Wireless to bridge the Digital Divide

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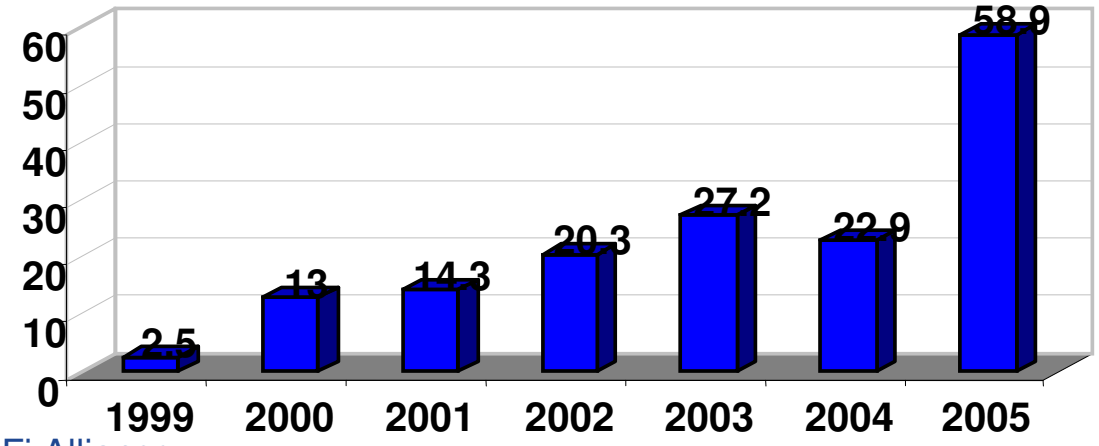
Agenda

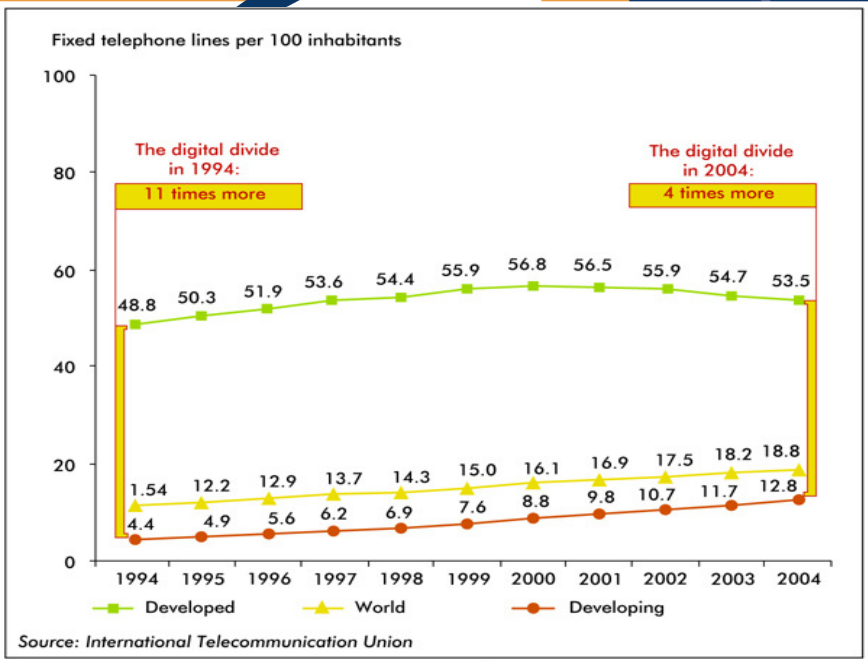
- Who is Proxim?
- The “Digital Divide” and the Wireless technologies?
- What type of applications and case studies
- What can Wireless bring to bridge the digital divide?

