

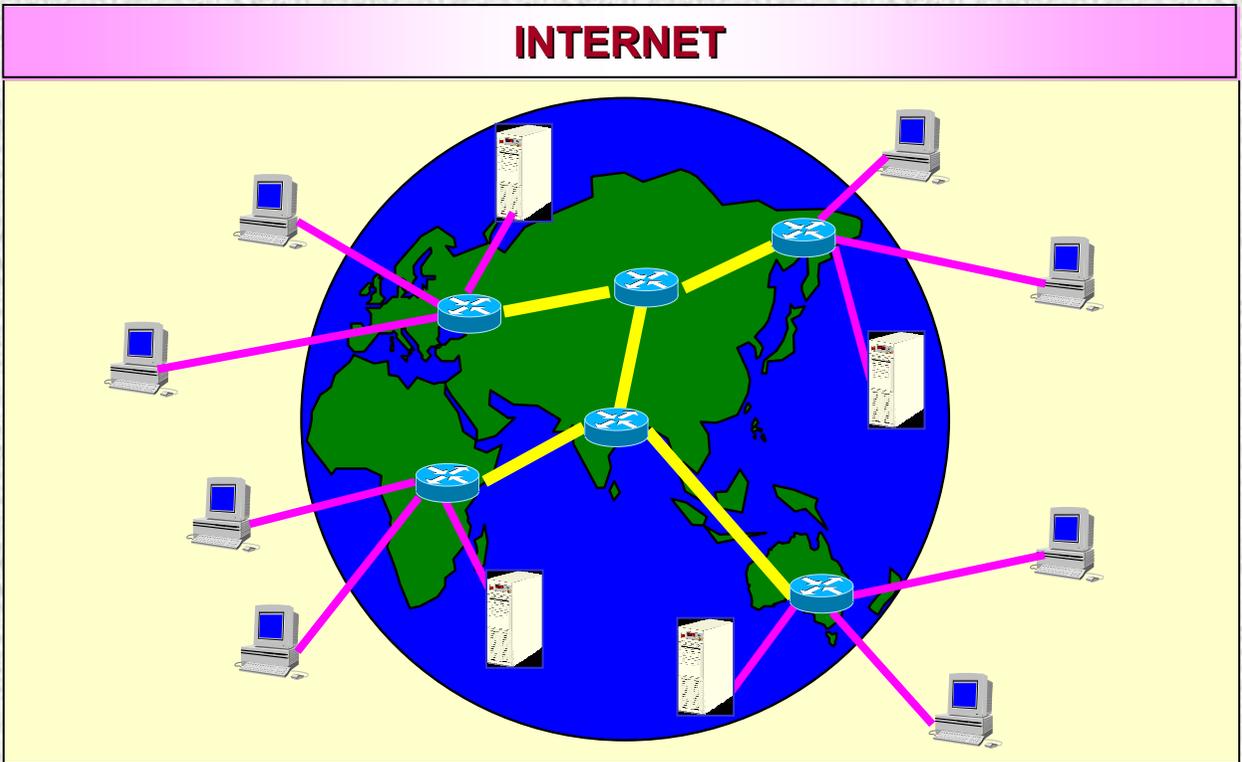
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INTERNET



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TELECOMMUNICATION ENGINEERING CENTRE

About this issue

To celebrate this year's World Telecommunication Day on 17th May 2001, ITU has selected the theme "**The Internet: challenges, opportunities and prospects**". This occasion provides an opportunity for policy-makers, service providers, the industry and the users to discuss the issues concerning the development, promotion and usage of Internet in all segments of society. TEC is bringing out this special issue of Newsletter to mark the occasion.

INTERNET : CHALLENGES, OPPORTUNITIES AND PROSPECTS

The Internet is a huge collection of computer networks that are interconnected around the world. The Internet has combined the technology of communications and computing to provide instant connectivity and global information services to all its users at a very low cost. Internet is bringing lives closer and closer to each other, changing the way we communicate, work, play and learn.

Challenges: The Internet offers great potential to support development activities, but, at the same time, it poses challenges to existing institutions and raises regulatory challenges because of its very nature and ever-growing role. The majority of Internet hosts are in developed countries, suggesting wealth and education are major factors driving Internet diffusion. Price of Internet access is a major constraint to Internet usage. In relative terms, costs to get connected are much higher in developing countries. Shortage of infrastructure is a further big obstacle in increasing Internet access in developing countries. Availability of content in an appropriate language also affects the diffusion of the Internet.

