Chapter - 6

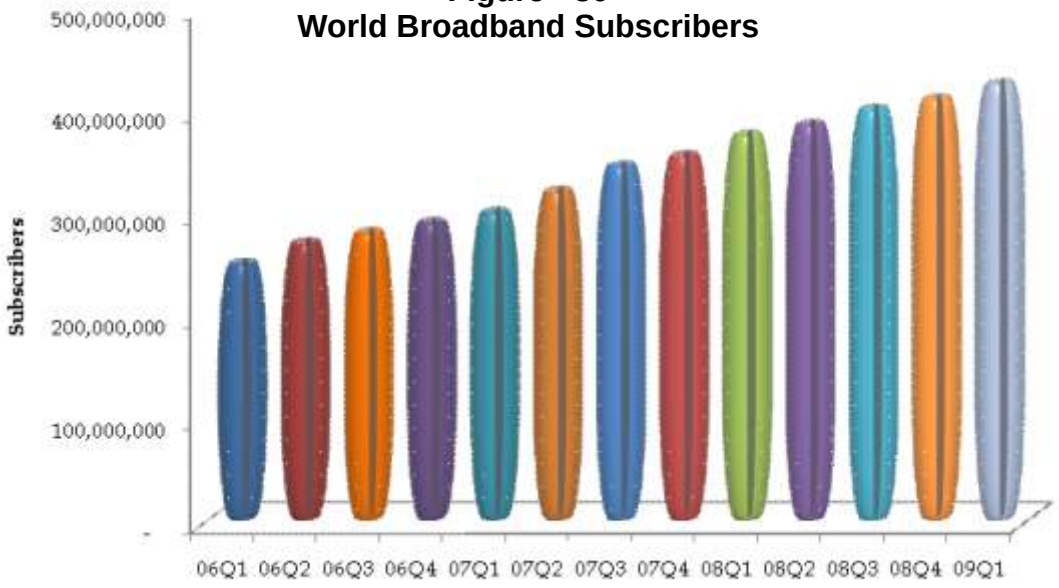
Broadband & Value Added Services

Global Overview

The advancements in telecommunication technologies have brought tremendous revolution in the conventional mechanism of information accessibility. Broadband has been one of the most penetrative and fastest growing phenomenon for information dissemination in recent times around the world. Latest wireless technologies like WiFi, WiMAX and EvDO, are catching up fast with the conventional wire line methods such as DSL and HFC primarily because they provide a competitive alternative to broadband wire line technologies in geographies that don't qualify for loop access. The inherent nature of wireless doesn't require wires or lines to accommodate the data / voice / video pipeline and can carry information across geographical areas that are prohibitive in terms of distance, cost, access, or time. Wireless technologies are no doubt emerging as excellent solutions for connecting distant and underserved areas. According to latest available statistics from Point Topic, there are 429.2 million broadband subscribers in the world as of March 2009 in comparison with 367.7 million in March 2008 which is a net addition of 61.5 Million subscribers with annual growth of 17%.

Figure - 32 shows broadband technology trends around the world. It is evident that DSL still maintains its lead in the technology share by 65% followed by Cable Modem (21%) and Fiber

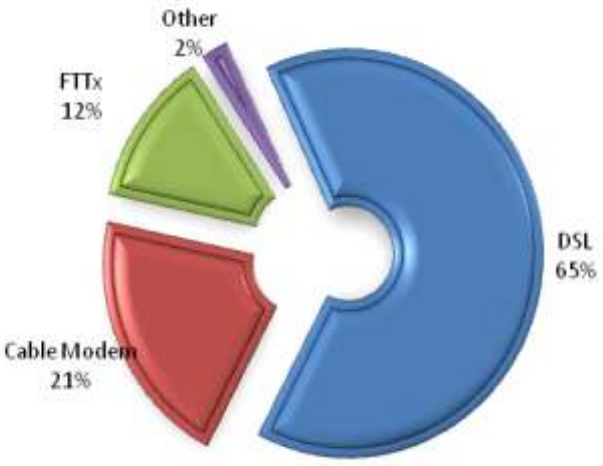
Figure - 30
World Broadband Subscribers



Source: Point Topic

(12%). However, operators around the world are also converging towards 'wireless' platforms like WiMAX as an efficient and robust alternative to fixed line technologies. A leading example of such trend is Pakistan where WiMAX has shown unprecedented growth in a short span of time.

