

Internet growth – key learnings from India

Abstract

Though this paper deals with the issues in India, however, other economies facing the same problems would also immensely benefit from the suggestions put forth in the paper by the author. This paper starts with the importance of Internet for developing communities. After giving an overview of the Internet in India, the author discusses some solutions to increase Internet penetration and usage. For increasing internet growth, it is very important that Internet access cost is made affordable to the common man and quality of services should be improved. The suggestions include setting up of Internet Exchange to route domestic traffic within the country, thereby, saving international bandwidth, lowering of tariff for calls made to access internet, encouraging wireless internet, encouraging development of local content, tax benefits for hardware, and the last part of the paper discusses how “metered” tariff for calls made to access Internet is a barrier in the growth of Internet.

The Internet can be a powerful democratizing force, offering greater economic, political and social participation to communities that have traditionally been undeserved — and helping developing nations meet pressing needs. But unless we take concrete action to ensure that everyone has a chance to share in the benefits of the Digital Age, information technology could just as easily become another resource that is denied to the people who need it most.

Importance of Internet

The Internet is an "enabling technology." When its introduction is sensitive to local values and committed to local capacity-building, it offers important opportunities to:

- **Open dialogue.** Low cost networking facilitates knowledge sharing, awareness of alternative perspectives, more open exchange
- **Improve governance.** Raising efficiency, transparency, participatory systems
- **Improve social and human rights conditions.** Expands access to better quality education, healthcare, disaster relief capacity and other services
- **Reduce poverty.** Opens new opportunities for bypassed groups (women, the poor, rural populations, children)
- **Introduce economic opportunities.** E-commerce, ICT-sector development, etc.
- **Improve environmental management.** GIS, food security early warning systems
- **Support indigenous knowledge.** Communities document their knowledge

Internet Services Industry In India - An Overview

Introduction

The state-owned Videsh Sanchar Nigam Limited (VSNL) launched Internet Services in India in August 1995. For the first four years, VSNL was the sole provider of Internet Services in the Country. In November 1998, the Government ended VSNL's monopoly and allowed provisioning of Internet Services by Private Operators. The Terms and Conditions of the

ISP's License were unusually liberal with no License Fee and allowed unlimited number of players. ISPs could set their own tariffs and even their own International Gateways.

Department of Telecom issued three types of licenses – Category 'A' for all-India operations; Category 'B' for metros and state - level circles, and Category 'C' for medium and small cities (SDCAs). Over the last four years, DoT has issued licenses to over 540 potential Internet Service Providers, about 100 in Category 'A' and about 220 each in Category 'B' and 'C'. About 185 of these licensees have started their operations.

The Internet is certainly a major phenomenon in India today. Everywhere one looks, the signs of its arrival and adoption are visible. In fact it is being universally recognized that as the Internet proliferates, so will applications riding on Internet like E-governance, E-Commerce, E-Learning etc. It is, therefore, in our National interest to boost the expansion of Internet Services in the Country. This will not only help our country to become a part of emerging global E-economy, but will also enable the citizens to avail of the benefits arising out of IT enabled services.

Initiatives by the Government to encourage Internet

The New Telecom Policy, 1999 (NTP '99) stipulates targets in terms of establishing Telecom Network with a view to achieve tele-density of 7 per 100 by the year 2005 and 15 per 100 by the year 2010. The NTP '99 also stipulates targets for providing Internet Access to all District Headquarters by the year 2002. In addition, the Government has initiated various pro-active measures in the proliferation of the Internet Services in the Country. Some of the important initiatives are as under :

- ISP License is one of the most liberal License, wherein no License Fee has been levied on the ISPs till 31st October 2003. Thereafter, a token license fee of Rs. 1 (2 cents) per annum is payable w.e.f. 1st November 2003.
- There is no restriction on the number of Service Providers in all the three categories i.e. 'A', 'B', 'C'.
- ISPs have been permitted to set up International Gateways by having business arrangement with Foreign Satellites Providers and Collaborators.
- ISPs have been permitted to provide last mile access using Radio and Fiber Optics.
- ISPs have been permitted to provide ISP Services through Cable T V Infrastructure / Operators.
- The Government has initiated an ambitious plan to developed National Internet Backbone (NIB) in the country.
- Adoption of Information Technology Act, a law recognising electronic transactions and thus providing a legal framework for E-commerce in India.
- Internet Telephony Services opened up to ISPs w.e.f. April 1, 2002.