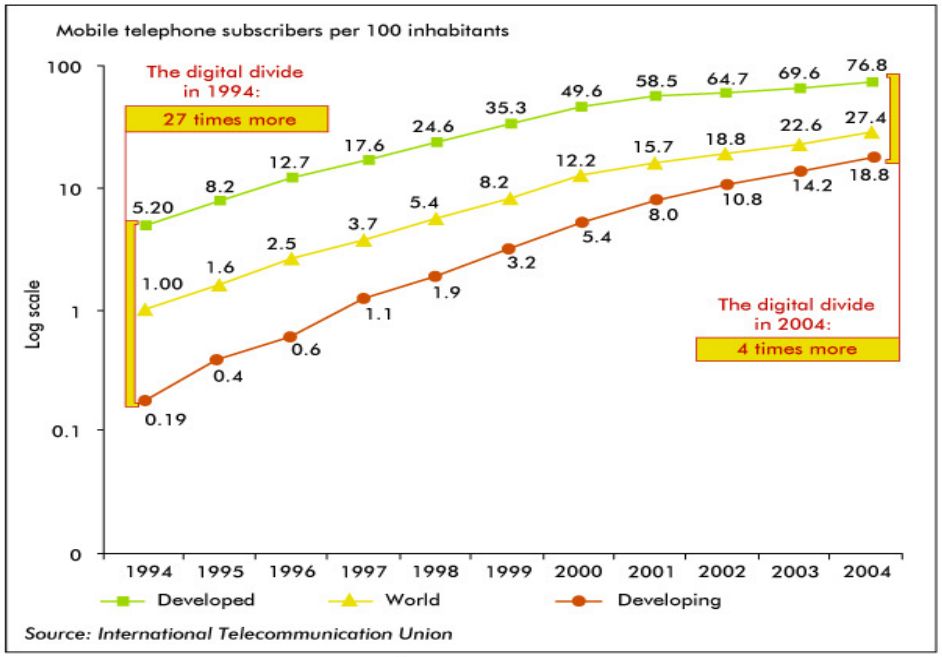
About Proxim Wireless

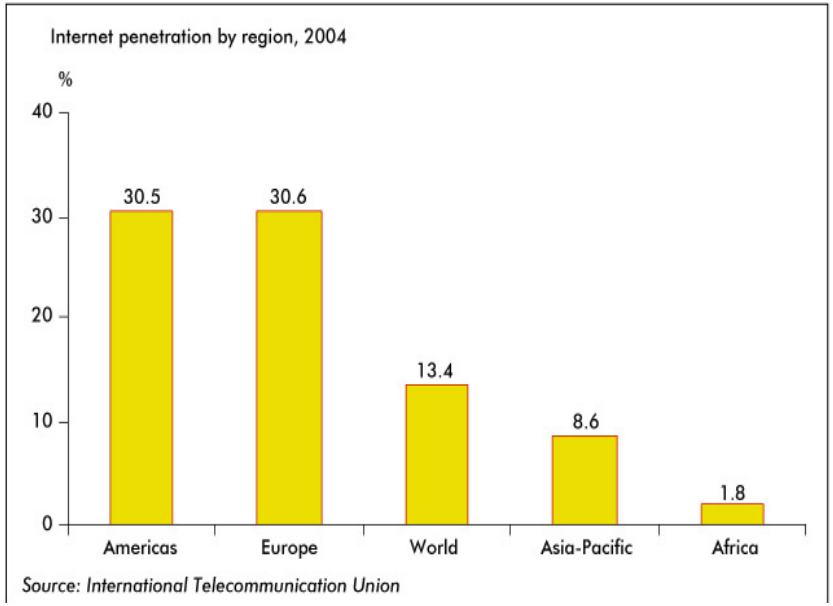
- A global pioneer in broadband wireless networking systems for Service providers and Private Networks
- Corporate Facts
  - Headquarters: San Jose, International HQ: Paris Employees: 240
  - More than 25 years of expertise in Wireless Networks
  - 2 Billion $ in cumulative R&D investment
  - Fastest growth company by NetworkWorld, Product Innovation Award WiMAX Solutions by Frost& Sullivan
  - Stock symbol: TRBM (NASDAQ)
- End-end solutions
  - WiFi, Mesh and Wimax
  - Voice, Data, Video
  - Licensed and Unlicensed
  - Founding Member: Wimax Forum, WiFi Alliance…..