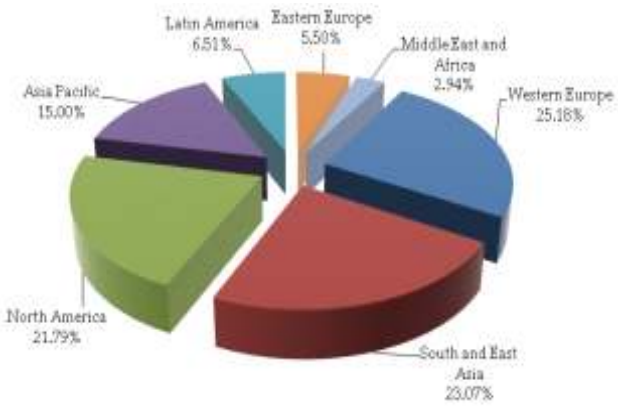
Figure - 31
World Broadband Subscribers Share by Technology (Till March 2009)



Source: Point Topic

Global leaders in the broadband market include China (88.08 million), USA (83.37 million), Japan (30.63 million), Germany (24.15 million) and South Korea (15.7 million). As highlighted in Figure - 32, regional broadband trends reveal that Western Europe has the highest share of subscribers with 25.18% followed closely by South and East Asia which stands at 23.07%. South East Asia is considered as most populous region of the world and at the same time according to Point Topic analysis, has the highest potential for future broadband growth as it has a major portion of population still not approached by the Broadband Stakeholders. It is estimated by Point Topic that global broadband subscribers will reach upto 695 million by the end of year 2013.

Figure - 32
World Broadband - Regional Subscribers Share (%) (Till March 2009)



Source: Point Topic

Broadband in Pakistan

Internet had been available in Pakistan for over a decade now mainly through dial up connections. With better awareness of keeping one's self “informed” of the happenings around the world, demand for speed and bandwidth kept on increasing day by day. Broadband made its entry in Pakistan during early 2000, followed by National Broadband Policy in 2004. PTA under its role of a regulator has been facilitating broadband entrant by devising 'lenient' license terms and conditions giving freedom to the operator in terms of selecting appropriate business model, technological choices and easy roll out plans. As a result, one could observe a rich market place both in terms of wired and wireless broadband technologies in Pakistan. These technologies are competing hard with each other to attain better market share. Though in parallel with global trends, DSL and Cable modem capture a prevailing market share,

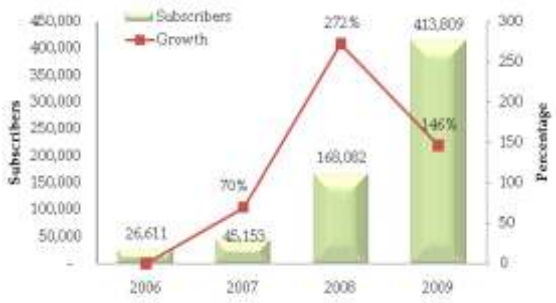
however, the recent growing trend of shifting to wireless solutions is paving way for a new dimension which will help in declining the dependency on wire line infrastructure. Analysts and telecom experts foresee that this healthy competition not only provides the operators with freedom of choice in terms of technology dependence but will also ultimately benefit the end users by bringing down the tariffs and improving the quality of broadband services in Pakistan.

Cost of service has been the biggest barrier to the growth of broadband service in Pakistan. With only a few broadband service providers in the country, competition level was low and tariffs were high. As PTA opened the arena for new entrants, market focus suddenly shifted to new technologies and lower tariffs. Once a forgotten entity, Pakistan suddenly rose to top 5 countries in the world in terms of subscriber growth during 2007-08[1]. PTA as a regulator is ensuring that this upward trend of growth continues by injecting positive reforms into the industry on periodic basis. Formation of Broadband Stakeholder Group (BSG) and active involvement in broadband policy review has strengthened the market. PTA also being a member of Universal Service Fund (USF) board is working closely with USF authorities to devise revolutionary projects for broadband development especially in rural areas. Board of Directors of USF, in the 13th Board Meeting, held on August 28, 2008, gave the approval to launch the programme 'Broadband in un-served urban areas of Pakistan'. Billions of rupees have been allocated for this particular programme which shall cover 6 telecom regions divided into two phases. Telecom regions of Faisalabad (pilot project), Hazara, Multan, Gujranwala, Central and Southern areas shall be provided with broadband connectivity for which PTCL, Wateen and Worldcall have been awarded contracts for provision of broadband in these remote areas. USF projects also include establishment of Educational and Community broadband centers in the project areas.

