

Example Deployments for Cisco 3200 Mobile Access Routers

Cisco 3200 Pilots/Trials

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- **Public Safety Deployment**
- **Freight Railway Deployment**
- **Metropolitan Mobility Deployment**

Public Safety – What the Customer Wants to Do

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- **Provide wireless network access to officers in vehicles and on foot**
- **Utilize multiple wireless technologies**
- **Extend applications out into the field**

Public Safety Customer

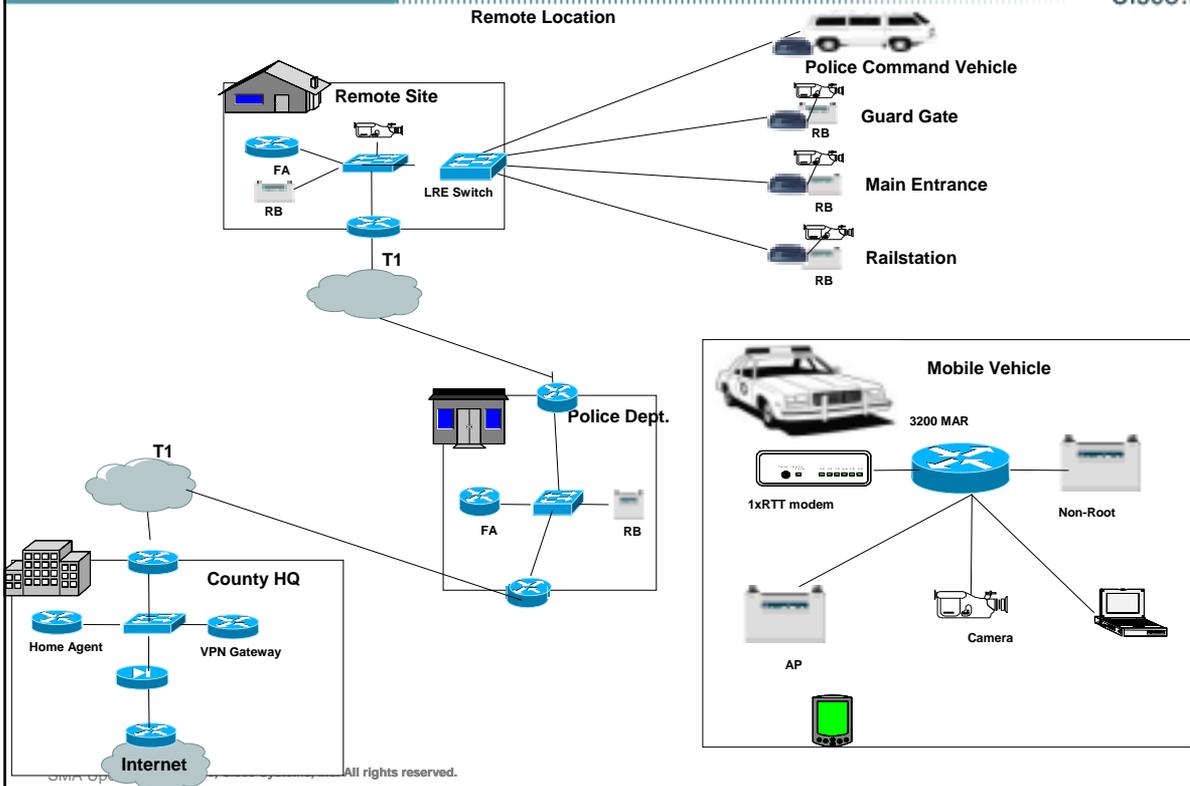
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Key Applications and Services

- **IP Video Surveillance System**
- **Other applications include CLEAR, sex offender search tool, email, internet access, County department intranet, various other applications**
- **Wireless Services – 802.11b, CDMA 1xRTT**

Public Safety Deployment Design

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Public Safety Challenges

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- **802.11b coverage**
- **Firewall in customer's network**
- **SP's 1xRTT with Airlink Raven modem**

