Wireless Broadband For Rural Communication
- EV-DO in 450M

CONTENT

Why EV-DO450

Case study - EV-DO450 in Argentina
New Challenge of Universal Service

- Universal service means not only voice service, but also data service. Wherever, one can afford the telecom service by the similar QoS and charging.
- Quickly popularized broadband service lead to new digital divide between city and rural area.

Main Problems of Rural Broadband Communication

- No profit, negative profit
  - Low population density yet broad area or tough terrain
  - Less traffic per user and Low ARPU
  - Maintenance cost might be even higher than revenue
- High investment, long term Return Of Investment
  - High cost to build up sites and auxiliary in these area.
- Hard to maintain, high operation expenditure
  - Tough geographic terrain: Mountains, Rivers, Deserts, Gobi, etc.
  - Hard for maintenance, more engineers involved
**Ever-used Technology for Rural Communication**

**Solution 1: Wireline system**
- Special landform, mountainous, sparse populated, always several subscribers one village
- Expensive pavement and maintenance cost

**Solution 2: Microwave system**
- Relay site on top of mountain
- Difficult to access power supply
- Difficult to maintenance
- Limited capacity
- Existed system almost be abandoned

**Solution 3: VSAT Satellite system**
- Expensive investment, high rent fee for link
- Limited capacity, limited span
- Key factor of universe service is low cost for most subscribers

**Solution 4: GSM system**
- 900/1800M frequency band, with medium coverage and limited data capacity

*These technologies are not suitable for rural broadband construction*
Ideal Rural Broadband Network Should Be...

- Economical
- Quick deployment
- A international standard technology
- Well proven
- Has a mature industry chain

EV-DO450, new choice for rural communication

Why EV-DO450?
High Performance Wireless Broadband Technology

- Single user peak data rate: forward 2.4Mbps, reverse 153.6kbps
- Average data throughput: 650kbps
Why EV-DO450?

Seamless Coverage Wireless Broadband Network

- In Rural areas, Coverage is the key issue.
  - EV-DO 450 coverage is 16 times than 2.1G
  - BTS number is 1/16 of 2.1G or 1/12 of 1800MHz
- 1xEV-DO in Everywhere for wireless broadband access
- WiMAX and WiFi in dense urban and hotspot

Why EV-DO450?

Flexible and Quick Deployment

- Outdoor macro BTS, mini BTS suit for various environment
- No need equipment rooms & air-conditioners
- Powerful adaptability: Satellite, Microwave, HDSL, WiMAX, Optical, etc.
Why EV-DO450?
Rich Data Services

- E-Learning
- Wireless cyber cafe and Leased Line
- Internet Access “Eliminate Digit Divide”
- Mobile business
- Telemedicine

Why EV-DO450?
Future-oriented and Smooth Evolution

- CDMA2000 1xEV-DO Release 0
  - 2.4M/153.6kbps
- CDMA2000 1xEV-DO Release A
  - 3.1M/1.8Mbps
- cdmaOne
  - Data: 153.6kbps (Rel. 0)
  - 307.2kbps (Rel. A)
- CDMA2000 1X
  - Data & Voice
- CDMA2000xEV-DV

True 3G technology, smooth evolve to 3G network
EV-DO industry chain: Large subscriber group, Successful Operators, Vendors, Various terminals, Abundant VAS, Chipsets, Organizations…

Why EV-DO450?
Mature Industry Chain

Up to 2005/2/1 there are 24 1xEV-DO commercial applications in Asia, America and Europe. Users have exceed 10million. There will be 18 new EV-DO applications this year.

Why EV-DO450?
Mass Application
Why EV-DO450

Case study - EV-DO450 in Argentina

EV-DO450 for CITEL 2004

First EV-DO service in Tigre, in Argentina

Environment: Moving Boat in River with Trees and illegal noise interference.
Service: FTP downloading, MTV on demand, MP3 on demand, WWW, Email...
Highest Data Rate: 2.1Mbps

Huawei launched patent ANF technology to ensure CITEL EV-DO show successful!
Tests Result – Data Service of EV-DO

Test 1 in Room
High-speed: 2.2Mps

Test 2 in Boat
High-speed: 2.1 Mbps

Anti-interference – Existing Interference

The interference in 450MHz in Tigre City.
**Good Performance Call Successful Ratio**

- **Huawei RAC with TELECOM LE via V5.2**
- **Call Successful rate > 99.9%**
- \( \frac{10705}{10708} = 99.972\% \)
  - *≥98% required by customer*

**Tailored Function - Packet Data Rate Controlled**

System can assign different user with different packet data speed controlled (such as: 4X, 8X, 16X), according to the different user’s level that he registered in TELECOM.

- **Low speed**: 4X SCH, 35.7Kbps
- **Mid speed**: 8X SCH, 64.3Kbps
- **High speed**: 153.6Kbps

If the user has the high speed packet data service potency, the default download speed is 16X(153.6Kbps). System can control the user download speed to different level, Low(38.4Kbps), Mid(76.8Kbps), High(153.6Kbps) VIP(153.6Kbps VPN)

Huawei already developed this new function for TELECOM in 2 months and passed the test successfully.
Thanks

Technology Changes
Communication Lasts