The Digital Divide

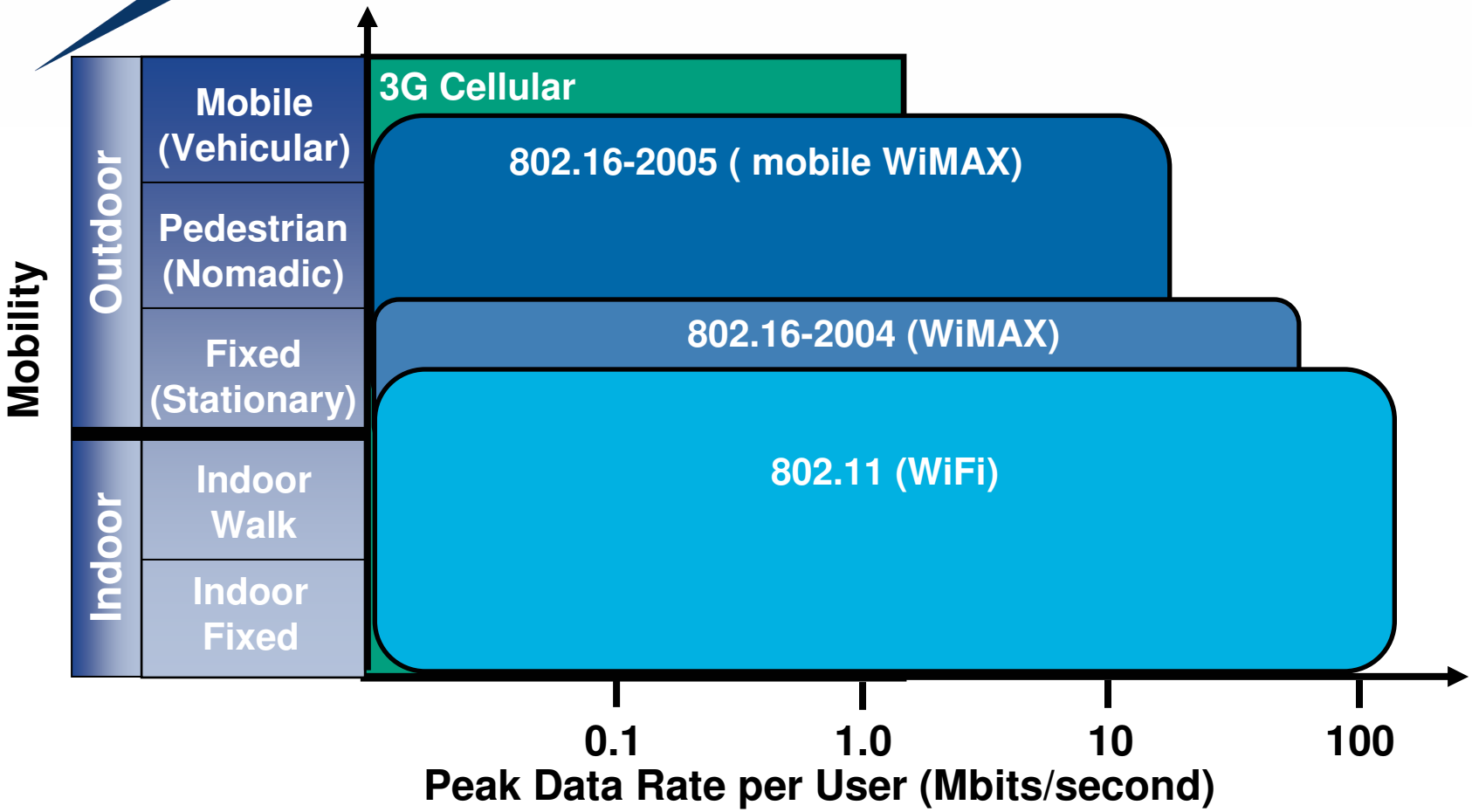






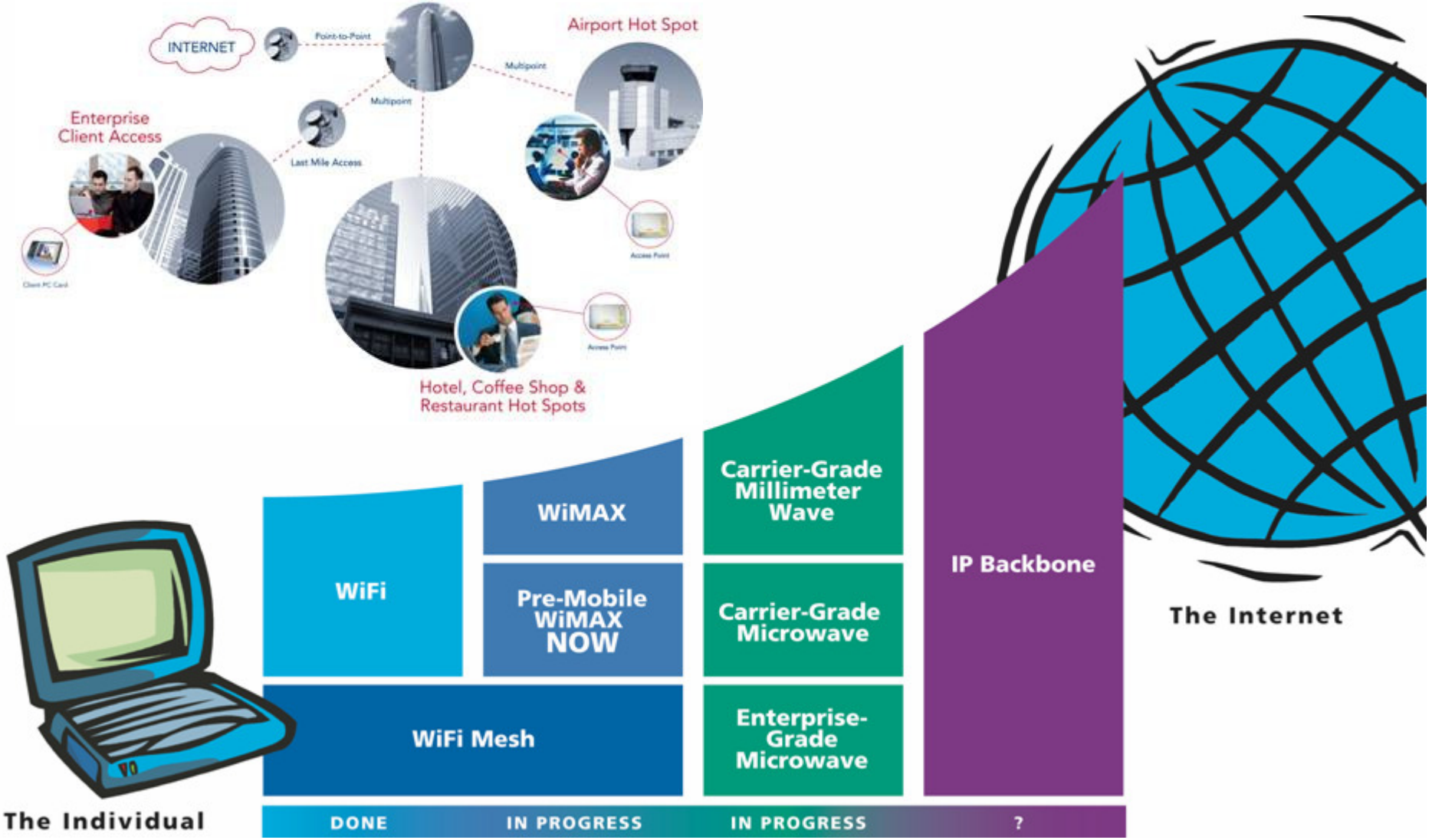
Unwiring the Network

2G, 3G, WiFi and WiMAX positioning



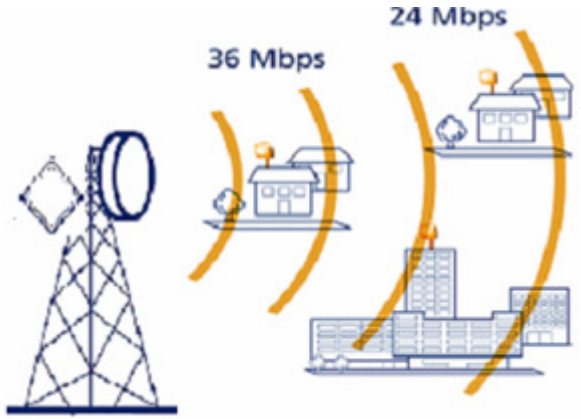
- Market is converging onto the 802 standards
- WiMAX extends the coverage of Wi-Fi
- 3G best suited to high mobility/low data rate applications