Lessons Learned

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- **Obtain qualified wireless partner to perform site survey.**
- **Set customer's expectations**
- **Pre-analysis of customer's overall network**

Railway Deployment Design

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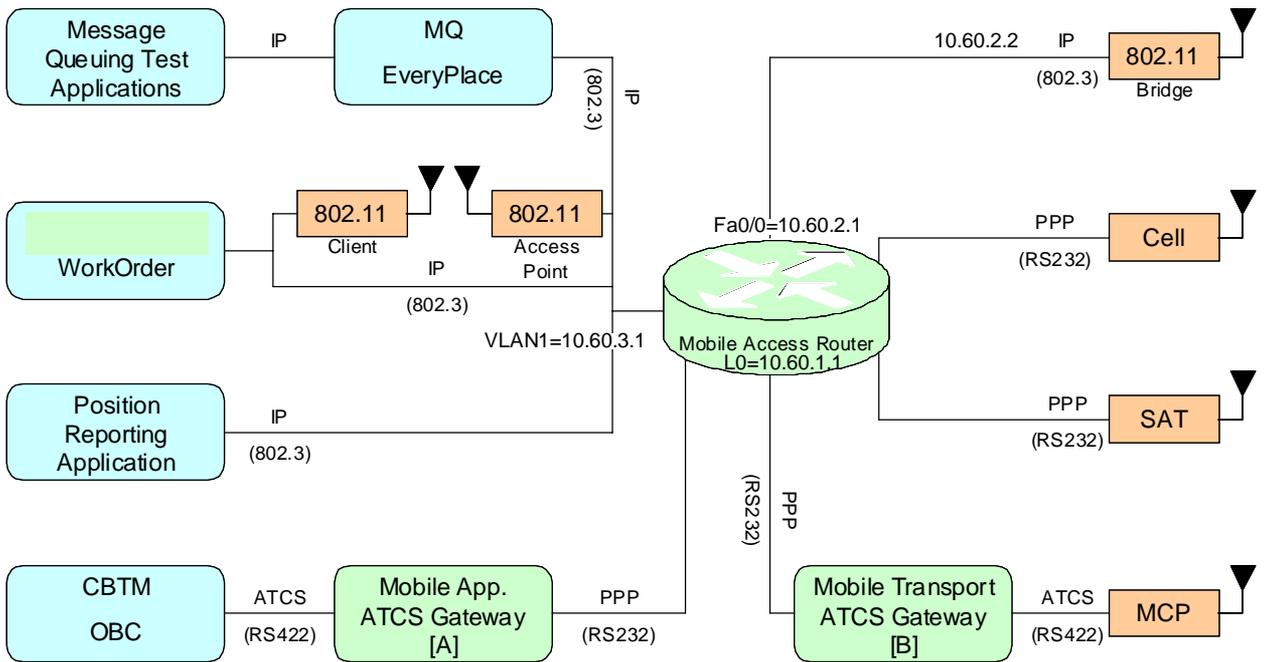
- **3000 plus Locomotives, 6000 Mobile Units**
- **Applications include various train applications (Work orders, etc) and voice and video in the near future**
- **Wireless Services – 802.11b, CDMA 1xRTT, GlobalStar Satellite, Spec 200 (Railroad licensed band)**

