Public policies

Japan: from high speed to very high speed access

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The broadband market took off a little late in Japan. This can be explained by the popularity enjoyed by mobile internet (iMode), the longstanding low PC penetration rate in Japan, as well as a reluctance to invest in ADSL technology on the part of NTT. As a result, there were only 1,260,000 broadband connections in Japan by June 2001.

Since 2002 the broadband access market has nevertheless grown rapidly and now accounts for 40% of households, representing a penetration rate of around 15%. That places Japan far behind South Korea, which has a rate of 25%, just after Singapore and Taiwan, but ahead of the Netherlands and Sweden. Above all, Japan merits attention for its high number of FTTx connections, which are in the process of supplanting new subscriptions to ADSL.

NTT has to share the ADSL market with Softbank and several ISPs

In March 2005 the broadband market reached 19.5 million subscribers:

- 13.7million via ADSL (+ 2.4 million versus March 2004),
- 3 million CATV subscriber (+ 0.4 million),
- 2.7 million FTTH/x subscribers, including VDSL (+ 1.3 million),
- 0.15 million via WiFi (+0.09 million).

The ADSL market ('wholesale') is dominated by the two regional NTT operators (NTT East and NTT West) and by Softbank BB (which only supplies the ISP Yahoo BB!). Behind these players are eAccess and ACCA. However, in recent months NTT East and NTT West have increased their lead:

	June 04	March 05
NTT	4.47	5.20
SoftbankBB	4.28	4.77
eAccess	1.66	1.85
ACCA	1.20	1.28
Other	3.34	N.A.

Operators' market share in number of DSL lines (in thousands)

Source: Companies/Nomura

Softbank and eAccess have benefited from the relatively low partial unbundling price (around USD 1.4) imposed upon NTT West and East (as well as rules obliging NTT Group subsidiaries to provide black fibre for "backhauling"). Moreover, these two entities owned by the incumbent have to use a subsidiary (OCN) for ISP services. In this market ("BB retail"), OCN only had a 14% share of subscribers in June 2004, a long way behind YahooBB/Softbank (26%), but ahead of Dion/KDDI (8%).

Beyond these features of industry structure in Japan, DSL offerings are characterised by bandwidth capacities ranging up to 50 Mbps, leading to very low prices per megabit. An Infocom diagram assesses the cost of such bandwidth capacity for selected offerings at EUR 0.5.

New connections increasingly supported by FTTx architectures

While cable seems condemned to lose market share, strong growth can be seen in the number of FTTH/FTTx connections, which even exceeded that of ADSL connections recently thanks to 100,000+ FTTx new connections per month. Another 1.9 million FTTH connections are forecast for FY 2006 (March 2005 – March 2006), versus +1.3 million for ADSL and 0.3 million for cable. Nomura's analysts estimate that FTTx should represent 10.2 million subscribers out of 32 million broadband households by 2010.



Forecasts of number of internet lines in Japan



The "wholesale" FTTx market is clearly characterised by:

- the influence of NTT, whose two subsidiaries control 77% of connections,
- the electricity companies (notably Powered Com, an 83% subsidiary of Tepco and which should be incorporated into the KDDI group in 2006, and K-Opticom, a subsidiary of Kansai Electric Power) representing 12.1% of connections,
- and Usen (11%), a company present in the cable sector and the first operator to deploy a commercial FTTH offering for apartment buildings in Tokyo in 2001.

In the "resale" market, NTT, also obliged to unbundle its fibre connections as of September 2001 (around USD 40 for "dark fiber" access), saw its market share fall to 59% in September 2004. Moreover, although the NTT Group subsidiaries are in a strong position in the individual home market, they are clearly lagging behind in the apartment building market, with less than 33% of FTTx connections. It is also worth noting that NTT and the government are in the process of negotiating changes to the unbundling rules for optical connections.



Share of FTTH internet subscriber lines

Source: Infocom

Softbank (since March 2005) and KDDI (408,000 subscribers at the end of June) also offer their subscribers FTTx connections by using NTT's network (as well as the networks of the electricity companies and Usen).

FTTx offerings are marketed using their "best effort" bandwidth capacities of 100 Mbps, with prices varying significantly depending on whether the dwelling in question is an apartment building (via Ethernet if there is LAN cabling or via VDSL) or an individual home. It is worth noting that G-PON offerings have recently emerged, with bandwidth capacities of up to 1Gbps (shared by up to 32 subscribers).

FTTH offerings are still mainly concentrated in Tokyo and the country's main cities and are subject to conditions (at least 20 to 30 candidate homes).

The prices of FTTx connections vary between USD 30-45 for apartments and USD 50 - 75 for individual homes, on top of access fees of USD 65 - 300. They are accompanied by two major options:

IP telephony (USD 0 -15 plus call termination charges)

- a TV bouquet (costing USD 20 – 50 per month) and a VOD offering in some cases.