Internet Industry in India

ISP Licenses Issued	540 Approx.
Operational ISPs	185 Approx.
Cities/Towns covered	340 Approx.
Internet Subscribers	3.3 million Approx.
Cyber Cafes / Public Access Kiosks	12,000 Approx.
In-principal approval for setting up Int'l Gateways	45 ISPs
Operational Int'l Gateways by 8 – 9 ISPs	40 +
Total Estimated Investment made by ISPs	Rs. 6000 crores
Estimated Investment made on Eqpt. by ISPs	Rs. 2500 crores
Estimated Employment Provided (Direct/Indirect) by Internet Industry	1.1 lac

Source : Internet Service Provider's Association of India

Growth Rate of Internet in India

During the first three years of VSNL monopoly, the Internet subscriber base grew very slowly. By the end of March 1998, it had barely reached 140,000 subscribers. The end of VSNL's monopoly changed things dramatically wherein, the entry of private players, unlimited and open competition, and the lowering of tariffs, among other factors, led to the phenomenal surge in the subscriber base growth. Between March '99 and March '01, the subscriber base grew more than 200 percent per year, from 280,000 to 3,000,000.

However, from April 2001 onwards, the growth rate started declining on all India basis. The current Internet subscriber base in India is 3.3 Million and the user base is 16.5 Million. The planned projection is 230 Million by the end of the year 2007. The following Table is indicative of the trends in the Growth of Internet subscriber base

<u>Month/ Year</u>	<u>Subscriber Base (Millions)</u>
Aug' 95	0.01
Mar' 96	0.05
Mar' 97	0.09
Mar' 98	0.14
Mar' 99	0.28
Mar' 00	0.90
Mar' 01	3.00
Mar' 02	3.30 (against a projected figure of 4.5 million)

Source : Internet Service Provider's Association of India

Reasons for slow growth rate

While the Government has been propelling India towards the 'Information Age' and 'Convergence' by announcing enabling Policies toward development and progress with an ultimate goal of "Internet for All". However, the implementation of some of these policies have been beset with various operational, procedural & regulatory issues and supporting

legal framework, which is inhibiting the reach and benefit of Internet to the masses in the Country.

The growth rate in the subscriber base which was as high as 54% per quarter during the period Apr '99 to Mar '01 is on a constant decline and was of the order of 3-4 % during the quarters ending June, Sept & Dec 2001. It is, therefore, imperative that the Internet Scenario in India be reviewed and effective steps initiated to trigger a faster growth of Internet penetration and usage.

Suggestions for encouraging growth of Internet penetration

It has been widely recognized that the diffusion of the Internet and its associated applications (e.g., e-governance, electronic commerce, e-banking, e-learning etc.) can fuel the growth of a nation's economy. Internet significantly facilitates the process of development of the nations and its citizens in all respects, be it economic, social, or cultural.

