Development

Challenge
- Differentiate Fredericton from other tech focused cities in U.S. and Canada

Solution
- Cover 20+ sites throughout city with Hotspots around buildings, parks, river front, etc.

Benefit
- Differentiates Fredericton as a forward thinking community
- Access to the wireless network enhances business and community quality of life
- Use wireless network for tourism – “The Freddy Zone”
- Enables city employees to interact faster with the community
Hotspot Example Four: Generic Building to Building Example

Challenge

- Improving communications with remote facilities
- Provide high-speed network connectivity to remote buildings which can not economically get connected

Solution

- Bridge points and controller to outlying buildings (Maintenance facilities, etc.) allowing full data and voice capabilities

Benefit

- Connect traditionally underserved parts of agencies
- Eliminated costs of leased lines for voice and some data
- Provided all employees with network access, direct dial phone numbers and voicemail
Pervasive Outdoor Wireless Scenario
Pervasive Outdoor Wireless Solutions

Components
Cisco Outdoor Wireless Access Points (Weatherized), Controllers, etc.

Features
Broad geographic urban outdoor wireless coverage for large areas – ie: multiple square miles, downtown, whole community
Allows for all capabilities of the IP network to be delivered to mobile employees where every they are

Benefits
In transit/everywhere access to the network enhancing productivity, responsiveness and collaboration
Improves citizen satisfaction with better service delivery
Eliminates the need and costs for multiple access types—EVDO, modem cards, etc.
Can be used by citizens to close the digital divide
Differentiate your community
Key Considerations for Evaluating Outdoor Network

- **Purpose:** Public safety, citizen access, economic development, etc.
- **Scalability—ease of expansion, mobility, ROI and community friendly access to services**
- **Management (system and traffic), performance and reliability**
- **Support all client devices and authentication schemes, security**
- **Track network usage by application and users**
- **Interoperate with existing network and applications**

Who should own and manage it?
City owned?
SP Owned?
SWAP Agreements (Least desirable)?
**City Owned Model**

- **Owner**
  Government owns the equipment, maintains and manages network
  Leverages government network and systems to provide access, billing, bandwidth management, etc.

- **Users**
  Government primary user
  Citizens, businesses access can be subsidized or re-sold

- **Revenue**
  Government can receive revenue from resale of access
  SP gets only back-end connection revenue

- **Benefits**
  Government has complete control
  Allows for freedom to choose SP

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**Key:**
- Orange: Owned and operated by a government
- Blue: Owned and operated by service provider
SP Managed Service Model (Public Private Partnership)

- **Owner:**
  SP owns the equipment, maintains and manages network
  Leverages SP network and systems to provide access, billing, bandwidth management, etc.

- **Users**
  Government receives access at discounted or special rate
  Citizens, businesses via SP

- **Revenue**
  Government can receive revenue for rented space (light poles, etc.) and discount on access
  SP receives revenue from services to government, other users, advertisement

- **Benefits**
  Not a capital cost for government
  Removes the costs of maintenance and management

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**Stages:**
1. **Access Devices**
2. **Outdoor Wireless**
3. **Government Network**
4. **Applications**
5. **Service, Management And Billings**
6. **Internet Access**

**Diagram:**
- Mixed
Madison, WI Improves Public Safety, Citizen Services and Business Development

Challenge
- Improve public safety and citizen services
- Enhance business development
- Enable economical broadband connectivity for the community

Solution
- Deployed pervasive wireless coverage at airport and 10 mile radius around city center
- Public/Private partnership with local SP who manages, provides access to city and resells access to end users

Benefit
- City employees (inspectors, public safety, human services, etc) are more productive and efficient outside the office
- Airport travelers and tourists can now get access
- Coffee shops and restaurants have seen increase in business because of more business meetings
- Deploying Automated Meter Reading application to improve service efficiency
- Police video systems will allow officers to see what is happening at the scene before the arrive
Customer Video

- Need to show a MESH customer video
Dublin, OH Enhances Services, Safety and Business Development

Challenge
- Enhance citizen services by mobility and responsiveness of city employees
- Ensure public safety with mobile law enforcement and emergency applications
- Improve network access to attract businesses and support economic development

Solution
- Secure IP Foundation network and wireless access throughout four square miles of city center, including core business district, city hall, and police department.
- Owned and controlled by city with help from partner in deployment

Benefit
- Improves service effectiveness of city inspectors and public works because they can do more on site instead of returning to the office
- Saves money by minimizing the need for cellar voice/data and removes need to hard wire certain buildings
- Improves public safety by enabling a mobile command posts which can be set up anywhere in city center and connect first responders with voice and video
- Secures network access lets businesses access network services at minimal cost
Self Defending Networks for Mobility

- **Unifying wireless and wire line**
  Utilizing all of Cisco’s security expertise and product line
  Not reinventing the wheel

- **Location, location, location**
  Industry leading rogue detection, mitigation and suppression

- **Continuing to innovate with Self-Defending Network**
  Location enabled security; Access Control/IDS alerts
  Invented host posture analysis (NAC)
  Invented Management Frame Protection (MFP)
  Invented Self Defending Network (NIC)

- **Security designed for real-time applications**
  Fast, secure roaming

- **Active leadership in standards bodies**
  802.11i, 802.11r, 802.11w, 802.11k, 802.11v
Q and A