Triple play offerings in Japan

As far as IP telephony is concerned, the number of users was estimated at 8.3 million in March 2005 (+ 57% versus March 2004), with a market share of 64.8% for Softbank (which launched the service in April 2002) and 8.3% for NTT. Since 2003 a 0-50 prefix has made it possible to call an IP telephone from a fixed analogue telephone (50 million lines in 2005 versus 58 million in 1998 and around 41 million lines forecast for 2010), or via ISDN (8 million lines equivalent to 64 Kbps versus 11 million lines in 2001). Offerings with the prefix OAB-J appeared in 2004 (with geographical identification) enabling users to abandon their subscription (via FTTH) to NTT's traditional analogue telephony service, but still enjoy a security service and the same services offered by a traditional telephone line. Subsidiaries of the NTT Group launched this type of IP telephony service in autumn 2004. These offerings allow clients to retain their telephone number.

In terms of television and VOD, there are 6 major services:

• BBTV, distributed by Softbank BB, offering 32 (then 40) TV channels and access to a catalogue of 1,000 films on a VOD basis for a subscription costing around USD 29 per month.

• Hikari Perfect TV/OptiCast (a 100% subsidiary of SkyPerfecTV), distributing the bouquet Sky Perfect TV and Hertzian terrestrial channels (or virtually 270 channels), accessible on NTT's and Usen's FTTH networks for USD 38 for the "basic package" of 38 channels.

• eoTV/K-Opticom, offering a bouquet of channels with terrestrial and satellite programmes on K-Opticom's FTTH networks for USD 50.

• Hikari Plus TV, which offers a VOD service on top of a bouquet of channels and is accessible for KDDI/Dion's FTTH offerings.

• Online TV/4th Media, which offers NTT's ADSL and FTTH subscribers a bouquet of 30 channels and VOD (1,500 films) for USD 24.

• On Demand TV Inc, recently launched on NTT's FTTH networks (then ADSL networks), offering 19 programmes and a VOD service (with the option of a flat rate subscription to this service with 1,000 films for USD 20).

We were not able to collect data on the success of these offerings. On the other hand, a serious regulatory barrier to the development of IPTV in Japan emerged during the course of our discussions. A law, effective as of January 2002, has created a new category in audiovisual regulation: that of the "Broadcaster on Telecommunications Services". This enables candidates seeking to use satellite repeaters or fixed networks as broadcasting channels to request a licence from the relevant Ministry (MoPMHAPT). NTT, however, does not have this option and has to resort to a third party (such as Online TV). Furthermore, and especially with regard to what can be called "broadband broadcasting", a distinction is made based on whether television programmes are distributed via IP or not. In one case, corresponding to the offerings by SoftBank BB, Hikari Plus/KDDI and On Demand TV, the use of IP prohibits the operator from carrying Hertzian channels for copyright reasons. The two other offerings are compatible, either because they separate IP flows ("telecom and TV" via separate physical supports (K-Opticom and Opticast), or via wavelength multiplexing – WDM – on fiber whereby separate wavelengths are used for video and for supporting IP traffic.

It is nevertheless likely that regulatory and contractual restrictions will be slowly lifted. In fact, we have recently seen a large number of announcements by internet companies and television groups regarding the launch of TV services or VOD via the internet.

Conclusions

Exceptional growth in the FTTH subscriber base in Japan would seem to be based upon:

- characteristics related to the density of agglomerations and the high number of apartment buildings in the country (population density in Japan is 349 pers./km2, versus 108 in France and 31 in the USA), supported by a highly selective approach to the areas and dwellings passed, as well as aerial connection options;

- NTT's longstanding attempt to promote fiber optic technology in its local network (it is also worth remembering that the CAPEX/CA ratio of NTT East and West ranges from 18-21%);

- public authorities' commitment to privilege FTTH in their projects to support information technologies;

- highly attractive prices, with small differences in the cost of FTTH and ADSL offerings. Prices are almost the same for apartment buildings, (but FTTH costs around 40% more for individual homes).

Although the deployment of fiber access should end up valorising new services, there is not much evidence of this today. This situation means that competition, which remains fierce, should still be dominated by the price war and attracting subscribers. It is logically accompanied by continued consolidation, notably at the initiative of Softbank and KDDI.

Although still loss-making, Softbank now has a solid network component based on its acquisitions of Japan Telecom in 2004 and IDC in 2005, but also due to its dynamic portal business (thanks to an alliance with Yahoo!) and content activities. Softbank is expected to enter the mobile market in 2007 and the development of fixed-mobile broadband offerings should be one of the key pillars of its strategy.

As for KDDI, which is losing money in its fixed business, an alliance with Tepco/PoweredComno looks inevitable. KDDI is also well-placed to introduce another differentiating factor, namely a fixed-mobile convergence strategy, which in both Japan and South Korea, is clearly on the agenda (cf. §II).

As far as NTT is concerned, it will be interesting to watch the evolution of each of its 100% subsidiaries, NTT East and West. Their turnover (around USD 20 billion respectively) could continue to drop through 2010, mainly due to decreases in voice revenues (competition from mobiles, VoIP and alternative operators in the corporate market), despite additional revenues from the broadband market. However, analysts expect both subsidiaries to post continued profits with a substantial drop in charges. Lastly, among the regulatory issues likely to impact the group's future perspectives, it is worth mentioning expected changes to unbundling obligations for fiber access and, in the longer term, a relaxation of the "dismembering" of the group that took place in 1999.