However, it must be noted that for sustaining such applications and Internet as a whole there must be a critical mass of Internet users. It is therefore very important to encourage the Internet growth and usage. To achieve this goal we should recognise that one of the most significant factors influencing the growth of Internet is the cost to consumers for Internet access and improvement in quality of service. Following are some suggestions which Internet users / NGOs / industry can support and request the Government / Regulator to adopt :

- Setting up of neutral Internet Exchange (IXP) in the Country to save Foreign Exchange on International Bandwidth, improve the quality of Service, cost reduction for access services thereby accelerating growth of Internet in the Country. To speed the spread of the Internet in India, the cost of Internet connectivity and bandwidth must be reduced and the quality of service improved. One of the most effective mechanisms to accomplish both cost and service gains is the Internet Exchange Point (IXP). An IXP interconnects Internet service providers (ISPs) in a region or country, allowing them to exchange domestic Internet traffic locally without having to send those messages across multiple international hops to reach their destination. Internet Exchange also reduces the network latency and the number of hops, resulting in better quality of Internet access and connectivity.
- Adopt a Flat rate tariff structure for calls made to access Internet. International data suggest that Internet development can be greatly facilitated by shifting away from per minute pricing regimes to pricing mechanisms that permit greater flexibility in billing for dial-up Internet access, such as the Flat rate billing for Internet. (This issue is discussed in details in the later part of this paper)
- Encourage cost effective wireless access systems for Internet Access by de-licensing of 2.4 GHz (ISM) band for low power, short range outdoor W-LAN applications and last mile Internet Access. ISM band is de-licensed in most developed countries. Wireless technology like Wi-Fi and Wireless Internet can be effectively and efficiently utilised in the developing countries (specially in the rural and hilly areas) if the ISM band is de-licensed and the user is freely allowed to use the technology. Wireless can facilitate connectivity in areas where access is otherwise difficult to provide.

- Allowing Internet Telephony (without any restrictions). Currently the recent policy in India allows only the ISPs to offer Internet Telephony and that too in a very restricted manner. This restricted policy is detrimental to the interests of consumers, because it does not allow the consumers to enjoy the full benefits of innovation in technology.
- Popularizing the usage of cheaper inexpensive access devices for Internet. Steps are also required to reduce the cost of PCs through various duty concessions like concessions on Excise Duty, Customs Duty on components etc, and innovative technology upgradation including second-hand PCs to become Internet enabled through addition of modules for this purpose.
- Formulation of Government policies and regulations to facilitate donation of used PCs by corporate entities, Government organizations and higher educational institutions to schools, local colleges and community centers.
- Proliferation of effective computer based education at the School and University level, particularly in small towns and non-metros
- Policies and plans should be formulated and implemented for e-Governance applications providing citizen services through Internet by suitable standardization and with an objective of increasing efficiency and improving citizen care.
- Increase the tele-density particularly in remote / under-developed and rural areas.
- Encourage setting up of Cyber Café / Internet Dhabas (Kiosks) in rural and remote areas by offering Infrastructural facilities at subsidized cost and encouraging provision of soft loans facilities to such entrepreneurs.
- Tax incentives to consumers for using Online Services and institute measures to reduce E-transaction cost.
- Facilitate usage of alternate access technologies like Cable TV, W-LAN etc to enhance the quality of service as well as to reduce the load on PSTN dialup network.
- Hosting up of Indian web-sites / portals in Regional Languages and development of local contents for citizens services.
- Facilitate deployment of Broadband Internet and encourage its use.
- Develop innovative technical solutions like simultaneous voice and Internet services over wired as well as wireless local loop to enable cheaper and faster Internet access over PSTN Lines.
- Spreading greater awareness about the Internet and its potential among the masses.

Contribution of Consumer Organisations

- Advocating and supporting solutions and suggestions to reduce the cost of Internet access, such as those discussed in this paper
- Active participation in policy formulation for Internet access and use, by participating in the consultation process of the Regulator
- Facilitate formation of regional Internet user groups such as ISOC (Internet Society) Chapters.
- Demand better quality of service from the Internet Service Providers
- Encourage competition

Metered telephone tariff for calls made to access Internet is the biggest hurdle in the growth of Internet

Currently vast majority of residential Internet users and many business users access their Internet Service Provider (“ISP”) via the public switched telephone network (“PSTN”), by making a local telephone call. Since telephone companies in most developing countries, including India, charge consumers for local telephone calls on a per call basis, dial-up Internet connections between users and their ISPs are also billed on the same basis, resulting in extremely high access costs. This pricing structure restricts the ability of consumers to use the Internet, and thereby stunts the growth of the Internet and associated applications (e.g., e-governance, electronic commerce, e-banking, e-learning etc.).

