

Fiber in the local loop

Moving Europe towards the future?

Abstract

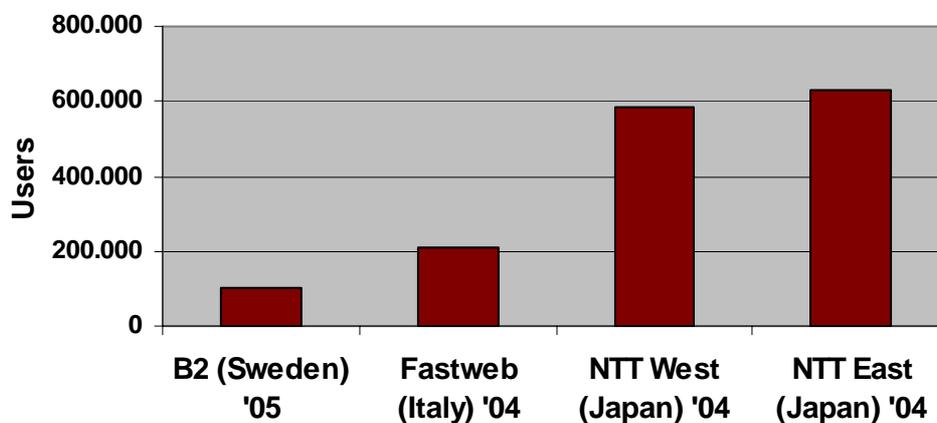
- Fiber based broadband access is considered the long-term goal for last mile access
- With the exception of Japan and South Korea there have not been massive commitments
- Now major US carriers announce strong investments and large roll-outs
- What is the prospect for Europe and what are the reasons behind the low level of adoption?

Commercial status

Fiber based broadband access is considered the ultimate and most future-proof last mile platform since its capacity for high bandwidths is unmatched by any other delivery platform. Yet all major European operators have so far refrained from launching massive activities. Until recently only some Asian incumbents

have conducted large scale deployments whereas activities in other regions and especially Europe have not been driven by the ex-monopolists. Now US operators are setting themselves up with dedicated roll-out plans but with different positions and a later market entry than their Japanese counterparts.

Japanese deployments dwarf largest European followers



- **Japanese** NTT East & West act as infrastructure operator that allow other service providers to offer internet access and further services through FTTH. The Japanese broadband environment is very competitive with high speeds offered by DSL and fiber.
- **US** players Verizon and SBC announced in 2004 to widen their fiber activities significantly (Verizon choosing an FTTH approach and SBC FTTN, hence accelerating its roll out speed). About 400 deployments are underway in the USA counting in CLECs and municipal initiatives.

In **Europe** FTTH is largely driven by municipalities and utilities which conducted about ¾ of all projects in 2004. While there are projects in practically every country the state of adoption differs hugely. As a matter of fact only two players (Fastweb in Italy and B2 in Sweden) surpass a figure of 100.000 FTTH subscribers. Together they also accounted for about 75% of European passed homes (Source: Idate).

A key reason for the late uptake of incumbents is the potential threat of having to unbundle the new investments to challenging operators. The US regulatory authority FCC clarified in October 2004 that new fiber network need not be shared with competitors. Following this SBC and Verizon have announced large deployments with SBC's "Project Lightspeed" fiber initiative targeted at 18 million households by the end of 2007.

Some European projects to keep track of

Fastweb (IT)	www.fastweb.it	Pau (FR)	http://eco.agglo-pau.fr/Initiatives/PBC/psc.asp
Stokab (SE)	www.stokab.se	Energimidt (DK)	www.energimidt.dk
Citynet Amsterdam (NL)	www.citynet.nl	Lyse (NO)	www.lyse.no
B2 (SE)	www.bredbandsbolaget.se	Västerås, (SE)	www.stadsnat.malarenergi.se

So what is the reason for Europe's lack of deployments? Firstly the regulatory environment is not as clear as it is now in the USA. Furthermore all of the European incumbents have strongly committed to DSL. But the most prominent reason is that the incumbents are simply not under enough pressure by alternative infrastructures (especially CATV like in the USA) to move towards fiber. Many of the countries with well enforced competition by broadband cable are also the ones who are most active in fiber testbeds (Netherlands, Denmark...). But in general the European CATV markets are often fragmented and/or have not strongly pushed the broadband services.

Instead public funding fuelled the emergence of neutral operator concepts built on subsidized infrastructure such as in Sweden. Here the future potential of the country/region has been the focus of public authorities which try to

combat the Digital Divide (see our previous Market Review on Digital Divide from February 2005). For this reason the majority of European deployments is driven by municipalities and utilities (notwithstanding the leadership in terms of subscribers by Fastweb).

