

Light pipe to the home

Fibre-to-the-home (FTTH) technology, which provides a high-speed optical-data link directly into the house or apartment, is now becoming very popular in Japan and Korea. **Adarsh Sandhu** spoke to the FTTH Council Asia Pacific about the status of the technology in the region.

What is the FTTH Council Asia Pacific?

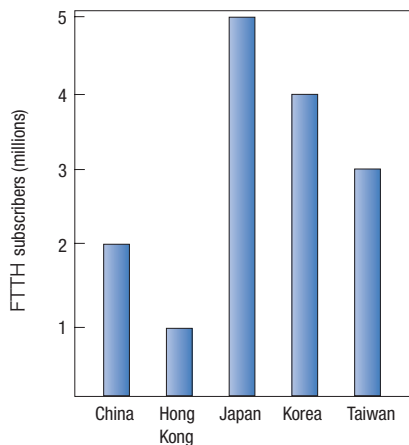
Shoichi Hanatani, president of the FTTH Council Asia Pacific and senior director at Hitachi Communication Technologies:

We are a non-profit organization with a mission to educate the public and to promote and accelerate FTTH deployment to enhance the quality of life of people living in this part of the world. Globally, there are three FTTH councils. The first was set up in the United States in 2001 and now has more than 135 members; next came the Europe Council in 2004 with a membership of more than 60; and the Asia Pacific Council was launched in 2005, with more than 40 members. The three councils are financially and operationally independent, but we act together as one FTTH council in explaining our goals to the international community. Recently, we have been working on clarifying definitions of new technical terms such as FTTx, where 'x' can stand for either home (H) or building (B), depending on the specific regions. In Japan, FTTB is where the fibre is connected to the building and the actual final links to apartments are made by very-high-speed digital subscriber line [VDSL].

What download speeds are typical today and how is this bandwidth being used?

In Japan, the passive optical network [PON], where a single fibre is shared through an optical splitter for use by 32 households, is widely used. Its performance as measured by the IEEE GE-PON [giga-ether'-PON] benchmark, is up to 1 Gbit s⁻¹ for downloading information. The situation is similar in Taiwan, Hong Kong and Korea, which is also beginning to experiment with 'WDM-PON' [wavelength-division-multiplexing PON], where a single wavelength is allocated to a single subscriber. Around ¥6,000 (about \$50) is a typical monthly charge for a high-speed Internet access over the FTTH service in Japan.

In Japan, the main application is high-speed Internet access. Another new service area, IP [Internet-protocol] telephone, that is, voice-over IP, is emerging. The same seems true for other Asia-Pacific countries. In the United States, there is more interest in delivering



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cable television and related entertainment services as well as Internet access.

What is the status of FTTH deployment in Asia Pacific?

The Asia-Pacific region is leading the way in FTTH, like a lighthouse in a 'dark world'; and has an 80% share of the world market in terms of deployment. In 2005 we surveyed the details of FTTx subscriptions in 12 countries in the region. The key players are Japan, Korea and Taiwan, which at the time had around 4.5 million, 4 million and 2.5 million subscribers, respectively¹ — equal to penetration into their broadband subscriber markets of about 90%, 80% and 50%.

In 2004, the Korean government introduced regulations, such as mandatory installation of at least four optical-fibre links — two single and two multimode fibres — to any new buildings. To expand FTTB use even more, the government launched a certification program for apartments and condominiums linked by FTTx in order to differentiate the speed and type of connection. This 'star-embell' certification system adds value to the apartments; four star indicates the highest-speed connections.

It is noteworthy that more than half of the cost of setting up FTTH systems is used

to pay the salaries of the workers involved in laying the fibre cables. The creation of work is an important aspect of national initiatives on FTTH in Asia Pacific.

Why has deployment of FTTH been so successful in Asia Pacific compared with the rest of the world?

There are several reasons. One of the main reasons for such high penetration is the existence of government initiatives to develop this technology. This region is unique because in many of the member countries, decisions about investment in technology are often top-down, namely, strongly influenced by government policies. This is the case in Japan and Korea. The Chinese government is still watching world trends and there is not a concrete policy at the moment. In the United States, the private sector tends to take the lead.

Further, in terms of network architecture, the population density is high in Asia Pacific. For example, about half of the population of Korea lives in or near Seoul. Also, most live in apartments and condominiums. It is relatively easy to expand the FTTB business under these circumstances. Generally, the investment required to link customers to communications hubs is proportional to coverage area. A notable comparison is the situation in Japan and the United States.

The population of Japan is about half of that of the United States, but Japan's land size is about 26 times smaller. Simple analysis shows that the investment required for FTTH network construction in Japan is about a tenth of that in the United States; this is a tremendous advantage for network-service providers in Japan, and one of the reasons why Asia is ahead of the United States and the European Union.

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For more information on the FTTH Council Asia Pacific, please visit <http://www.ftthcouncilap.org>

Reference

1. Hanatani, S. in *IEEE Globecom2006, Access '06 Executive Business Forum* (2006).