



**Wireless  
Infrastructure on Ports**

# Content

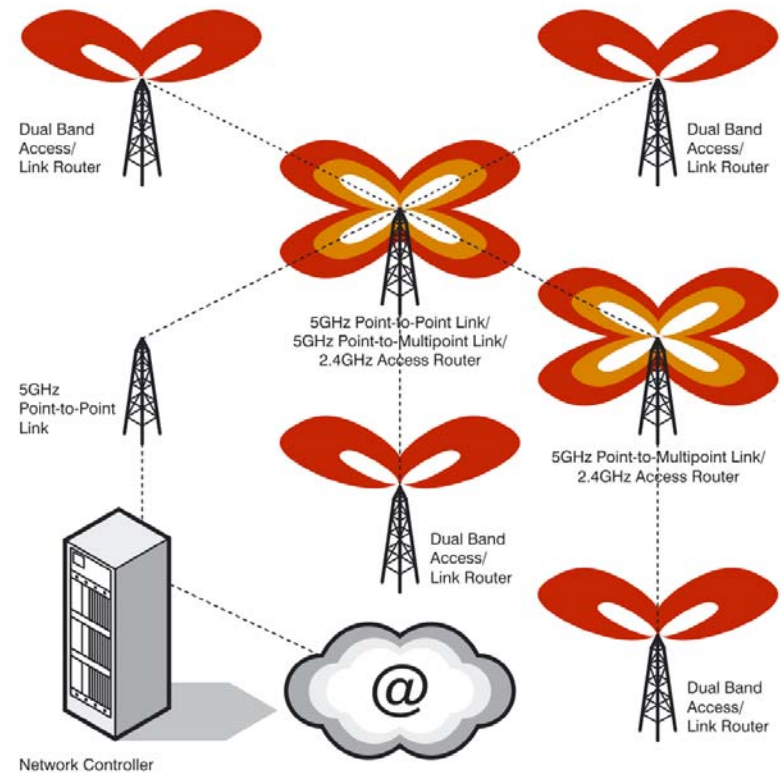
- Radionet company profile
- Radionet offering
- Ports as market
- Case Amsterdam
- Case Las Palmas
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- Near future trends

# Radionet as a company

- In business since 2000
- Pioneer in deploying large scale commercial WLAN outdoor & Wi-Fi Hotzone networks
- Strong Radio, Software and Systems expertise
- Focused on the European market
- International sales through channel partners
- Products in use in the field since 2001

# Example System

- Access Router
  - Enables 2.4GHz client access
  - Sectorized system for greater coverage capacity
  - Is a full router, eliminates multi-cast issues
- Link Router/Bridge
  - 5GHz 802.11a,b,g
  - Point to Point or Point to Multi-Point
  - Interconnects Access Routers
  - Can also operate stand-alone
- Network Controller
  - Provides network management and control
  - MAC address authentication
  - IP Roaming and bandwidth management
- Antenna's
  - Specialized, optimized sector & Link antenna's
  - Integrated antenna for 5GHz



Typical Network Topology

# Target Markets: Ports and Container Terminals

- Need
  - highly mobile
  - RF challenging environment
  - requires 100% coverage 7/24
- Opportunity
  - primarily narrowband today
  - moving to Wi-Fi due to new applications
- Market size
  - approx 600 ports worldwide
  - port authorities and container/shipping operators
- Radionet USP
  - better coverage
  - lower cost of ownership
  - improved reliability and availability



# Case – Port of Amsterdam

- Network operator: Amsterdam Port authority
- Wireless network coverage: Port of Amsterdam, The Netherlands
- Network criteria:  
Broadband access for vessels assisting in harbour operation
- Network configuration: 8 Base station sites (19 units including links)
- Network usage: Industrial usage in harbour environment
- Operational: Spring 2004



# Case – Port of Amsterdam

- Large coverage with limited number of units
  - dual radio units 2.4 GHz access and 5 GHz links
- High capacity needed
- Sectorized antenna system
  - minimize interference
  - coverage for desired areas
- Ruggedized equipment
- High security level
  - AES encryption on links
  - VPN with clients



