

# **Example Deployments for Cisco 3200 Mobile Access Routers**

# Cisco 3200 Pilots/Trials

Cisco.com

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

## **Public Safety – What the Customer Wants to Do**

Cisco.com

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

# Public Safety Customer

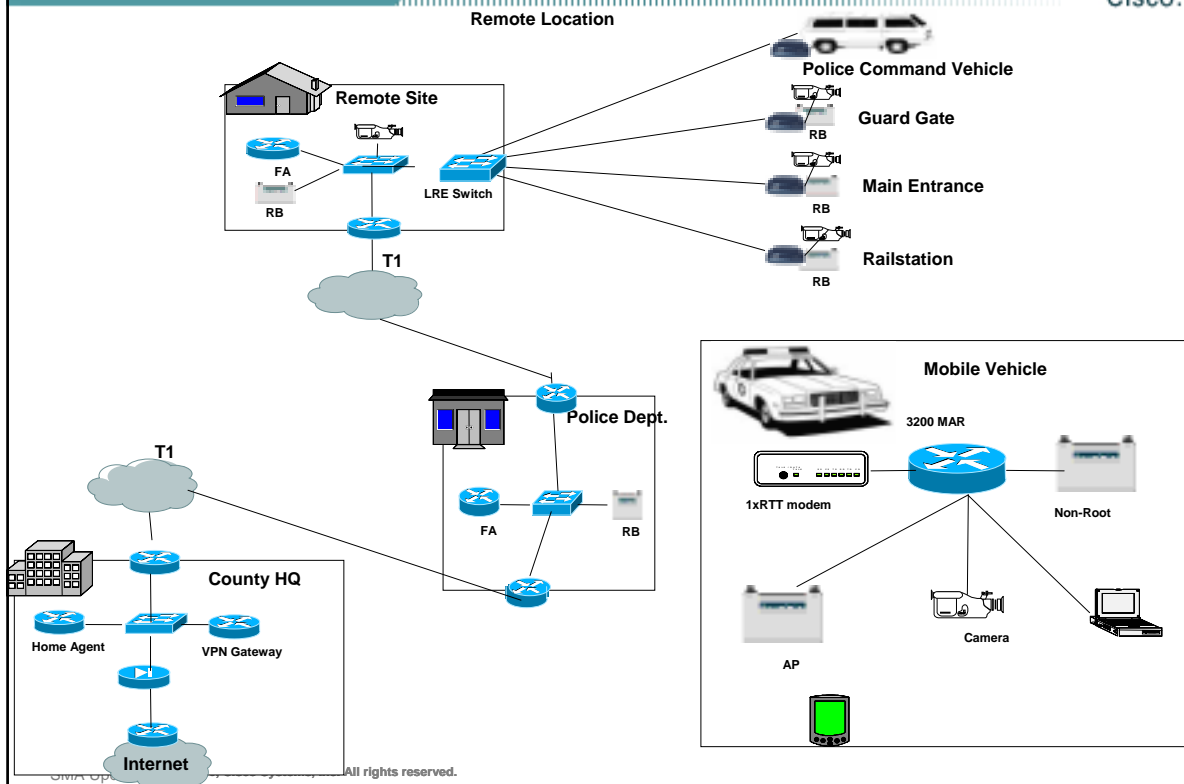
Cisco.com

## 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

Cisco.com



# Public Safety Challenges

Cisco.com

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

# Lessons Learned

Cisco.com

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

# Railway Deployment Design

Cisco.com

- **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)**



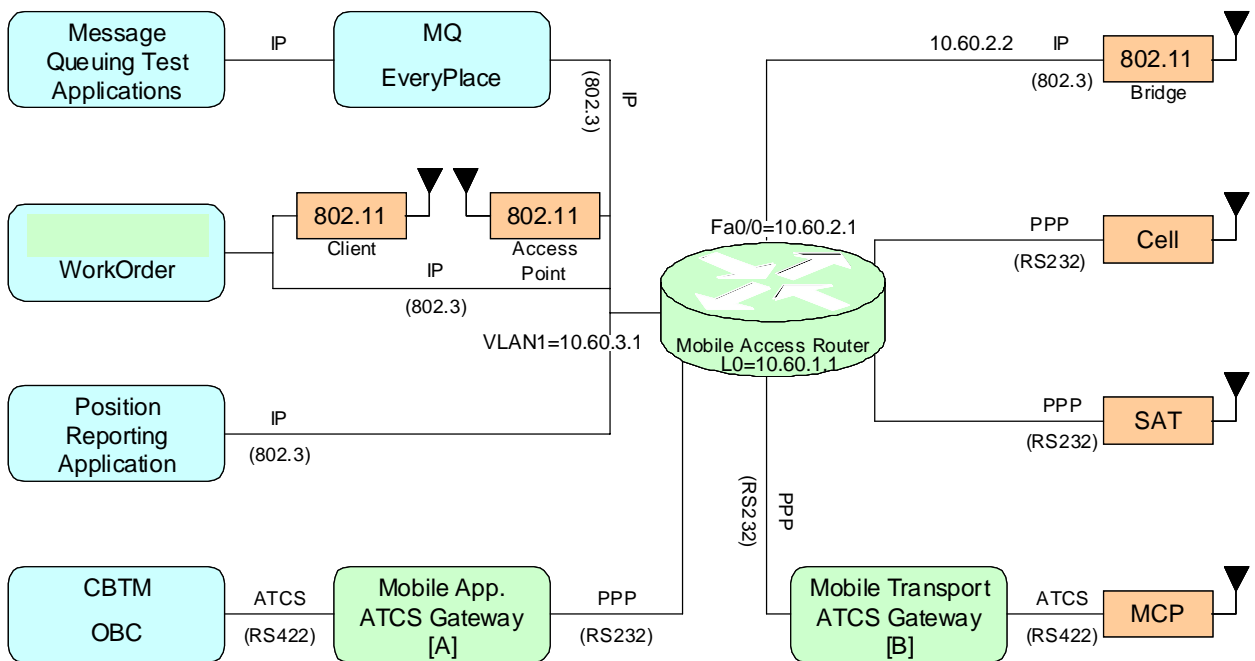
# Railway Deployment – What Customer Wants to Do