Technology Evolution



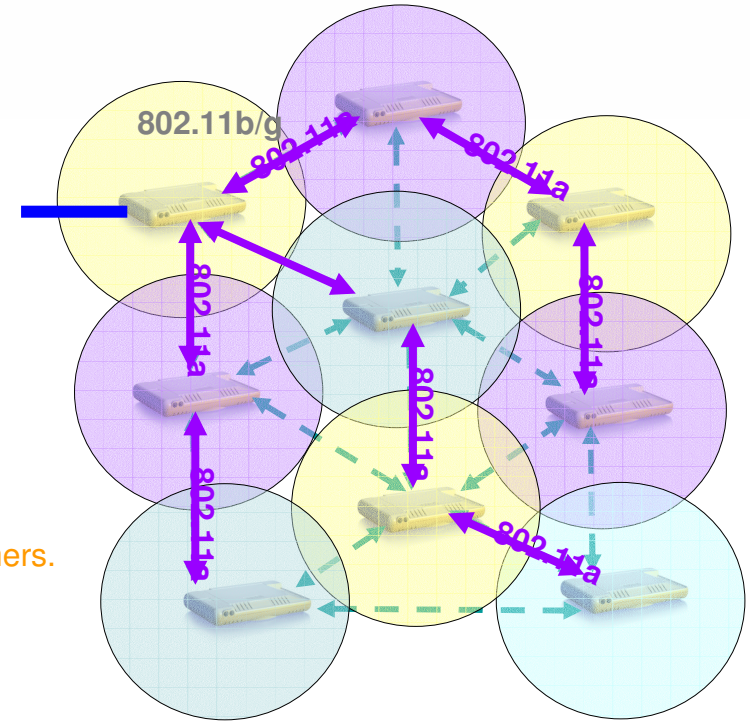
Wireless BWA deployments (1)

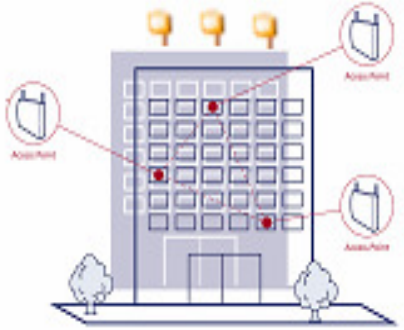
- Distributed subscriber station and CPE - WiMAX
  - Suitable for business and residential
  - One WiMAX outdoor Subscriber Station SS or indoor CPE per customer
  - Unlimited number of client PC with customers' WiFi AP or LAN switches
  - Indoor and Outdoor
  - More than 25 Mbps of Throughput
  - more than 20 kms range
  - Up to 600 users per BS
  - Data, Video and Voice (VoIP, QOS)
  - $200 – $300 low-cost CPE
  - Already existing Mobile applications up to 200 Km/h



Wireless BWA deployments (2)

- Shared subscribers: Mesh WiFi
  - Suitable for areas where IP infrastructure is limited
  - Suitable for high-density urban areas or apartments
  - Self healing and Self forming Networks
  - WiMAX for backhaul
    - With Indoor WiFi AP for edge access - shared by many customers. Eventually using MESH
    - With Outdoor WiFi AP Mesh for edge access shared between customers
  - Cost-effective - $0 CPE, only one Internet port required
  - No technical expertise required to deploy





Unwiring the Network

Applications and Case studies

1. Providing Coverage in remote areas

Internet Connectivity to Parantins (Brazil)

- Challenge
  - Parantins – A town on an island in the Amazon river, home to 114,000 residents.
- Solution
  - Proxim state-of-the-art Wimax network deployed by Embratel, the service provider, to support initially:
    - A primary healthcare center
    - Two public schools
    - A community center
    - Amazon University
  - Additional deployments planned to provide last mile access to businesses and residents for broadband connectivity and services.

