Networks in China

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Agenda

- China Operators update
- Nokia Networks Market presence
- 3G in China
- Nokia Networks Strategies
Business environment is changing continuously

- **Market Opening**
  - 1990: Unicom, Jitong Established
  - 1994: Single Monopoly Operator & Regulator
  - 1997: China Mobile Listing
  - 1998: MII Established
  - 2000: China Unicom Listing
  - 2002: WTO Entry
  - China Netcom Group Established and China Telecom Listing

- **Rising Consumer Influence**
  - National Interest & Operator Interest
  - Operator Interest
  - National Interest

- **National Interest & Operator Interest**
  - Single Monopoly Operator & Regulator

- **Operator Interest**
  - MII Established

- **National Interest**
  - China Unicom Listing
  - China Mobile Listing

- **WTO Entry**
  - China Netcom Group Established and China Telecom Listing
China government and China operators

- Nokia Talks Vision and Strategy in China 2004

- National People's Congress
- Central Committee of Communist Party
- State Council
- Ministry of Information & Industry
- Ministry of Science and Technology
- National Development & Reform Commission
- State Owned Asset Administration and Supervision Commission

- Telecom regulation/policy-making
- Frequency allocation
- Licenses of electronic products
- Technology standardization
- Telecom law (approval)
- National technology policy-maker
- New technology standardization
- Telecom pricing
- Control competition
- VP level appointment
- Appointment on Presidents

- China Mobile
- China Unicom
- China Telecom
- China Netcom
- China Railcom
- China Satcom
Operator landscape scenarios

1. Mobile subscription growth and network traffic increase continue to be strong.
   - Mobile subscriptions and traffic has surpassed fixed
   - Mobile data revenue will continue to increase

2. Continue to float the remaining asset of the four major operators.

3. Mobile operators are trying to control the entire value chain from contents, applications to terminals

4. Four 3G licenses likely to be issued in sequence commencing in 1H2005
Operators Facts

China Mobile
- Total subscription reached 177M, with new subscribers of 39M and 28% growth from 2002.
- 2003 SMS volume of 180.5B, with data revenue at 12%.

China Telecom
- Total fixed subscribers reached 162M, PHS subscriptions reached 26M, Internet users reached 7.4M.
- Internet and data revenue at 10.3%.

China Unicom
- Total subscription reached 95M with YTD incremental of 25M (16M GSM and 9M CDMA).
- YTD SMS volume of 40B, data revenue at only 3%.

China Netcom
- Total fixed subscribers reached 95M, PHS subscriptions reached 10M, Internet users reached 18M, ADSL user reached 3M.
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Nokia GSM presence in 9 provinces in China Unicom
Nokia ADSL presence in 9 provinces in China Telecom and China Netcom
Nokia Tetra presence in China

- Beijing government shared network with Integrated Emergency Response System
- Nanjing, Shenzhen and Guangzhou Metro networks
- Ningqi railway network in Jiangsu
- Tianjin Water and Tianjin Security networks
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Robust mobile market forecast

Unit: thousand

Subscriber growth 1999-2008

Source: Yankee Group, March 2004
Mobile to fixed substitution is happening

1. Mobile network subscriptions and traffic surpassed fixed network in 2003
2. Global mobile network traffic is approximately 20% of total traffic

Source: MII data
Government priorities on 3G

- Economic growth from investments
- Local vendors to gain more market share
- Adoption of TD-SCDMA – national pride
- Reduce IPR fee for 3G
## MII 3G outdoor trials

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Source: MII data
Nokia talks about its Vision and Strategy in China:

- Nokia has a strong IPR position in all technologies
  - Nokia is a leading IPR holder of each 3G technology
  - Nokia is committed to fair, reasonable and non-discriminative principles on licensing IPRs to other companies
  - Nokia has announced an IPR agreement on WCDMA infra with Huawei and is having discussions with other Chinese companies
  - 3G IPRs licensing will not be a hindrance to business in China

Estimated IPR in 3G:

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Strategic Intent

To become China’s leading enabler of mobility
Different Networks Businesses Have Distinctive Strategies

Professional Services
Grow by extending offering to multivendor and managed services

Customers

Radio
Drive business leadership in technology, scale and cost

Core
Win with Nokia end-to-end solutions
Our Strategies bring to our customers

**Growth** — Opportunities with new end-user services and new customer segments

**Leadership** — Solutions for fast time-to-market

**Profitability** — New revenues and lowest OPEX