Broadband Growth

Pakistan has been experiencing astounding proliferation of broadband in the past two years. Broadband subscriber base grew by 146% adding 245,727 subscribers during 2008-09. There are currently 413,809 broadband subscribers in Pakistan as compared to 168,082 in June, 2008. PTCL, Wateen and WorldCall are major players in the Broadband market of Pakistan having a combined share of over 79%. PTCL leads the race by adding almost 148,000 DSL subscribers showing 248% growth rate in the previous year. Although Wateen added 46,804 subscribers in the previous year, its growth rate is almost similar to PTCL which proves the success of wireless broadband technologies. This growth trend depicts the

Figure - 33
Broadband Subscribers (June - 2009)



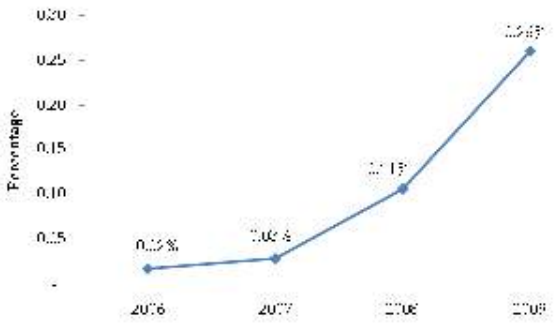
[1]PTA Annual Report 2008

fierce competition among the DSL and wireless technologies which is a healthy sign for broadband proliferation in the country. With the expansion of fixed line and wireless technologies, it is believed that the broadband penetration levels of Pakistan will increase over time as well. An estimate by Business Monitor International reveals that Pakistan's broadband subscribers will reach up to 21 million by end of 2013.

Broadband Penetration

Broadband is still an emerging technology rather than an established industry in Pakistan, therefore, its penetration level is very low. Currently, Pakistan stands at only 0.26 % in terms of broadband penetration. It may seem a negligible number but it is encouraging to see that the broadband adoption rate is rising exponentially. The reasons for low penetration include the focus of operators on big cities rather than rural areas, low literacy rate, lack of local content and applications and deteriorating standards of fixed line parameters. PTCL owns the biggest broadband coverage area with DSL available in more than 167 cities. Resultantly, PTCL has the highest share in broadband market. It is imperative from this example of PTCL that broadband penetration is directly related to the network expansion of broadband operators. The more the coverage, the higher the penetration level.

Figure - 34
Broadband Penetration



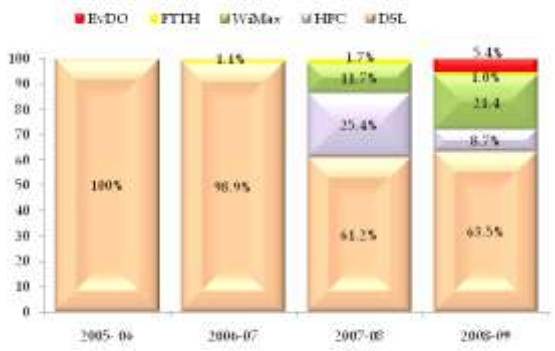
Source: Wateen & PTCL Student Package

Broadband companies are investing heavily in product marketing and promotional campaigns to attract more customers. Broadband connection charges for 1Mbps connection dropped below Rs. 1000 / - for the first time in history which is a great incentive for new customers. Mobilink has also started broadband services via its brand “Mobilink Infinity” in Karachi which has been an instant hit in the city. Emerging companies like Wi-Tribe are even offering free trial periods of up to seven days to catch the attention of potential customers. Intense competition in the market is also compelling the companies to broaden their scale of advertisement in print and electronic media and improve quality of service. Another benefit of this competition has been the reduction of Customer Premises Equipment (CPE) charges which shall be a huge factor in wireless broadband proliferation in Pakistan.