# Case – Zona Franca, Las Palmas

- High capacity connections for companies operating in the area
- Mobile and fixed clients
- Changing environment
- Temporary connections
  - Barracks
  - Light structure warehouses



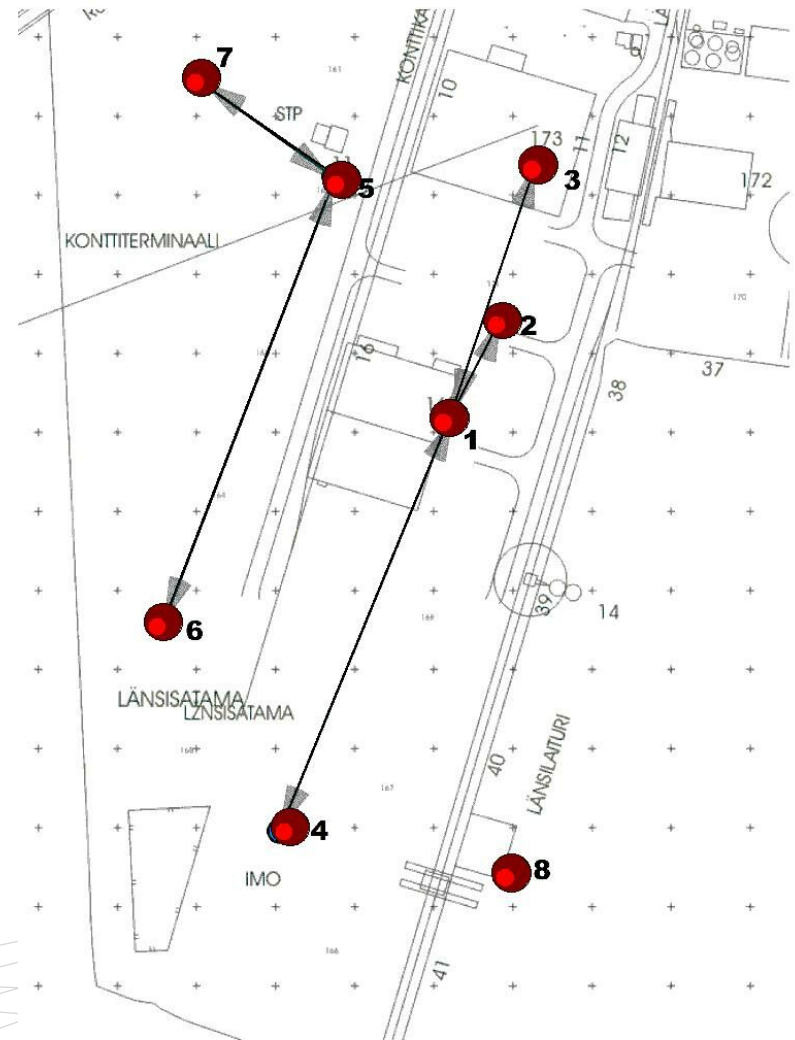
# Case - Finnlines Plc



- The largest shipping & stevedoring company in Finland
- Port operations in
  - Helsinki
  - Kotka
  - Turku
  - Naantali
  - Kapelskär (SWE)
  - Malmö (SWE)
  - Travemünde (GER)
- First Radionet network operational since spring 2003

# Case - Finnlines Plc

- Part of production management
  - Critical for harbour operations
  - Redundancy required
    - OSPF
    - High Availability Network Controller
- Real time applications for container handling, on-loading, off-loading
- Used in trucks, fork-lifts, cranes, PDA's and lap-tops
  - Centralized client management
- Constantly changing environment
  - Coverage 100%+
  - Sectorized antenna system
- Indoor and outdoor
- Connection for ships



# Near Future Trends

- WVoIP
- Services for passengers, crews, contractors, etc.
- CCTV
- Remote control



# Thank You !

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