Cisco.com

- **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**

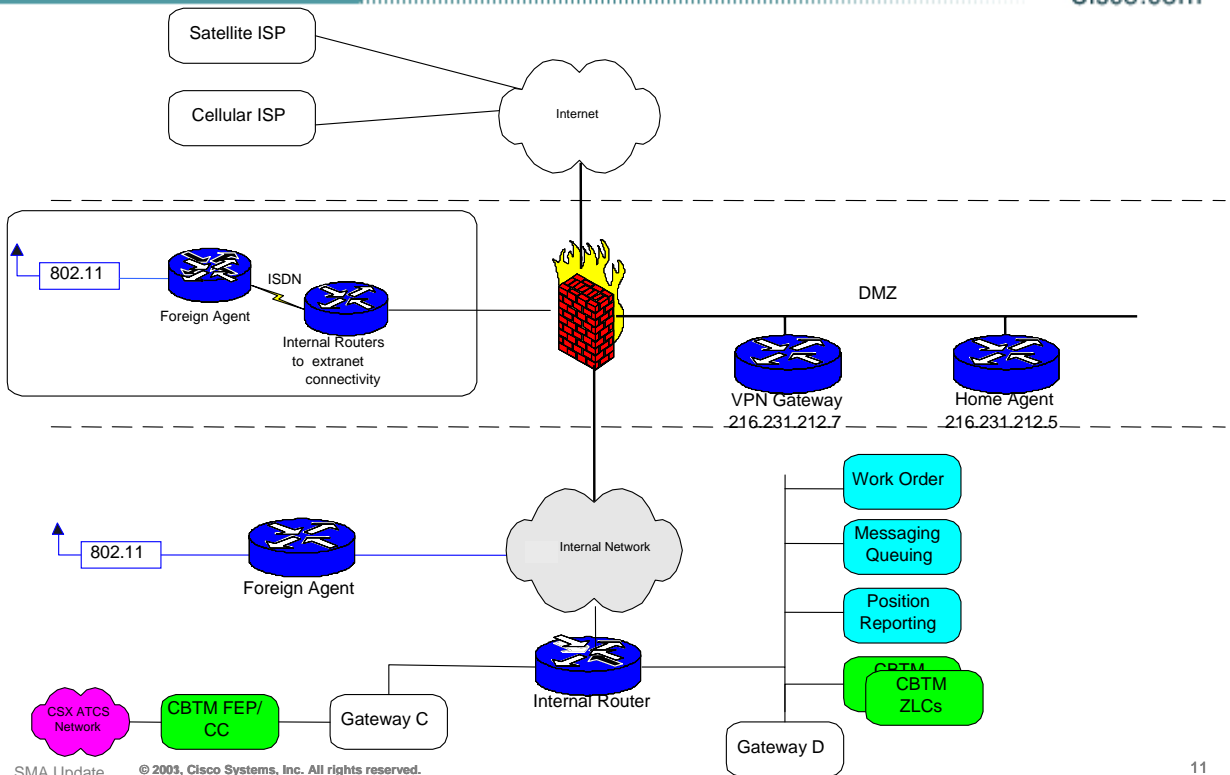
# On Train Network Design

Cisco.com



# Ground Architecture

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



# Deployment Challenges

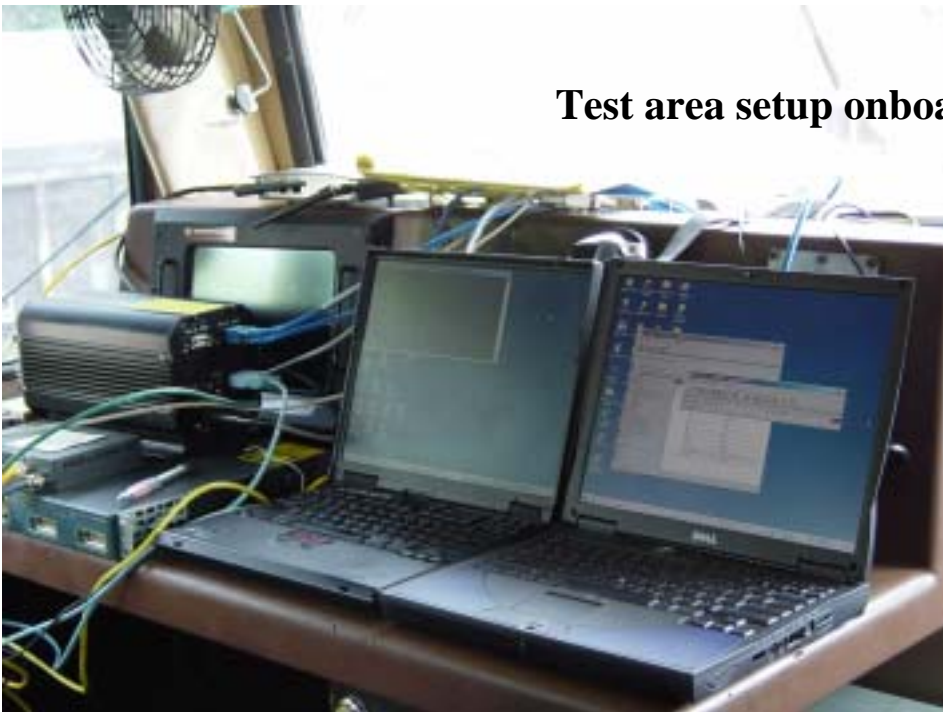
Cisco.com

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

# On Board Testing

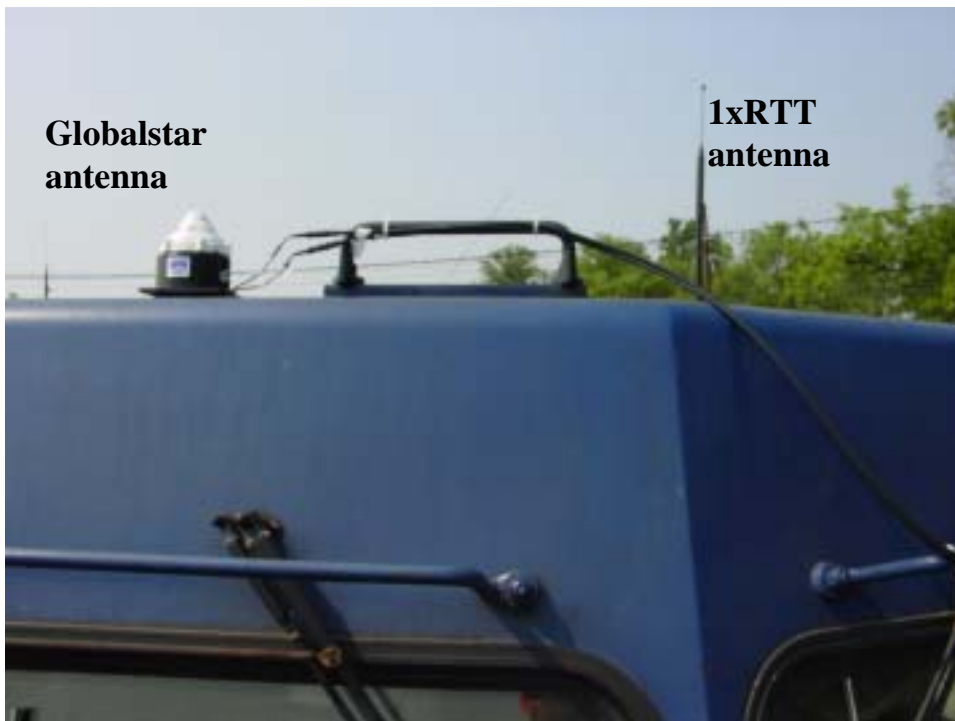
Cisco.com

**Test area setup onboard train**



# Antenna Mountings

Cisco.com



