Technical Innovations

IPTV Services
FTTx benefits - Operator challenges (*)

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For IPTV services, optical fiber offers numerous improvements over xDSL. In particular it makes it possible to:

- raise overall IPTV service quality to a constant, optimal level. This results in better image quality, speed, reliability, etc., which in turn facilitates the expansion of HD and 3D;
- support simultaneous TV applications on different TV sets in a single household;
- facilitate the growth of interactive services.

In the seven markets studied, fiber and IPTV are developing in tandem, each occasionally driving the other. Their growth can be correlated not only to the regulatory constraints in place but also to the importance of cable and satellite in each market. We have observed that there is still little difference between IPTV services based on ADSL and those based on FTTx. There is no "killer application" for IPTV services over FTTx. However, IPTV is the main justification for fiber today.

IPTV is expected to contribute to the profitability of fiber networks because it generates higher ARPU. Fiber has no impact on the television market but is indispensable to telecom operators in confronting changes in that market since it provides the basis for value-generating innovative

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services and for strengthening the position of telecom operators in the IPTV value chain.

FTTx technologies are best for IPTV services

In the broadest sense, the market for Internet Protocol TV – or IPTV – encompasses all forms of digital television service distribution over packetized broadband telecommunication networks that employ the Internet protocol. In contrast to Web TV (which is delivered over the open Internet), IPTV is distributed over a network managed by an Internet access provider (in a so-called "walled garden") and is watched on a television set. IPTV supports not only the distribution of television programming, both linear and time-shifted (video on demand), but also interactive services and applications, whether related to or separate from the TV programming.

Although ADSL is the leading technology the world over for IPTV service, its capabilities are limited, particularly because it uses asymmetrical speeds and the user can be only so far away from the distribution frame. The greater the distance, the lower the speed, whether upload or download. Another technology, VDSL, which was followed by VDSL2, supports theoretical symmetrical speeds of up to 100 Mbps (VDSL2). However, because the carrying capacity is limited, the speed drops exponentially at approximately 500 meters from the DSLAM; therefore, the technology is used most often to extend a fiber optic network over the last kilometer.

The characteristics of xDSL technologies – particularly the constraint that speed degrades as distance increases between the user and the distribution frame – make it impossible to deliver services of equal quality to all subscribers. Very high speed technologies lift this constraint. The various Very High Speed architectures available today are denominated FTTx, for "Fiber to the x". "x" varies depending on where the deployed fiber is terminated. There are several possible points, some closer to the end user than others. The three architectures deployed most widely are:

- FTTN (Fiber to the Node), in which the fiber is deployed only as far as an intermediate distribution point. The interconnection node can be a street cabinet, in which case the architecture may be referred to as FTTC (Fiber to the Cabinet or Fiber to the Curb).
- FTTH/B (Fiber to the Home/Building), in which the fiber is deployed up to the subscriber residence or building.

- FTTLA (Fiber to the Last Amplifier), which is used by cable-operators who wish to modernize their infrastructure by deploying optical fiber up to the location of the last amplifier before the subscriber. In most cases, the amplifier is located at the foot of the building, which often results in FTTLA and FTTB being the same.

Because of its technical characteristics, especially its performance on upload and download speeds, optical fiber is in many ways better than xDSL for IPTV services. All FTTx networks, and FTTH networks in particular:

- raise overall IPTV service quality to a constant, optimal level. This results in better image quality, speed, reliability, etc., which in turn facilitates the expansion of HD and 3D;
- support simultaneous TV applications on different TV sets in a single household;
- facilitate the growth of interactive services.

Fiber and IPTV markets in seven industrialized countries parallel trends

The operators examined in this study are in markets characterized by high fiber growth or high IPTV growth. Sometimes one drives the other.