Railway Deployment – What Customer Wants to Do

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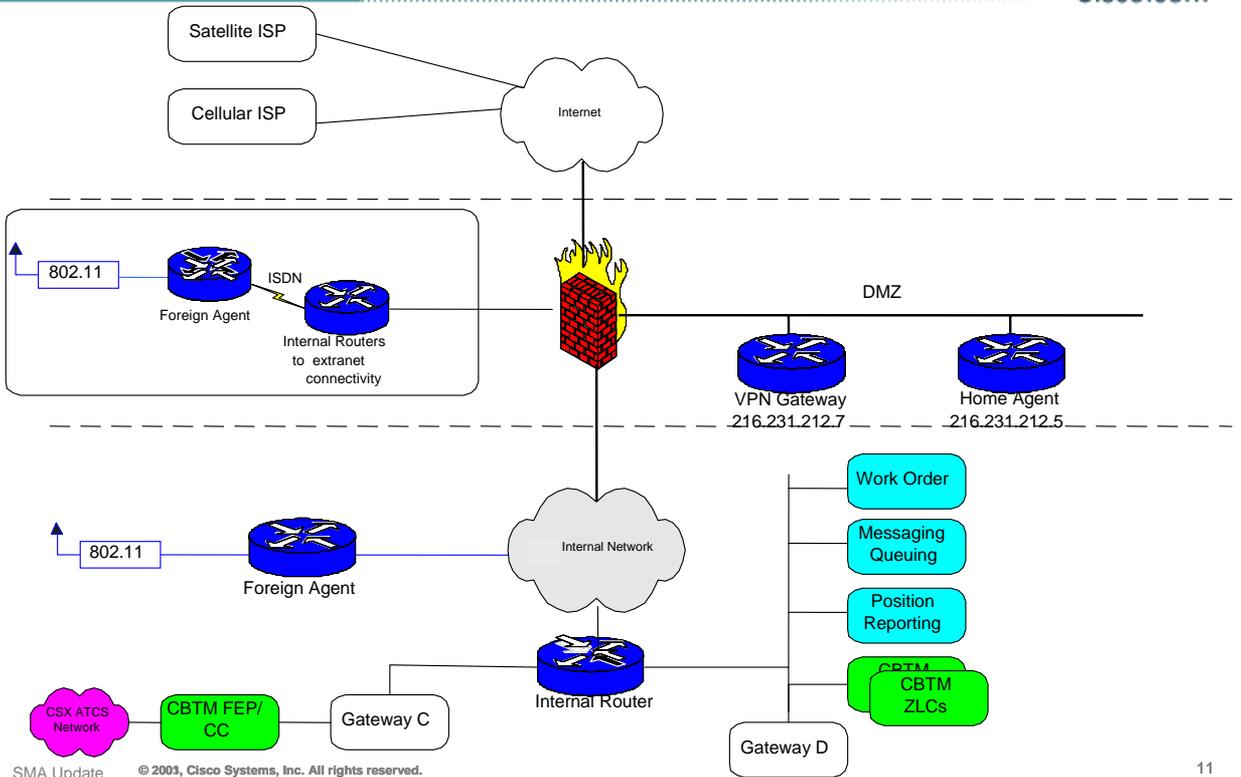
- **Provide connectivity to trains and service vehicles across the Railroad's tracks and tracks of other Railroad operators**
- **Network current applications and provide a network for future apps**
- **Utilize multiple wireless technologies to provide connectivity**
- **Ensure the solution can survive in a very harsh environment**

On Train Network Design



Ground Architecture

Ground Architecture [cisco.com](http://www.cisco.com)



Deployment Challenges

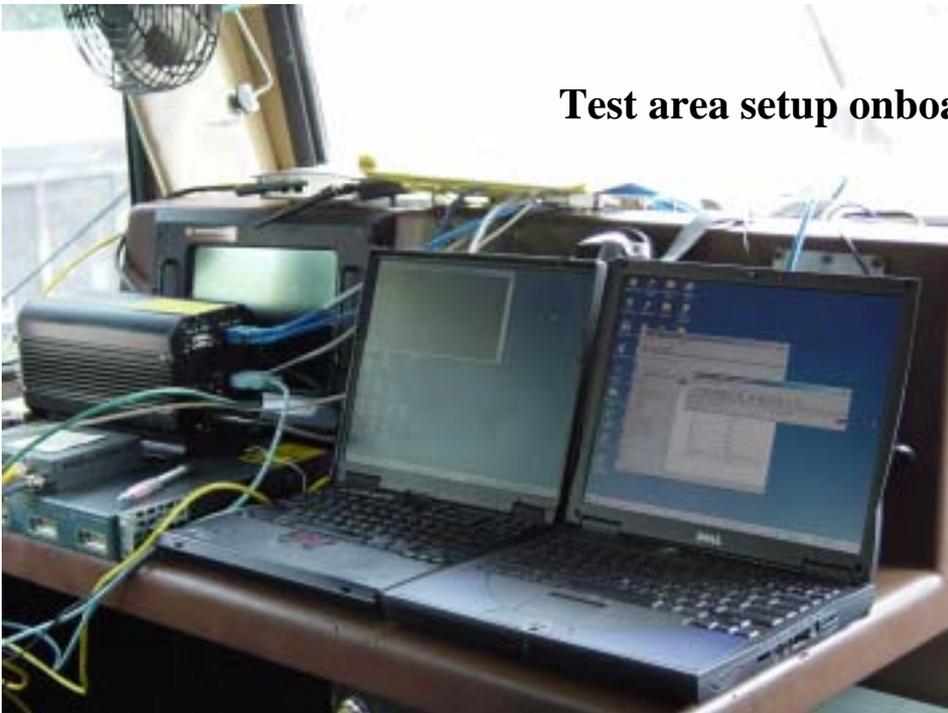
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- **Proprietary non-IP network called Spec 200, 2400 baud**
- **Application Specific Routing**
- **IPSec encryption over selective interfaces**
- **Multiple Mobile IP Tunnels**