If we want to effectively utilise the Information and Communications Technologies “ICT” for social and economic development the underlying pricing structure for accessing the Internet through PSTN should be urgently revised. It should be noted that PSTN is the most popular mode of accessing the Internet. International data suggest that Internet development can be greatly facilitated by shifting away from per minute pricing regimes to pricing mechanisms that permit greater flexibility in billing for dial-up Internet access, such as the Flat rate billing for Internet.

The price of Internet access via dial-up service is generally composed of a fee paid to an ISP for Internet service and a fee paid to the telephone company for use of the underlying telecommunications network.

This cost of telephone service generally includes several elements: (i) fixed charges for the line connection and rental; (ii) any government tax applied to telecommunications; and (iii) usage charges, or tariffs charged for making calls to the ISP’s gateway (PoP) to the Internet. The most significant and controversial portion of these costs is the third one: the price applied to calls from the user to the ISP’s Internet gateway (PoP).

Several studies confirm that the high cost of this dial-up access has been a major barrier to Internet use. (See Fischer & Lorenz, "Internet and the FuturePolicy Framework for Telecommunications, A Report for the European Commission," January 31, 2000 ("Fischer & Lorenz") at 61.)

Regulators in various countries seeking to establish an environment that is conducive to Internet growth have recognized the important role that pricing decisions for the underlying telephone services can play in determining growth of the Internet and e-commerce. As a result, in several countries they have been experimenting with a variety of flat rate (“unmetered”) or discounted pricing options for Internet services, and the same may be adopted in India for catalyzing the growth of Internet.

Per Minute Pricing vs. Flat Rate Pricing – Why should we adopt a flat rate call tariff for Internet?

Among the most pressing questions are those that relate not only to the level of actual prices but to the structure of prices for accessing the Internet. In this respect the experience of the United States in relation to local loop pricing is an obvious candidate for analysis. But so too are the performance levels of countries, which share similar PSTN pricing, and service availability, such as Australia, Canada, and New Zealand.

According to the OECD paper on “Local access pricing and E-commerce” these four countries have two common telecommunication attributes that most obviously set them apart from the rest of the OECD. Australia, Canada, New Zealand and the United States have high telecommunication penetration rates and ‘unmetered’ local loops.

It is worth mentioning here that the paper has classified the “always on group” of Australia, Canada, New Zealand and the United States as Group 1. The group 1 is typified by unmetered local telecommunication charges. These countries are much ahead of the OECD average in the penetration of both Internet hosts and secure servers. It is to be noted that most other countries included in the study typify metered telecommunication charges and are way below the OECD average of Internet hosts and servers.

Economically, per minute pricing is subject to criticism because metered tariffs do not directly reflect the cost of the service provided to users. The cost of using the telephone network does not increase by the minute. To the contrary, network costs are fixed and are determined by the amount of capacity that is built into the network. Using assumptions regarding expected call lengths, telephone companies using a metered rate approach recover a portion of these fixed costs through the cost of each individual call. However, under a per minute billing system, Internet users pay a disproportionate share of the estimated fixed cost.

Countries with lower access prices tend to have more Internet development and usage. For example, an OECD study (see OECD paper on “Local Access Pricing and E-Commerce”) indicates that the number of Internet users and hosts grows at a faster rate in countries that have unmetered rather than metered access. OECD studies have shown that the price of access to the Internet and the structure of this pricing are key factors in explaining the relative development of “e-commerce” among OECD members. In addition, users tend to go online more frequently and for longer periods of time in unmetered billing environments. It has been successfully demonstrated that the average time spent on-line is much higher in markets where users have access to unmetered local calls. This effect is significant because increasing the amount of time that users spend on-line is crucial to developing a critical mass of users that is sufficient to sustain applications such as e-governance, e-commerce, advertising, etc.