Broadband Technologies in Pakistan

Pakistan has been a lucrative market for broadband service providers owing to the huge potential it offers especially in the wireless broadband market. Figure – 35 shows a profound view of broadband technology evolution of Pakistan over the years. DSL ruled the broadband market of Pakistan since 2007 due to an established fixed line infrastructure by incumbent,

Figure - 35
Broadband Subscribers Share by Technology in Pakistan
(June - 2009)



PTCL. HFC and WiMAX broke the monopoly of DSL by getting a combined chunk of almost 37% in the market in 2007-08. The scenario changed again this year when WiMAX truly established itself as a viable wireless broadband solution and EvDO made a promising start in the market however, HFC has declined sharply due to introduction of new technologies. Detail of broadband technologies in Pakistan along with major operators is given in ensuing paragraphs:-

Digital Subscriber Line (DSL)

DSL is a family of technologies that provide digital data transmission over the wires of a local telephone network. It is a powerful tool for fast information transmission; however, its popularity is highly dependent on the quality of wire line infrastructure in the country. Poor QoS standards and customer services are hampering the growth of DSL and clearing the way for other technologies.

In accordance with the global trend, DSL leads the market share of Pakistan as well. Out of 413,809 total subscribers, DSL has a colossal 64% market share with 262,661 subscribers. The main reason for this enormous success rate is due to PTCL's domination in fixed line service. DSL technology has been offered by PTCL for a long time and more than 76% of DSL subscribers belong to PTCL. Link dot net and Worldcall are catching up by offering affordable tariffs and attractive packages.

Worldwide Interoperability for Microwave Access (WiMAX)

WiMAX is a telecommunications technology that provides wireless transmission of data using a variety of transmission modes, from point-to-multipoint links to portable and fully mobile internet access. The technology provides up to 3 Mbit/s broadband speeds without the need for cables. Pakistan holds the unique honor of having the first commercial roll out of WiMAX based network in the world by Wateen Telecom (Pvt) Ltd in December, 2007. Since its arrival, WiMAX technology has taken over the Pakistan market by storm and attracted almost 90,000 subscribers in a short span of time. The no-wire broadband solution is a huge incentive for customers as they can enjoy triple play services (CableTV, Voice and Data) without having to deal with three different companies. Mobilink Infinity has also started its service in Karachi using WiMAX offering voice and broadband solution in October 2008 and already established a 19,349 subscriber base. Most recently, Wi-Tribe has also commenced its services in Rawalpindi/Islamabad, Lahore and Karachi promoting its product via extensive media campaign and free trial periods.

Hybrid Fiber Coaxial (HFC)

HFC is a telecommunication technology being utilized mostly by CableTV providers. It allows optical fiber cable and coaxial cable to be used in different portions of a network to carry broadband content, such as video, data and voice. HFC share has been declining over the past years due to introduction of better technologies like WiMAX, EvDO, FTTx and no significant competition in the market. HFC holds a 9% share in the broadband market as compared to 25% in the 2007-08. Worldcall has been major the player in CableTV with almost 30,000 subscribers while Wateen also jumped in with its own HFC network and added 6,562 subscribers till June 2009.

Evolution-Data Optimized (EvDO)

EvDO is a telecommunication standard for the wireless transmission of data through radio signals, typically for broadband Internet access. EvDO is a relatively new technology which is showing a potential for becoming an instant hit as it has already gained a 5% share in the broadband market of Pakistan. Since its commencement, EvDO has been met with tremendous response by the broadband customers as it provides the ultimate facility of "Mobile Broadband" which means that you can be online anywhere at anytime even on the move.

Worldcall was the sole player in this technology providing wireless broadband access to the cities of Karachi, Lahore, Gujranwala and Sialkot. PTCL also launched its EvDO services in major cities around the country offering data rates up to 3.1Mbps. PTCL also guarantees an automatic switch over to its CDMA 1x network in case a subscriber enters a non-EvDO service area, thus keeping the promise of "always online" connection. With two big giants of the telecom industry providing the same technology solution, a fierce competition is expected which would eventually benefit the end customer.