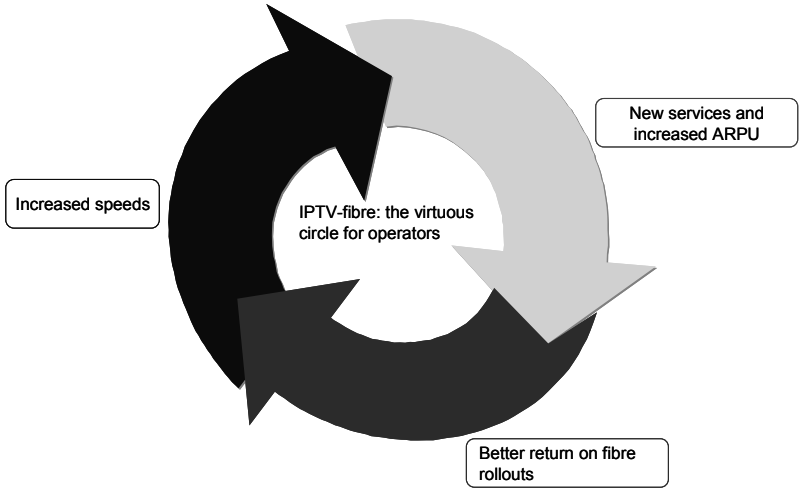
In Western Europe, fiber has not been deployed as extensively as in Asia, but it is growing, as illustrated by the cases of Germany and France. In Germany, the fiber market is still emerging and is driven by the incumbent operator. France meanwhile is the IPTV leader not only of Europe but of the world; the offerings in France include IPTV bundled with Internet access and IP telephony for EUR 30 a month. In Spain, IPTV and fiber at this time are dominated by the incumbent operator. In Eastern and Northern Europe, fiber optic network growth has been rapid, and in 2009 Sweden, Norway and Slovenia led the adoption of optical fiber in European countries. In Norway, IPTV service launches are very recent, but IPTV growth is high: Lyse aims to reach 400,000 subscribers by 2012. Asia is characterized by high growth of very high speed and by nearly total ADSL coverage. In South Korea, regulatory constraints for a long time prevented operators from offering IPTV, and they had to content themselves with VoD only. For about a year now since the constraints have been lifted, South Korean operators – SK Broadband and KT Broadband in particular– have been offering conventional IPTV services, which they are enhancing with interactive modules. South Korea's emergent IPTV services run on a very high speed

network, which had more than 15 million subscribers in 2009. Hong Kong is the leading IPTV market in the world, with a household penetration rate above 50%. The fiber growth there is remarkable as well; in terms of FTTH/B subscribers, Hong Kong ranks 5th in the world. In the United States, competition from cable operators has driven FTTH deployments as telecom operators have turned to fiber as a way to differentiate their services. Though IPTV still lags, Verizon and AT&T are promoting it heavily with innovative service offerings that are carving out a place for Internet applications on the television set.

IPTV + fiber: What is the winning strategy for telecom operators?

Our examination of the xDSL- and FTTx-based IPTV services offered by numerous operators in the Asian, European and US markets where these two technologies are significant leads us to conclude that the services offered over FTTx and over xDSL are fairly similar and do not disrupt other consumption. Therefore, it seems that there is no killer application for fiber-based IPTV services. However, operators continue their efforts to find a killer application for fiber because although fiber is essential for delivering Internet and television services simultaneously and meeting consumers' ever-rising demands for quality, it has yet to be linked to a key application which alone can justify deployment.

IPTV-fiber: The virtuous circle for telecom operators



Source: IDATE

Today, IPTV is without a doubt the leading sales argument for fiber to the residential market because it provides a better TV experience for the user and enables additional services related to concurrent consumption. Moreover, television usage is undergoing major change, and this change is clearing a path for the introduction of higher speeds and innovative services that will contribute to higher ARPU for telecom operators and render fiber deployments more profitable. This profit potential is another reason why the operators that are rushing to offer higher speeds are striving to do so before their competitors.

Fiber has not changed the television services market nor will it change it because, as a technology, it is unable by itself to alter usage or player share in the value chain.

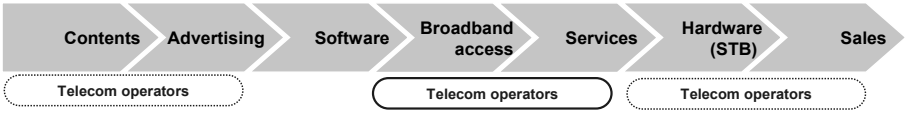
Television usage is undergoing major change…

We are entering a new phase of television usage. It is characterized by migration to the Internet. This current phase, which is characterized by migration to the Internet, is accompanied by (or will be accompanied by) a rise in time-shifted consumption, integration with social networks, and technical solutions that allow Internet content to be accessed from a television set. The various technical solutions, in combination with the Internet-television convergence now taking place, are determining today's IPTV offerings for the residential market and are creating a larger place in the television value chain for suppliers of OTT (Over the Top) services.

Continue to deploy fiber networks to support innovation and capture the value inherent in IPTV

In the new competitive environment, operators need to innovate and launch new IPTV services to gain better control over the value available from IPTV. To do that, it is essential that they continue to deploy fiber networks. Value is captured mainly through targeted interactive advertising, interactive applications such as T-commerce, and strengthening the role of telecom operators in content provision. Telecom operators may not be innovating very quickly or opening up their set-top boxes to available content, but Web players and OTT service providers are gaining strength in the television market.

Position of telecom operators in the IPTV value chain



Note: Strictly speaking, the position certain operators hold despite the fact that their core business is in providing service access.

Source: IDATE

Although FTTx technologies themselves are not changing the IPTV market, they are indispensable to telecom operators in confronting changes in the television market because they provide the basis for creating value and for maintaining and even strengthening the operators' position in the IPTV value chain.