These various studies indicate that the type of telecommunications pricing that is used in connection with Internet access (e.g., flat rate or metered pricing) greatly influences the growth of the Internet in a particular market. (see Fisher and Lorenz) It is evident that pricing mechanisms, such as flat rate pricing, that reduce costs that consumers must pay to access their ISPs will permit greater local usage of the Internet.

In light of these studies, it is not surprising that there is a growing trend towards offering unmetered telephone service, at least for access to the Internet.

Countries who have adopted Flat Rate Pricing Mechanisms

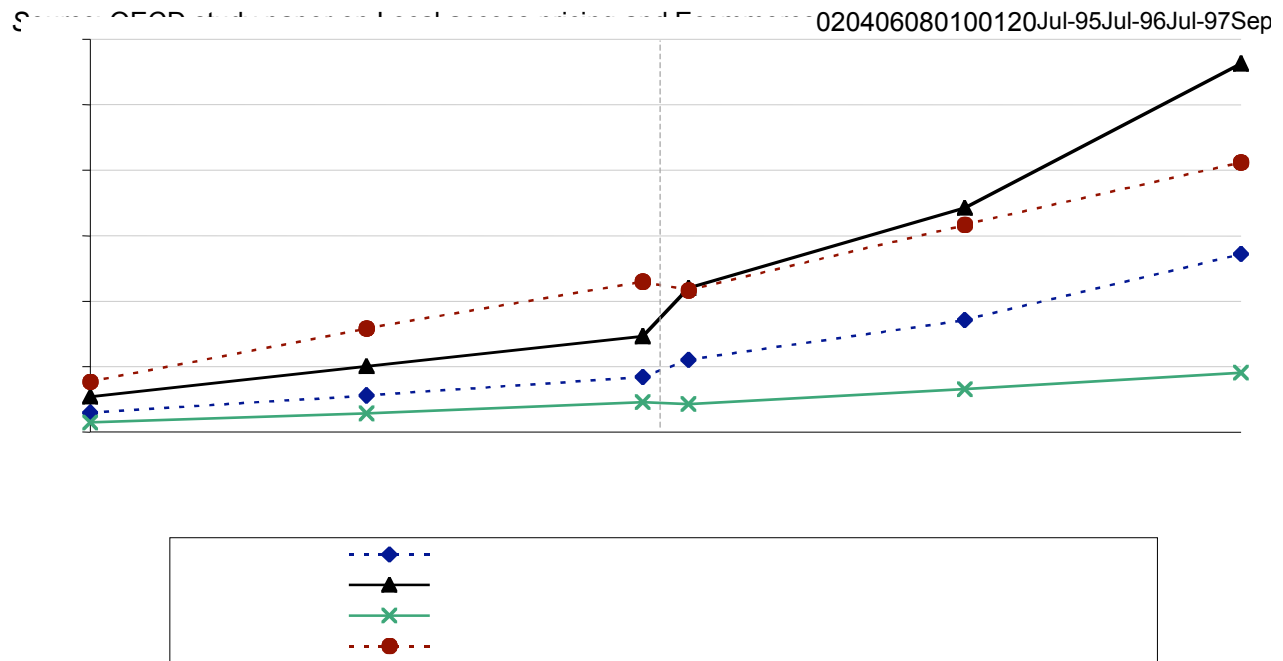
Flat rate pricing for accessing Internet is available in Australia, Bangladesh, Canada, France, Hong Kong, Korea, Luxemburg, Mexico, New Zealand, Portugal, Philipines, Pakistan, United Kingdom and the United States, among other countries. In addition, a number of reforms promoting flat rate or unmetered access have been initiated in various parts of Europe, and in other parts of the world. For example unmetered dial-up pricing options during off-peak times are available in Hungary, Finland and Spain, while Japan offers unmetered access at some off-peak times for dial-up users.