FTTH (Fiber to the Home)

FTTH is a broadband technology that uses optical fiber to replace all or part of the usual metal local loop used for last mile telecommunications. FTTH is a high speed connection capable of carrying huge IP traffic volumes. NayaTel has been providing Triple play Services (Voice, Data, and Video) via FTTH technology to customers for a few years now mainly in Islamabad. With PTCL planning for GPON networks in Islamabad, FTTH is gearing up to become a major entity in the telecom structure of Pakistan.

Broadband Tariff Comparisons

Cost of service has been considered as a huge factor in the growth and success of any technological service. Broadband has not been an exception here and if we look into the past, primary reason behind a slothful growth in terms of broadband subscribers between 2002 – 2007 have been high tariffs. Adding more dilemma to this situation was low-competition which left the subscribers

with no choice but to pay extra if they wanted to enjoy broadband at home or business.

There had been substantial reduction in Broadband cost of service since 2007 onwards, after the incumbent jumped into the market followed by commencement of wireless broadband services by different operators. Therefore, with the introduction of new players in the market and growing demand of broadband connectivity, tariffs have been declining significantly over the past two years. DSL operators have been more inclined towards increasing the bandwidth rather than coming out with low price data limited packages. Although data volumes are unlimited in most of the packages, price still remains on the higher side which restricts a novice to broadband technology from "trying it out". If operators could come up with volume based-low cost packages, it would serve as an appetizer for new customers. Once they get addicted to the flavor of an "always on high speed broadband connection", they will yearn for more and automatically switch over to relatively high priced packages. Most companies segregate the DSL packages on basis of connectivity speed and vary the prices accordingly to cater for a more diverse range of customers. Most popular package of DSL i.e. 1 MB connection with unlimited data volume is being offered at almost the same price by main competitors like PTCL, Link dot Net, Micronet and Comsats.

Future of Broadband in Pakistan

Despite a very low penetration level of 0.26 %, future of broadband in Pakistan looks bright due to latest foray of local and foreign companies into the market, increase in technological choices for subscribers, steady decrease in service tariffs and general increase in Broadband awareness among the individuals and enterprises. PTA has been striving hard for broadband proliferation in the past few years by providing a conducive and level playing field for broadband companies. Soft license conditions and open market has been provided to companies for better marketing of their products. Formation of Broadband Stakeholder Group by PTA and effective involvement in broadband policy review are also helping the market. Moreover, PTA is in process of defining the KPI's for broadband QoS so that target penetration levels are met but not at the expense of quality of service. In this regard, continuation of industry, policy maker and regulator mutual coordination and collaboration is highly necessary for further growth as there is still a long way before Pakistan can achieve significant broadband penetration levels.

With broadband becoming a hit in metros, it is imperative for the local industry to produce local content and applications that would draw consumer interest and provide customer-centric online facilities. Developments in the field of e-commerce and online jobs can contribute extensively to the success of broadband. For example, if a customer can pay his bills or contact Government offices online, he would be more than happy to pay for a Rs. 1000 / -

broadband solution. Keeping this in view, there is a growing need of e-Government portals which will bring all the Government departments on one platform so that a citizen can contact the relevant authorities, download content/applications and monitor progress on his case.

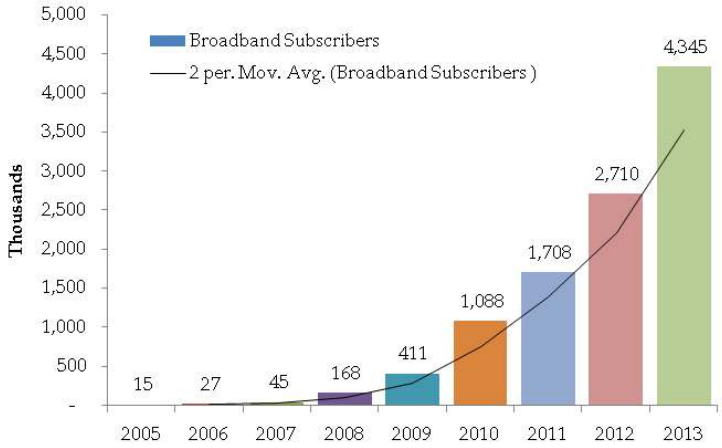
Universal Service Fund (USF) aims to provide broadband services to the far-flung areas of Pakistan through its magnum 'Broadband in un-served urban areas of Pakistan' project. USF Policy target to be achieved through this project is 1% broadband penetration at the end of the year 2010. This is an important step in broadband proliferation in rural areas and successful completion of this project shall give an instant boost to the already growing broadband market of Pakistan.