# Antenna Mountings

Cisco.com



**802.11b  
mag  
mount  
antenna**

**1xRTT  
antenna**

# 802.11 Antennas

Cisco.com



## 802.11b Antennas in the Rail Yard



# Train Installation

Cisco.com



**Area to  
install the  
Mobile  
Access  
Router**

# Lesson Learned

Cisco.com

- **Early Phase of Pilot**

# Metropolitan Mobility – What the Customer Wants to Do

Cisco.com

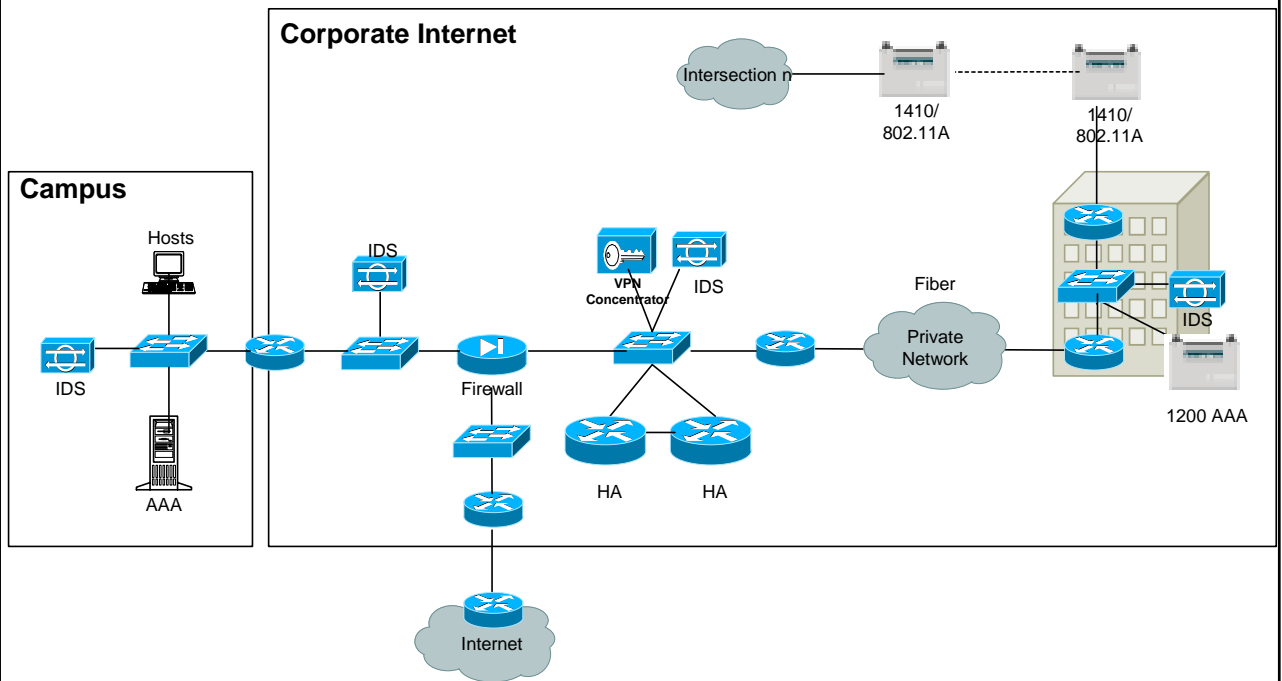
- **Eliminate leased lines that connect street signal lights at intersections**
- **Utilize wireless network to connect the traffic controllers at intersections to the IP network**
- **Provide a wireless infrastructure for moving vehicles**
- **Mobility for emergency and other city vehicles within the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

Cisco.com



# Metropolitan Mobility

Cisco.com



# Metropolitan Mobility - Challenges

Cisco.com

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

# CISCO SYSTEMS



EMPOWERING THE  
INTERNET GENERATION<sup>SM</sup>