The Internet was initially built as a network to support only data traffic. But, it has changed over the years from a data-only network to one that supports all types of traffic, notably data, voice and video. Internet telephony poses challenge to the existing telecom networks and involves regulatory issues. To promote the use Internet in basic services such as health and education is another challenge.

Need to regulate the content, privacy over Internet and rights to intellectual property are some of the regulatory issues where there is no consensus, so far.

Opportunities: Ten years ago, most of the world knew little or nothing about the Internet. It was the

private enclave of computer scientists and researchers who used it to interact with colleagues in their respective disciplines. Today, the Internet's magnitude is thousands of times than what it was only a decade ago. Today's telephone system is still much larger: about 3 billion people around the world now talk on almost 950 million telephone lines (about 350 million of which are actually radio-based cell phones). But by the end of the year 2001, it is estimated that there will be at least 800 million Internet users. Also, the total numbers of host computers and users have been growing at about 33% every six months since 1988 – or roughly 80% per year. The telephone service, in comparison, grows at an average of about 5-10% per year. That means if the Internet keeps growing steadily the way it has been growing over the past few years, it will nearly be as big as today's telephone system by about 2005.

Technological possibilities and human imagination have taken the development of the Internet in many directions. Some of these directions have proven to be impossible to maintain in the business sense. As a result, some technologies and business models have lost favour in the marketplace, or revised or discontinued. This phenomenon has created opportunities for redirection, convergence and consolidation in many areas.

Digital Divide

On a global scale, Internet growth has been little short of phenomenal. The network has increased from 213 host computers and several users in August 1981 to more than 56 million Internet hosts by July 1999 supporting an estimated 190 million Internet users. Perhaps even more impressive is the number of countries connected to the global network. From just over twenty in 1990, there were more than 200 nations connected by July 1999. Though these figures are impressive, a closer look reveals the great disparities in Internet hosts between high and low income regions. For example there are almost as many hosts in France as there are in all of Latin America and the Caribbean, there are more hosts in three highly developed countries of the Asia-Pacific region (Australia, Japan and New Zealand) than all the other countries in the region combined and there are more hosts in New York than in all of Africa. While people all over the world do access the Internet, Internet users still account for only five per cent of the world's population. Furthermore, eighty-five per cent of all Internet users live in developed countries, where ninety per cent of all Internet hosts are located.

Source : ITU Report

Prospects: Areas of strength (value-added telecommunications, software development, Internet infrastructure) have new focus, energy and resources to move forward. The dominance in growth of the Internet, due to its ability to convey information, has stimulated the convergence of diverse technologies and industries. Telecommunications is converging with mass media to build-out high capacity networks for content delivery. Entertainment is converging with technology to produce interactive on-line devices for the home, office and mobile uses. Industries are seeking on-line applications, devices and partners that will allow them to reach end users conveniently and expeditiously no matter what their location is. These emerging technologies have one common denominator: connectivity to the Internet.

Telecom service providers and the equipment & software providers (infrastructure vendors in other words) further have been undoubtedly benefiting the most from the Internet and the prospects for them are flourishing.

INTERNET SCENARIO IN INDIA

The Government has issued licenses to more than 425 private ISPs. In addition to these private ISPs, Govt PSUs like Bharat Sanchar Nigam Limited (BSNL), Videsh Sanchar Nigam Limited (VSNL) and Mahanagar Telephone Nigam Limited (MTNL) are also providing Internet Services. For the private ISPs, there are three license categories covering various geographical areas: Type A, covering the entire country; Type B, covering individual telecom circles and Type C, covering individual secondary switching areas. About 110 of these private ISPs have already started their services. ISPs have been further allowed to set up their own Gateways for International connectivity for the purpose of Internet. It is expected that this approach will boost the Internet connections in India to more than ten million within five years. The competition is not only driving down the access charge but also forcing the providers to enrich the content and provide better services.

Existing Internet Network in India: The existing long-haul backbone telecommunications network is mostly digital, employing both fiber optic and microwave links. The international bandwidth currently provided by VSNL is in the range of 1Gbps. Besides VSNL, about 15 Private ISPs have

Extracts from Message by Mr. Yoshio Utsumi, ITU Secretary-General

What can the Internet do for those regions of the world that have only limited access to information and communication technologies?

