AirWalk
CDMA 450 MHz
Rural Solutions

April 2009
CDMA 450 MHz Provides
- Better coverage and capacity
- Reliable high performance operation
- Integrates with existing infrastructures
- Lower overall Capex and Opex vs others

AirWalk CDMA 450 MHz Provides
- Innovative flat all-IP architecture
- Flexible product configurations
- Full 1xRTT & EVDO system features
- Lowest deployment and operating costs
450 MHz Provides Better RF Coverage
- Better propagation characteristics mean bigger cells
- More diffraction over undulating terrain
- Less penetration loss through buildings
- Less base stations required
- Faster and lower cost deployment

Nominal Coverage Comparison

<table>
<thead>
<tr>
<th>Band (MHz)</th>
<th>Range In Km</th>
<th>Km² Per BTS</th>
<th>BTS Needed For 10000 km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>450</td>
<td>12</td>
<td>450</td>
<td>22</td>
</tr>
<tr>
<td>800</td>
<td>6</td>
<td>113</td>
<td>88</td>
</tr>
<tr>
<td>1900</td>
<td>3</td>
<td>28</td>
<td>354</td>
</tr>
</tbody>
</table>

CDMA Macro, Rural Terrain / Actual Coverage Is Terrain Dependent
CDMA Provides Greater Link Budget
- 3-5 dB more link budget than GSM
- Significantly more link budget than UMTS or WIMAX
- Translates into less cells for the same coverage
- More economical to deploy

Especially Significant For Data Services
EVDO provides reliable coverage right to the edge of the cell
Nordisk Mobiltelefon Example

- CDMA 450 deployment vs UMTS 2100 deployment (Norway)
  - Over 13 times the coverage area for Voice services
  - Over 25 times the coverage area for 1 Mbps Data services
- *Installed at the same cell site*

Source: Nordisk Mobitelefon
All IP Connectivity Advantages
- Flexible backhaul choices
- Ethernet Connectivity
- Satellite compatible
- Lower operating costs

Flat IP Architecture Advantages
- Intelligent IP-RAN units
- No central BSC/RNC required
- Local peer-to-peer soft handoffs
- Lower capital costs
CDMA RAN Technologies
- 1xRTT and EVDO Rev A/B
- Full IP-RAN macro/pico product line

Innovative Technology
- Integrated BTS/BSC & AN/RNC
- All IP connectivity & backhaul

Global Market Presence
- Over 35 system customers
AW 96 Series 3 Sector IP-RAN MacroCells

- Combined BSC/BTS or ANC/ANTS Functions
- 1xRTT or EVDO Rev A Models
- All-IP Backhaul With Ethernet Interface
- High Power 450 MHz (20/60W)
- AC & DC Power Supplies
- Flexible 19” rack mount carriers

AW 96 MacroCell RAN
- 20W/60W Power
- 1xRTT or EVDO
- 3 Sector
AW 100 IP-RAN MacroCell
- Combined BSC/BTS/ANC/ANTS Functions
- 1xRTT or EVDO Rev A Models
- All-IP Backhaul With Ethernet Interface
- 20W RF Power; 60W Optional
- AC or DC Power Supplies

AW 100 MacroCell RAN
- Omni 20W RF Power
- 1xRTT or EVDO
DSL Alternative Data Service

- Provide alternative basic Data service
- Cost effective coverage over difficult terrain
- Reliable & Robust EVDO Rev A performance
- Data coverage to the edge of the cell
- Fixed mobile data terminals

**Fixed Data Mobiles**

- Wide variety of devices
- Desk & Wall mount; Cards
- Diversity for max range
- Local Ethernet or WiFi options
Rural Voice Service

- Provide alternative basic Voice service
- Cost effective coverage over difficult terrain
- Reliable & Robust CDMA 1xRTT Voice
- Cost effective all IP system
- Full or Limited mobility implementations

Popular Mobile Devices

- Compatible w/ all 450 Mobiles
- Wide array of handset choices
AW 100 IP-RAN PicoCell

- Combined BSC/BTS/ANC/ANTS Functions
- 1xRTT or EVDO Rev A Models
- All-IP Backhaul With Ethernet Interface
- Omni PicoCell 200mW RF Power
- DC Low Power Consumption (solar friendly)
- Compact Size – Rack mount option

AW 100 PicoCell RAN
- 200mW RF Power
- 1xRTT or EVDO

Compatible With Solar Power Systems
Rural Village Coverage

- Basic Voice and Data Services
- Minimum Capex & Opex Costs
- Low Power Operation
- Simplified Installation

**AW 100 PicoCell RAN**

- 200 mW
- 1xRTT or EVDO
Valley Coverage (From Mountain Top)
- Very Large Coverage Area With Low Power
- Remote Unattended Operation
- Backpack Equipment To Site

**AW 100 PicoCell RAN**
- Mountain Top Location
- Solar Power; VSAT Backhaul

www.airwalkcom.com
Voice only with SIP interface for Wireless Local Loop Solution

- Lowest cost rural voice and alternative access applications
- Fixed Wireless Access, No mobility features
- Efficient and robust CDMA air interface; Wide area coverage
- Low cost VoIP core network elements; Soft Switch and MGW

Proven AirWalk SIP-RAN
- 1xRTT CDMA Femto or Macro IP-RAN
- Integrated IOS-SIP adaptation function
- Compatible with RFC 3261 soft switches
- BSM based authentication list
- BSM-L O&M system with GUI user interface

www.airwalkcom.com
Full Mobility & 1x Data

- **NOC**
  - EMS IP-RAN

- **Core Network**
  - MGW
  - MSC
  - HLR
  - PDSN
  - Internet
  - SS7 Network
  - PSTN

- **Softswitch IOS**
  - 4.2 or Higher

- **IP-RAN (BTS & BSC)**
  - (Subscribers)

Local cluster, voice calls are processed locally by BSC, even when VSat link is down.
Unlimited applications!
Gracias!

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