Taiwan’s Internet operation development and future prospects

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Agenda

- Internet Current Status in Taiwan
- Network & Service Development
- CHT HiNet’s Deployment Strategy
- Concluding Remark
Penetration rate
Internet users in Taiwan

Source: FIND (Focus on Internet News and Data) Project
Institute for Information Industry (3/31, 2006)
Internet Broadband Users (Household)

Source: FIND (Focus on Internet News and Data) Project
Institute for Information Industry (3/31, 2006)
Broadband household penetration is over 70%

Source: 2006 Annual “Internet Broadband Usage in Taiwan” Survey Results, TWNIC
Major ISP, IX and Portal Operator

- **ISP**
  - HiNet, Seednet, So-Net, TFN, TTN, APOL, Giga, Sparq, etc.

- **IX**
  - TWIX, EBIX, TPIX, TWNAP

- **Portal**
  - Yahoo, PChome, HiNet, MSN, Yam
Main Activities on Internet

<table>
<thead>
<tr>
<th>Activity</th>
<th>2005 Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instant Message</td>
<td>1</td>
</tr>
<tr>
<td>E-mail</td>
<td>2</td>
</tr>
<tr>
<td>Search Engine</td>
<td>3</td>
</tr>
<tr>
<td>Reading News</td>
<td>4</td>
</tr>
<tr>
<td>Download Software</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: FIND Project MIC (Market Information Center), July 2005
Thread and Opportunity to ISP

• **Thread**
  – P2P applications generate large traffic
  – Network security and privacy problems
  – SPAM Mail
  – Free Riding

• **Opportunity**
  – Users expect higher bandwidth and quality
  – Various CPE and mobility
  – Innovated applications (Web 2.0)
  – Cyber advertisement
  – Multimedia service (VoIP, IPTV, Digital Home)
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Ubiquitous Network Services

Through different devices, at home or outdoors, in the office or business travel, adopting all kinds application services. (Communication, Information, eCommerce, Entertainment.....)

On the move
(Vehicle, Transport)

In the house
(living or bed room, home office)

Out of house
(Shopping Mall, traveling)

In the office
(meeting room, working place)

Always on
fully-connected

GPS
IC card
Sensor component
Vending machine
Cellular phone
PDP
MM Kiosk
Sensor network

Home network
Information appliance
Digital TV
Office facilities
IP phone
PC
Safeguard

HiNet
Chunghwa Telecom Co., Ltd.
Construct the high-quality ubiquitous network
M-Taiwan Program

• hope to build Taiwan a “Brave New Mobile World” and enables people to access multiple ICTs anytime, anywhere — it promises a better M-life.

• leaded by NICI and 37 billion NT dollars has been allocated for years 2005~2009

• expected to buildup
  – the wireless networks
  – integrate mobile phone networks
  – setup the optical-fiber backbones
  – execute the Integrated Beyond 3rd Generation Program.
  – reach the vision of "Mobile Taiwan, infinite application, and a brave new mobile world."
Web 2.0

• Asymmetric vs. Symmetric?
• Business Model?
• Privacy and Security?
• Advertisement?
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HiNet Network Access Evolution

**Fixed**
- PSTN/ISDN: 56Kbps
- ADSL: <12Mbps
- VDSL: 20+Mbps
- FTTX: 10~100+ Mbps

**WLAN**
- IEEE 802.11: 1+ Mbps
- IEEE 802.11b/g: 11~54 Mbps Per AP
- IEEE 802.11n: 100 Mbps Per AP

**Mobile**
- GSM/GPRS: <64Kbps
- WCDMA 3G: 384Kbps
- HSDPA: 1.8+Mbps
- B3G: <50Mbps
- WiMAX: 15+Mbps
HiNet Value Added Services

**Fundamental**
- E-mail
- Search

**Premier content service**
- Portal

**Interactive and creative content service**
- Messaging
- VoIP
- Security
- Video
- Streaming
- Gaming
- e-learning
- Financial ....
- Xuite (Web 2.0)
- Digital Home

Integration

Personalization

High Quality

Ubiquitous service
Xuite Services

Web 2.0 Spirits: Participation, Interaction, and Sharing

Text, Photo, and Video

Internet

Blog
Photo Album
My Portal
Network
Hard Disk

Take Communication to Xuite!

Xuite FMC Service Gateway

Communication
- Voice
- Messaging
- Interactive

Entertainment
- Games, ringtones, TV, etc
- Information
- Payments/transaction

Migration towards value added services underpinned by the Internet

MBlog
VSMP
MLIOP
SNS
MMSC
SMSC

Xuite+ FMC

HiNet

Xuite

3G/ GPRS

CGS

GPRS GW

AA

CHT-D

CHT-M

Text, Photo, and Video
HiNet Digital Home Services

- Information
- Entertainment
  - Streaming & Download
- Home Surveillance
- To be announced at Q4 2006
HiNet IPv6 Trial Network

Access Ports T3~64K

HiNet POP

IPv6 Exchange Center

Gigabit Bandwidth

AS 17419
2001:B000::/21

ISP1

ISP2

HiNet POP

IPv6 Exchange Center

Gigabit Bandwidth
Will invest 1.8B USD before FY2011
- Expand FTTx coverage
- Expand Ethernet Aggregation Networks
- Consolidate IP Core Networks
- PSTN transformation (Packetization)
- Develop NGOSS
- Deploy platforms to support new services
Conclusion Remark

• User demands Internet services at anytime from anywhere with any devices
• Government has been aggressively promoting Internet services in Taiwan
  • 2002 e-Taiwan Project
  • 2005 m-Taiwan Project
  • 2007 u-Taiwan Project (Planning)
• CHT will deploy infrastructures for the ubiquitous network society and provide related applications
Thank you for the attention

中華電信
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