

Fiber to the home

Once we take fiber closer to the end-user, the telecom companies will be able to use their resources on the long haul network better, says Kanav Monga

Fiber to the home (FTTH) is a technology wherein a single optic fiber runs from the central office of a telecom service provider to the customer's residence. The technology is also known at times as FTTx wherein the meaning is broader and covers offices, apartment buildings, communities, and various other configurations.

The technology has already been certified by ITU-T and IEEE. The ITU-T technology is known as GPON and IEEE as GE-PON. Out of the two, IEEE GE-PON is the one that is widely deployed as a commercial technology with over 8 million subscribers using this service across the globe.

The technology has no active components in the field and this is the reason it is called PON – passive optic network. The electronics are restricted to the central office or the customer premises. An optical line terminal is set up at the central office, which is connected to the L2 switch. From this unit a single fiber is drawn, the single fiber is capable to run 32 optical network units. In the field, there are splitters installed to split this fiber and thereby, connect 32 ONU's.

IEEE certified GE-PON is capable of 1.25Gbps upstream and downstream speeds, which is considered more than enough with the applications available today. In the telecom world, the common scenario is bringing in the bandwidth and the applications will follow. This is something we have already seen in mobile telephony, broadband, and DTH services.

Why fiber to the home over DSL

With usage of the Internet going-up, bandwidth is something that will be a precious commodity. This is the reason most of the international bandwidth companies across the globe are now owned by India conglomerates. Fiber is the technology of the future in India and in countries like Japan already a widely deployed technology.

The applications available today are way beyond what a standard DSL connection can support. Fiber connectivity will be able to provide unlimited bandwidth as long as the electronics can support it. The

fiber connectivity in the last mile will offer us a clear advantage in the following areas along with various other areas, which come to mind, the minute we talk about unlimited bandwidth. These areas are speedy economic development, educational and occupational opportunities, regional and global competitiveness, and affordable modern healthcare.

World overview of the FTTH market

Japan is leading the race with the maximum number of FTTH subscribers. NTT in Japan is the leader for FTTH deployment and there is a very interesting view on this. With the Japanese telecom market evolving in the last 15 years, there were a number of private operators, which came in. This led to a sudden downfall in the subscriber base for the incumbent. The only way the incumbent could restore its lost credibility was with something innovative and new, FTTH was the answer. Today, Japan has around 6 million subscribers on FTTH and plans of a further investment of Rs. 196,800 crore for an additional 30 million subscribers by 2010.

The US is another country, which realizes the importance of fiber connectivity in the last mile and various operators in the country are now pushing toward this technology. The business plans are to get fiber within the reach of every home, the term is *homes passed*. Once the fiber is within reach and the applications demand high bandwidth, the actual deployment time and cost will be minimal.

This is the way FTTH is moving across the globe. India is way behind in this race but it seems like we have finally realized the importance of high speed broadband and are moving in the right direction with a lot of activity on this lately.

India and fiber in the last mile

India has seen a lot of activity on this front in the last one year. The incumbents in India have already requested for submissions by vendors on this subject. Keeping the interest of the incumbents in mind, the Japanese vendors set up a conference on this subject.



KANAV MONGA

Senior Manager,
Virgo Group

The conference was led by their incumbent and supported by their important vendors. The economy in India is booming and the world is taking note of this, it is important for us to stand up to the world and make them realize the strengths of India, compared to countries such as China. In order to do this, one of the most important tools is communication. As ADSL will restrict our capabilities, its time now for last mile fiber. The last mile fiber will improve the lifestyle of every Indian. It will reduce the need for travel and thereby the congestion on the roads in the metropolitans or the congestion in the air. We need the support of organization such as the TRAI to draft or rather revise their broadband policy of 2004. It is high time we stop defining broadband as 256kbps.

Cost factor

This is an important factor to consider for all telecom companies. One has to realize the cost of laying copper today is higher than fiber. One has to realize that copper is something, which will perish over the years and fiber is something once deployed is an asset for years to come. In India, around 30 percent of the total amount of copper is fit for broadband connectivity today. Are we going to restrict ourselves to 30 percent?

There are various business models available wherein the cost of fiber in the last mile is higher than copper but this is due to the lack of applications today. It is a chicken and egg situation and I suggest we follow Japan or the US—roll out fiber and the applications will follow. Once the applications follow, the cost of deployment will be lower than DSL.

The cost of optic fiber cable has already come down to the levels one did not expect as recently as seven years back. The cost of the electronics is coming down every second due to new technologies. Therefore, to be a market leader someone will have to take the plunge—but be sure the plunge is in tested waters.

Long haul network in India

Today in India, we already have around 800K route kms of fiber optic cable deployed in the long haul networks. This shows that India is already working on the next generation long haul network. The fiber is go-

ing deeper into the communication network and now it is the time to get closer to the end-user. The incumbent in India has approximately 35K exchanges and I would say 95 percent of these are connected on their fiber network, if not all.

We are unable to use this vast amount of long haul network due to the limited access to the end-user. Once we take fiber closer to the end-user, the telecom companies will be able to use their resources on the long haul network better. One must understand that it is the last mile connectivity, which is limiting us and not the long haul or even for that matter the international bandwidth.

As for the international bandwidth, we already have four national level companies, having international submarine cables and thereby, giving us enormous resources in this field. Also if we see the growth pattern of the international bandwidth companies, we will realize how significant their growth has been in the last 5 years due to the high demand of bandwidth. Fiber connectivity is the next big thing for the telecom industry across the globe.

Conclusion

The Indian telecom industry has evolved over the years. We have always been slow in grabbing any new technology and I would have to admit that this scenario seems to be changing. We are now almost at par with the rest of the world as far as communication technology is concerned. The one serious area that we are lacking is the reliability and speeds of broadband connectivity.

We should address this issue immediately as this is one very important aspect for a developing or a developed economy. Today we have the technology to address this issue and the telecom carriers should add this to their social responsibility section.

It is important for the government to guide the private players and the telecom fraternity should work as a team. We all must understand the significance of connectivity in today's age, we all will have to admit how handicapped our lives would be without email or a mobile phone for that matter.

The economy is moving and without a robust communication network, this is going to be short lived. We need to work on this and the government needs to support the fraternity with encouraging policies and having various forums to discuss the matter. ■

Today in India, we already have around 800K route kms of fiber optic cable deployed in the long haul networks. This shows that India is already working on the next generation long haul network. The fiber is going deeper into the communication network and now it is the time to get closer to the end-user.