On Board Testing

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Test area setup onboard train



Antenna Mountings

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Antenna Mountings

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**802.11b
mag
mount
antenna**

**1xRTT
antenna**

802.11 Antennas

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802.11b Antennas in the Rail Yard

Train Installation

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**Area to
install the
Mobile
Access
Router**

Lesson Learned

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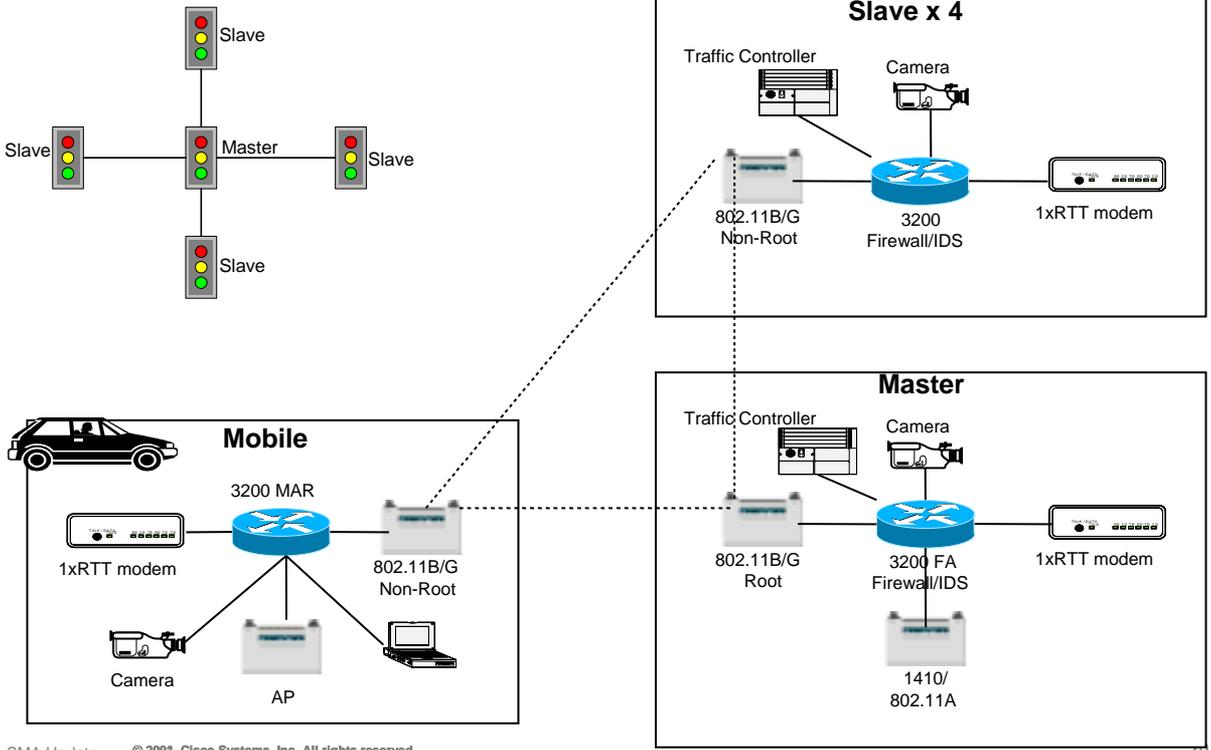
- **Early Phase of Pilot**

