NTT's roll-out plan of broadband ubiquitous services over NGN

Naotaka MORITA
Senior Research Engineer, Supervisor
NTT Service Integration Labs.
<table>
<thead>
<tr>
<th>ITEMS</th>
<th>NUMBER</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>127.8 M</td>
<td>11/2005, 20% is older than 64.</td>
</tr>
<tr>
<td>Householders</td>
<td>50.4 M</td>
<td>03/2005</td>
</tr>
<tr>
<td>Fixed lines</td>
<td>59.6 M</td>
<td>03/2005</td>
</tr>
<tr>
<td>ISDN</td>
<td>8.0 M</td>
<td>10 M at peak in 2001</td>
</tr>
<tr>
<td>Mobile</td>
<td>91.8 M</td>
<td>03/2006, 79.8 M have internet access, 70% of total population</td>
</tr>
<tr>
<td>3G</td>
<td>48.3 M</td>
<td>70% growth last year</td>
</tr>
<tr>
<td>W-CDMA</td>
<td>26.5 M</td>
<td>DoCoMo &amp; Vodafone</td>
</tr>
<tr>
<td>cdma2000</td>
<td>21.8 M</td>
<td>au</td>
</tr>
<tr>
<td>PHS</td>
<td>4.7 M</td>
<td>03/2006, 6.7 M at peak in 1997</td>
</tr>
<tr>
<td>Broadband</td>
<td>20.6 M</td>
<td>06/2005, 40% of householders</td>
</tr>
<tr>
<td>DSL</td>
<td>14.1 M</td>
<td>16% growth last year</td>
</tr>
<tr>
<td>Optical</td>
<td>3.4 M</td>
<td>94% growth last year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>84% coverage in 2004</td>
</tr>
<tr>
<td>VoIP</td>
<td>8.3 M</td>
<td>0AB type has started</td>
</tr>
</tbody>
</table>
IP phone services in Japan

PC1: December 2000
Dedicated software used between PCs connected to an IP network
E.g., Bit arena
100 – 150 ISPs

PC2: November 2001
PC to PSTN phone
E.g., Windows messenger
100 – 150 ISPs

PC3: November 2002
050 prefix enables a call from PSTN to IP phone
E.g., ISPs

PC4: October 2004
P2P type software
E.g., Livedoor provides Skype in Japan

BP1: April 2001
PSTN call via IP transit network
E.g., Fusion Communications.

BP2: April 2002
Calls between black phones with VoIP terminal adaptors via an IP network
E.g., BB phone by YBB

BP3: February 2005
Emergency call from IP phone
E.g., Hikari Denwa by NTT-East

All Internet

NGN

IP Network

PSTN
NGN public announcements from carriers

- **KDDI in 09/2004**
  - Introduction of softswitches and high-quality IP networks to replace existing PSTN switches completely by 03/2008.
  - New platform to provide flexible revenue-creating applications

- **NTT in 11/2004**
  - 30 M lines (50% of total PSTN lines) are to be shifted to FTTH.
  - Exploration of nontraffic business beyond legacy telecommunication markets.

- **NTT in 11/2005**
  - Specific plan to achieve NGN towards 2010.
Currently
- As of 2005/12, broadband access has climbed to nearly 22.3 million.

*Source: Ministry of Internal Affairs and Communications*
FTTH users surpass ADSL users in 1Q 2005.

Source: web-site of Ministry of Internal Affairs and Communications
Milestone of Optical Fiber Access

- NTT will promote the migration from fixed to IP telephone services and provide a variety of ubiquitous broadband services with high-speed and interactive features with objective of achieving a target of 30 million customers using optical fiber access and next-generation network services.

(Source: Produced by NTT based on documents by Ministry of Internal Affairs and Communications)
• Japan offers the lowest broadband service rates of all major countries.

from "ITU Internet Reports 2005: The Internet of Things" (Nov 2005)
Revenue Shift from Mobile/POTS to NGN

Current revenue of NTT Group

Japanese broadband market

Revenue from broadband market

Broadband market will grow to 4 trillion yen by 2007. Broadband communication over NGN will bring NTT group new revenue.

<table>
<thead>
<tr>
<th>Year</th>
<th>2005 (Trillion yen)</th>
<th>2006 (Trillion yen)</th>
<th>2007 (Trillion yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>consumer</td>
<td>1.2</td>
<td>1.6</td>
<td>2.1</td>
</tr>
<tr>
<td>business</td>
<td>1.2</td>
<td>1.5</td>
<td>1.9</td>
</tr>
<tr>
<td>total</td>
<td>2.4</td>
<td>3.1</td>
<td>4.0</td>
</tr>
</tbody>
</table>

(Source: EC Research Corp.)
Application Services in NGN

Lifestyle support, Home control

Community, E-commerce

Convergence of telecom and broadcasting, Content delivery

Media Technology, Portal, Human Interface

Appliance platform for users

Service management platform to combine xSP and users

Service Platform

Service integration platform for xSP

NGN

Home network

HGW: Home gateway

Wireless LAN

Thin clients

Office, Hot spot, etc.

Consumer electronics

Mobile phones

HGW

Office, Hot spot, etc.
ITU-T Workshop on "Next Generation Networks"
Hanoi, Vietnam, 15-16 May 2006

Build an **NGN** that is **high-quality, flexible, and secure**

Develop and implement a **ubiquitous broadband service** with FMC, etc.

Expand business opportunities using ubiquitous broadband service

Seamlessly upgrade from fixed phone to **IP phone** from metal wire to **optical fiber**

Strengthen our **competitiveness** and **financial base**

**e- Japan Strategy**
**u- Japan Initiative**
### Roadmap to Building a Next Generation Network

**ITU-T Workshop on “Next Generation Networks”**  
Hanoi, Vietnam, 15-16 May 2006

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2006</th>
<th>2007</th>
<th>2008–</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steps introducing the NGN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>STEP 1</strong></td>
<td>Field trials</td>
<td></td>
<td>Introduction of optical fiber to 30M users (End of fiscal 2010)</td>
</tr>
<tr>
<td><strong>STEP 2</strong></td>
<td></td>
<td>Construction of subscriber network</td>
<td></td>
</tr>
<tr>
<td><strong>STEP 3</strong></td>
<td></td>
<td></td>
<td>Seamless integration with mobile network</td>
</tr>
</tbody>
</table>

**Core network**
- Construction of relay network  
  - deploy relay nodes  
  - deploy optical wavelength transmission equipment
- Construction of subscriber network  
  - deploy edge nodes
- Deployment of service control functions  
  - IMS deployment (Conforming to ITU standards)

**Service control functions**
- Trial services  
  <Field trials with limited regions and users>
- Full scale development of next generation services
  - Broadband Internet access
  - IP telephony
  - Multicast transmission for video distribution
  - Bi-directional video (data) communication
  - Ethernet services, etc.

**Service development**