The growth of Internet in metered and unmetered markets shows marked differences.

Consider that:

- The difference in the penetration of Internet hosts, between countries with metered and unmetered local telecommunication charges to access the Internet, is a multiple of 6.1.
- The difference in the penetration of secure servers, between countries with metered and unmetered local telecommunication charges to access the Internet, is a multiple of 5.8.
- The difference in the growth of Internet and E-commerce between countries with metered and unmetered access is evident from the following graph taken from an OECD study on local access pricing and Internet. The comparison between the growth of Internet hosts and secure servers between the Nordic countries and those countries with unmetered telecommunications rates may please be noted. This comparison reveals that the average penetration rate of Internet hosts is growing faster in countries with unmetered rates (always on group) than in the Nordic countries. The most obvious difference between the two groups of countries is that one has inexpensive metered access to the Internet and the other inexpensive unmetered access to the Internet.

Figure 1. Growth of Internet hosts in countries with metered and unmetered Internet access



Essentially, true flat rates will have the following positive economic effects:

- Increased user density on the part of the administrative authorities, leading to positive efficiency and productivity effects in the governmental sector; better yet, more new offers for state-run services can be extended to citizens.
- Increased corporate user density, leading to competitive advantages and thus promotes growth and employment: existing companies will most likely realise cost savings in the distribution sector as well as on the purchasing side.
- The start-up of new businesses, including virtual businesses, is facilitated.
- Increased user density in private households, leading to a wider information intake and strengthened communications.
- Stronger Internet use in schools, leading to improved options for network learning.
- Time savings for all users, as repeated log-ins (per day) to the Internet are practically eliminated.
- Information gains for private and corporate entities, as well as an accelerated dissemination of innovation.
- Improved options for all users to download updated virus protection over the Internet – the risk of file corruption and/or the loss of valuable data is considerably lessened for private parties as well.
- Improved options for national, regional and local authorities to disseminate information important to the population, in a targeted manner.
- Relieve congestion in the transportation sector, as certain Internet-based communications can serve as a substitute for business trips; better yet, the increased use of online banking, directory and trade services could mean a considerable relief of the strain on the transportation sector in the long term.
- Transaction cost reductions in the economy as a whole, which are equivalent to a positive real income effect.
- An expansion of the Internet boosts the incentives for the emergence of new fields of occupation, that offer the promise of communications-intensive and communications-oriented jobs.

The Effects Of Unmetered Internet Access

In assessing the repercussions of unmetered Internet access, one has to differentiate between supply and demand effects. Both are in a position to generate growth due to diffusion effects, network gains, and innovations. In principle, growth effects are possible via several Internet-related channels:

- The Internet as a basis for product innovation and new services.

- The Internet as a low-cost and spatially extended option for corporate networking and venture capital procurement – India's high unemployment rate indeed reflects an entrepreneurial deficit.
- The Internet as progress with cash savings, enabling companies to equip more work positions with the necessary hard- and software at a given rate of savings.
- The Internet as a platform for the accelerated dissemination of knowledge, which promotes growth.
- The Internet as an incentive for absolute price cuts resulting from reduced transaction costs, which translate to positive real income and demand effects.

It should be noted that the Internet has expanded the relevant market for many commodities, and has further internationalised the locational competition with regard to number of products: countries that are internationally behind in tapping their Internet potential or who set inadequate and/or rigid market conditions, will have to reckon with lasting disadvantages in locational competition in the Internet sector, more so than was the case in earlier times. By the same token, countries that create conditions to promote expansion will enjoy considerable first-mover advantages.

Flat rate pricing could be introduced in steps, which should, however, lead relatively rapidly to a comprehensive liberalisation in price-setting:

- Unmetered Internet use for schools, colleges and universities, so that knowledge building and Internet use are strongly encouraged, which would benefit society and create new impulses on the content side for the Internet.
- Unmetered Internet use on the weekends and on holidays, which ought to motivate households in particular to intensify their use of the Internet.

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