Metropolitan Mobility – What the Customer Wants to Do

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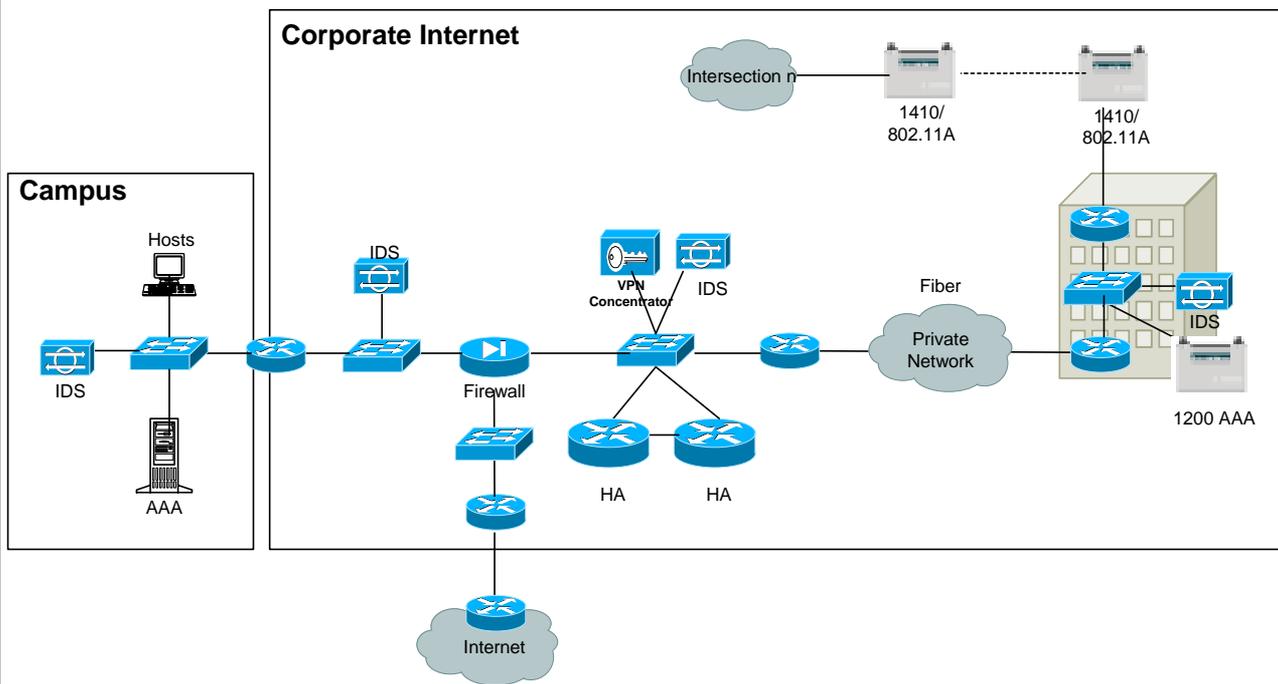
- **Eliminate leased lines that connect street signal lights at intersections**
- **Utilize wireless network to connect the traffic controllers at intersections to the IP network**
- **Provide a wireless infrastructure for moving vehicles**
- **Mobility for emergency and other city vehicles within the area**

Metropolitan Mobility



Metropolitan Mobility

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Metropolitan Mobility - Challenges

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- **Roam time at high speeds > 100mph**
- **Throughput at high speeds > 100 mph**
- **Security, roaming time with LEAP enabled**
- **Redundancy**
- **What competitors are proposing – MeshLAN**

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