Models like the concept of Västerås, Sweden are based on revenue sharing between the "neutral" network owner/operator and the service providers which pay for gaining access to customers. Such a "marketplace" approach has been successfully implemented in a variety of Nordic municipalities and has enabled service-based competition in and out of metro areas. The Västerås municipality has been one of the first to create a company for the deployment and operation of an open city network. 30.000 households and 2.000 companies as well as public institutions are connected to the network.

Technology & Business

Another reason for the slow take-up is that fiber based local loop access remains a complex task with a variety of issues to be addressed. Among them is the choice of an active or passive architecture which have both advantages and drawbacks (see box below).

At this moment passive optical networks strongly dominate the Japanese deployments and therefore a large majority of global customers uniting 92% of PON revenues. With increasing deployments (not only) from the USA the growth is expected to be at over 300% over the next 3 years (source: Infonetics). Verizon's approach also relies on a FTTH PON architecture. With deployment costs between 1200-2.500€ or even more per home

passed, fiber remains a long-term investment in the future. Fastweb residential ARPU of 75€ p.m. shows the break-even on DSL infrastructure can be realised much faster while delivering the same services. Accordingly they have transitioned to a 70-30 split in DSL-fiber clients and after starting as pure fiber player initially now the majority of new clients are based on DSL.

Active and Passive infrastructures

Active Ethernet

- Active (power-consuming) devices between central office and the subscriber site
- Dedicated bandwidth for each user
- High individual top speed (100Mbps)
- Higher range upwards of 80km, less preplanning required

Passive Optical Network

- No active (power-consuming) devices between central office and the subscriber site
- Shared bandwidth to share investment in fiber cable and optical transceivers
- High network top speed (2Gbps)
- Range limitation of 10-20km. Higher degree of preplanning required

The key issue is whether the amount of bandwidth required will rise so quickly that xDSL cannot keep up. This could be the case for broadcasting of multiple High Definition Television which require up to 20Mbps per stream. Essentially the decision for FTTH is a bet on the adoptions speed of multiple video applica-

tions. Many municipal projects argue that the local loop bandwidth must not become tomorrow's bottleneck since we can not yet assess the requirements of tomorrow's services. Therefore the investment in FTTH must be considered with a time horizon of 10-20 years.

Conclusion

While an overall surge in fiber deployments is expected this will most likely not hit Europe which might see a slower deployment of FTTC with VDSL as first migration step. So without the impact of large incumbents throwing themselves behind FTTH, Europe will fall back behind the accelerating dynamics of the US and of course remain behind the bandwidth hungry Asian economies above all Japan. Accordingly Sweden, Italy, Denmark and the Netherlands will continue to lead European deployments driven by municipalities/utilities and CLECs.

Furthermore it seems worthwhile to note that a single focus on fiber has not worked for a number of players. Fastweb's move to complement fiber with DSL is matched e.g. by Västerås who have run into economical problems of extending fiber to every house. Again the operator has chosen to complement the rollout with ADSL, especially for more rural areas. It appears that aside from very high population density areas and the right (regulatory & competitive) framework, fiber will be delayed or at least remain one of several platforms in the operator's technology portfolio.

About bmp Telecommunications Consultants:

bmp TC is a strategic consultancy in the field of telecommunications with a focus on central issues related to business models based on broadband platforms such as DSL, Wireless, Fiber or Powerline Communications. The longstanding experience & a wide-ranging industry view enables to create and launch new services for the market and support the implementation and introduction of unique and sound business models.

Previous Market Reviews are available on the website below.

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<u>Equipment suppliers</u>	<u>References</u>		<u>Utilities</u>
<ul style="list-style-type: none">Alcatel, BEAscom, CHDataflex, EMEADynarc, EMEAEasyplug, EMEAEBA PLC, USEPCOS, GERHewlett Packard, EMEAHyperchip, CANItochu, JPLEA, FRLegrand, FR			<ul style="list-style-type: none">Copel, BREDF, FREDP, PTESB, IRLGazélec Péronne, FRLatvenergo, LVLight, BRManx Electricity, UKRSPEC, FRRWE Plus, GERUEM, FRVialis, FR
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<ul style="list-style-type: none">CCHVO, FRCG de la Manche, FRCG de la Seine et Marne, FRCR d'Aquitaine, FRCR de Picardie, FR	<ul style="list-style-type: none">ATU, AfricaCDC, FRCSTI, FRDATAR, FRDCMNR, Irish governmentIEI- Israel Export Institute, ISROTV, FRPLC forum, CHPTF, GER		
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<ul style="list-style-type: none">Consultancies/ Exhibitors: MZA (UK), Idate (FR), EJK (GER)Venture Capital: Morgan Stanley (UK), Durlacher (UK), Vivitures (FR), bmp AG (GER), Itact (SE)Venues/ System integrators: Cegelec, (EMEA), cmgi (EMEA) Tank & Rast (UK)			