Castilla La Mancha Telecom

Broadband to most remote rural areas

- Problem
  - Deliver broadband to less densely populated, remote communities.
  - Over 400 towns and villages
  - No DSL services available
- Solution
  - License-exempt Proxim Multipoint to build the backhaul
  - Orinoco Access Points to give WiFi Access
  - Over 2000 customers at launch
  - Supported by EU funding for broadband
  - Using Satellite for Backbone

Applications and Case studies

2. Providing Security and Surveillance

California Department of Transportation
Asset Surveillance

- Problem
  - Protect Bay Area's transportation infrastructure consisting of 7 bridges and 2 tunnels
- Solution
  - Proxim Multipoint Subscriber Units connect IP cameras to Multipoint Base Stations
  - Redundant Point-to-Point from bridges to Caltrans office
  - Constant, reliable surveillance that can survive harsh outdoor environments
  - Cost and time savings vs. fiber, designed for outdoors

Applications and Case studies

3. Providing Mobility

Washington State Ferries

Mobile Hot Spot – by Mobilisa and Proxim

Problem

- To provide broadband access for ferry commuters around the Puget Sound waters
- Wireless over water poses a unique technical challenge due to the ferry mobility and multi-path caused by water surface reflections

Solution

- Seven MP.11 Model 5054 BSUs on the shore and twelve Model 5054 SUs, or one on each ferry
- Solution maintains robust connectivity even beyond the 5 miles with 3 Mbps guaranteed throughput
- Seamless hand off from one BSU to the next delivers continuous Internet connectivity to commuters

Mobile Broadband

KyeongSan Transit Railway Security, Korea

Challenge

- The absence of a train conductor makes an in-car security and surveillance system necessary
- High-resolution cameras require high-bandwidth wireless platform
- Trains moving at speeds of 80 km/h

Solution

- Proxim MP Base Stations every 1 – 2 km along the track and one Tsunami MP Subscriber Station in every train car
- All IP surveillance solution with IP cameras and IP application servers

Conductor less Train System

Applications and Case studies

4. Providing Emergency Infrastructure

United Nations World Food

Challenge

- To provide voice and data communications in disaster relief situations. To reduce these costs by replacing multiple VSAT links into each camp.

Solution

- Quickbridge 11 point to point links to connect camps up to 20km apart. A single high bandwidth satellite link is now able to serve multiple sites. Currently the UN have replaced over 60 VSAT links enabling budget to be utilized in more critical areas.
- Orinoco AP's for local networks

Applications and Case studies

5. Providing solutions for Professionals

Case Study: Healthcare
Safe Surgical System

- Problem
  - Provide instant patient tracking and analysis system.
  - Surgical errors cost the NHS around £350M per year in compensation for mistakes made in Hospitals during surgery and aftercare.
- Solution
  - Safe surgical system. Pioneered by Daconi and Intelligent Medical Microsystems. Uses Ekahau RFID and Middleware to provide location and instant record provision.
  - Proxim WiFi Access Points

Conclusion:
How can Wireless Help to Bridge the Digital Divide ? (1)

- License or License Free
  - Giving chances to everyone: 2.4 GHz & 5 GHz (mostly unlicensed) , 3.5 GHz (mostly licensed)
- Fast and secured Deployment
  - Can start from “green-field” or interface with existing networks (Satellite, Fiber etc…)
  - End to End Solutions
    - Indoor and Outdoor Applications
    - Pico cell approach, low consumption (< 12 W/BS)
    - Can connect up to 50 new subscribers per day per team
    - Can use alternate power sources (Solar, wind), No rack mounting, No air conditioning required
  - Highly secured (AES, Encryption…..)

Conclusion:
How can Wireless Help to Bridge the Digital Divide ? (2)

- Quick Return on Investment
  - Typical Capex per Indoor Subscriber is @ 300 USD for Wimax
  - Typical Capex per Outdoor Subscriber is @ 450 USD for Wimax
  - Typical Payback on a turnkey network (WiFi and Multipoint):
    - Between 5 to 10 months (expected revenues per subscriber $25/Mbps) for developed countries
    - Between 10 to 15 months in countries under development

Thank you !

Questions?

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