The very first challenge is to expand access to the Internet at affordable prices. Today, the high cost of the service in many countries remains one of the main barriers to Internet diffusion. In addition to that of the shortage of phone lines.

To reduce this cost, policymakers need to determine how to price bandwidth to spur Internet uptake, how to deploy infrastructure cost-effectively and to decide what technologies are best suited to network expansion. Legislative or regulatory measures as well as suitable pricing policies must be adopted so that the Internet can be made available for all segments of society.

The Internet is like a seed; with the right approaches we can plant schools with Internet access, grow Web-enabled business, fertilize the public's imagination, and watch the buds of innovation blossom so that healthy fruits of products and services can ripen to enrich the lives of all citizens.

the provision for 8 Mbps each of International Gateways, which are being used for Internet access for the customers of corresponding ISP network.

National Internet Backbone: Department of Telecom (DoT) started the planning for nationwide scalable Internet backbone in 1997. It consists of centralised servers at a few places and distributed POPs at the 549 nodes. The architecture also provides sufficient scope for easy expansion and decentralised operation. Most popular Internet applications such as e-mail and Web browsing are supported initially. The backbone supports introduction of value-added services such as online stock trading, e-commerce and e-business in near future. The system also allows roaming within the country without the users having to make any change in their access methods.

The Net user in India: It is estimated that India will have over 10 million Internet subscribers (with a user base 3-4 times this number) by 2004. Of the 30-40 million users, almost 80% would be casual users, getting on to the Web only occasionally. However, about 5 million Web users are likely to use it on a more consistent basis.

Indian consumers use the Internet mostly for e-mail, chat and news besides information related to work. There is expected to be scope for e-commerce in the coming years.

Broadband Internet Access: The Broadband Internet Access through Digital Subscriber Line (DSL) technology and Hybrid Fiber Co-axial (HFC) of Cable TV is expected to provide relief to users of Internet who are not satisfied with the speeds of dial-up access.

Need for common platform for Asian Countries: Internet Exchanges are the common places where any Internet player – ISP, ASP, content provider or e-commerce provider – can choose its peering partners amongst the players who have joined the exchange, at a nominal connection fee. These Internet exchanges thus offer ISP and carrier neutral co-location facilities unlike traditional Network Access Points (NAP). There is a growing need for provision of these Internet Exchanges both at the Local Level (within India for example) and also at Regional Level (within Asian countries). These efforts will help to promote the trade, commerce and interactions between various Internet players of Asian Region.

INTERNET REVOLUTION

The Internet is bringing about a revolution in society with its ability to provide innovative multi-media services that can influence every sphere of human life as well as business.

E-commerce, e-mail, Net-surfing etc. have been dominating the day-to-day professional activities. Mobile Internet offers new possibilities. M-commerce is gaining importance. The advent of Third Generation (3G) communications systems, with their ability to process real-time multi-media applications and their large bandwidth, will greatly enhance mobile Internet access.

E-home: It is a next generation Internet-ready home and includes Internet enabled devices such as: IESS (Internet Enabled Security Systems), which can

Extracts from Message by Mr. Kofi Annan UN Secretary-General

The advent of Internet is considered by some to be as significant in its effect on society as that of the telephone or even the printing press.

This year's World Telecommunication Day highlights the emergence of this 'digital divide'. While people all over the world do access the Internet, Internet users still account for only five percent of the world's population. Furthermore, eight-five percent of all Internet users live in developed countries, where ninety percent of all Internet hosts are located.

Knowledge has long been synonymous with power, but with the advent of the Internet, access to knowledge is quickly becoming a requirement for power- whether social, political, or economic. In our increasingly interconnected world, we must work together to see that all people have access to the knowledge the Internet has to offer. On this day, let us commit ourselves to that task and let us make our efforts a bridge that spans the 'digital divide'.

replace the traditional burglar alarm systems combined with WAP enabled devices to warn the intrusion of the unidentified personnel; Internet-ready Microwave ovens, which can automatically select the cooking time, power levels, temperature or even the cooking sequences; Internet Enabled refrigerators, which can inform about the quality of food and order for the household items from the local grocery shop after the items reaches a preset threshold.

Some of the European Countries are implementing the IP Enabled central data units for water, gas and energy meters, which upload daily billing data, meter information etc.,

Internet for education and Internet for health need special focus in developing countries.

Internet revolution is as important as the industrial revolution and India should not lag behind in capitalising the benefits of it.

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