PTA has planned a broadband subscriber survey to analyze the ground situation regarding actual figures of broadband users and its main area of success. The aim of engaging the services of a consultancy firm is to come up with a current multiplier factor that can be used and applied to the number of connections in Pakistan to derive an exact number of people who have access to broadband internet and are regular users of this service. This survey will help in devising a strategy regarding technology selection and potential areas of focus for operators.

It is estimated that there are approximately 19 million internet users in the country. Dial up is still a popular medium for internet access and it is essential that companies must work on converting these dial up users into broadband subscribers by offering affordable and low cost packages. Currently, the market practice seems to be concentrated on enhancing existing bandwidth rather than lowering down the cost of the existing package e.g. PTCL increased the bandwidth from 512 Kbps to 1Mbps while the package price remained at Rs. 1199/-, a trend which was followed by other operators as well.

With massive media campaigns and advertisement initiatives adopted by Broadband service providers, people are becoming more and more conscious of broadband usage and benefits. The sharp rise in popularity of wireless broadband technologies and already stable wire line platforms, this upward trend of growth is expected to continue in times ahead. PTA estimates that by end of 2013, there will be 4.35 million broadband subscribers in Pakistan.

Figure - 36
PTA Broadband Estimates (000)



Value Added Services

Value added services have a considerable share in Pakistan's telecom sector. Under the new licensing regime, all value added services have been classified under the Class Value Added Services (CVAS) license category. The CVAS category includes licenses for card payphones, internet, vehicle tracking system, burglar alarm, video conferencing etc. The VAS holds a substantial share in revenue in the basic services sector due to increasing popularity of internet, usage of PCOs and VTS subscribers.

Card Payphones

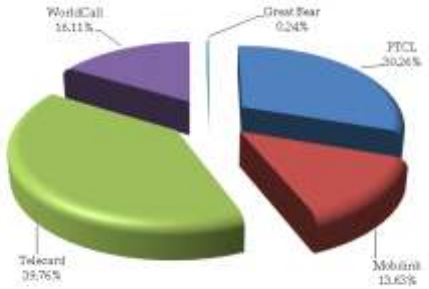
Card payphone service has been a part of Pakistan's telecom engine for decades. In its early days, the market was dominated by PTCL and Telecard,which provided prepaid card services to the people across Pakistan. With the advent of de-regulation in 2003, new CPP companies emerged opening the market for a tough competition. Hard competition coupled with remarkable growth of cellular industry translated into financial crippling of CPP companies, a situation which a lot of newcomers could not cope with. As a result, only a few big companies are dominating the CPP market these days.

Figure – 37 depicts topsy-turvy picture of CPP growth over the last few years in Pakistan. Currently, there are 405, 359 PCOs all over Pakistan, as compared to 449,121 during the last year. This shows a negative trend of 9.7%, first time in the CPP history of Pakistan. The main reason for this downfall is availability of affordable tariffs by cellular companies, low cost of mobile phones and cellular coverage across Pakistan.

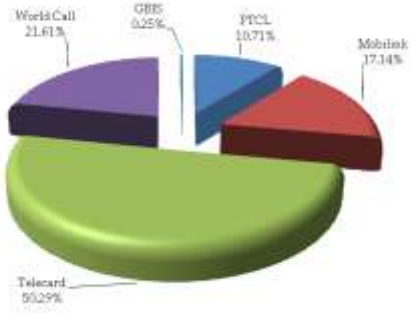
Figure - 37
PCOs and Growth

Figure - 38
PCO's Share by Company

2007-08



2008-09



In terms of market share, Telecard emerged as the leader with more than 50% share of PCOs up from 40% last year. Worldcall trailed with a 21.6% market share showing a net increase of almost 5% share as compared to the last year. Mobilink also increased its share by 4% standing at the third spot with 17.1% market share. PTCL was the only significant casualty in the sector for losing almost 20% of its market share from that of the last year.

VAS growth has also been stagnant as CPP companies are finding it hard to compete with cellular and other wireless technologies. CPPs' future lies with rural areas as they have a huge potential to offer in terms of small business opportunities.