NUST INSTITUTE OF MANAGEMENT SCIENCES

THESIS

"TECHNICAL AND OPERATIONAL COMPARISON OF INTERNET SERVICE PROVIDERS (ISPS) IN ISLAMABAD"

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TECHNICAL AND OPERATIONAL COMPARISON OF INTERNET SERVICE PROVIDERS (ISPs) IN ISLAMABAD

DEDICATED

TO MY

MOST RESPECTABLE AND LOVING

“PARENTS”

WHO DEDICATED THEIR LIVES FOR MY

“BRIGHT FUTURE”

ACKNOWLEDGEMENT

Perpetual admirations to Almighty Allah, the Creator and Perfect Guide to The Mankind towards the right path. He is the most Merciful. The most Beneficent, who bestowed upon us the possibility and tenacity to complete the work assigned.

Working on this thesis has been an experience and education in its own way. The help and guidance from my thesis supervisor Brig. Tasleem and my committee members was indeed very helpful towards completion of my thesis. Their expertise was found to be spread equally over theory as well as practice.

I would like to thank the following persons and organizations whose encouraging attitude and useful guidance and information made me sail through this thesis.

- My parents who guided me through out my MBA and made possible the completion of my dissertation.
- Mr. Gulzar Ahmed Khan, Marketing manager, WOL

EXECUTIVE SUMMARY

This research thesis is basically about the technological and operational comparison of the top four ISP's operating in Islamabad. The research aims at finding some very common and

important questions that always keep an internet user worried about his choice of an ISP. This research aims at finding the criterion on the basis of which someone can analyze the performance of an Internet Service Provider (ISP).

The other sections of this research report provide the in-depth analysis and background of above mentioned problems. This research is descriptive in nature and hence may not require some particular theoretical framework and hypothesis. Three kind of research instruments were used to collect the primary data i.e. questionnaires, interviews and physical observations. A random sample of 400 people was taken to collect the data. In order to get the information from the technical staff working at ISPs, research interviews and physical observations were made.

The data collected from the internet users as well as from the technical staff at different ISPs are analyzed through Microsoft Excel Graphs. These graphs are also supported with explanations where necessary. At some points where these graphs cannot elaborate the true sense, data table are used for analyzing the findings.

The data collected from the primary as well as secondary research showed that there are some key factors on the basis of which we can analyze the performance of any ISP. These factors include the connectivity, tariff, services and speed of the connection as well the downloading speed. The research also shows that Comsats, Hungama, WOL and Cybernet are the top four ISPs of Islamabad. From the findings and conclusion of this research, it is recommended that ISPs should upgrade their hardware keeping in view users preferences because the low speed and low quality service will force users switch on to some other ISP.

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CHAPTER 1

INTRODUCTION

1.1 A BRIEF

My report deals with the comparison of the leading ISPs' (Internet Service Provider) of Islamabad. These ISPs' provide Internet and Data Communication Network Service at national and international level. Their subscribers make up a very large and mix target market who belong to all the classes of society. The comparison of the ISPs' will provide

first hand knowledge to the clients/ users about their performance level and affordability in their region.

The scope of the study was limited to **'Islamabad'** .The research has some limitations such as the time shortage and reluctance from the professional staff working at different ISPs to provide the sensitive information such as cost analysis, market share and hardware configurations.

The research deals with the attributes and background of ISPs, and proposes a criteria on which users can select an ISP. The literature is selected very carefully and report does not include any irrelevant information. The statistical tools used during the research are Pi-charts and Data-tables.

The questionnaires were distributed randomly among different Internet users .A careful procedure in distribution of questionnaires was adopted and questionnaires were only distributed to those people who had been using the Internet for last one year so that the analysis from this data cannot be based on any sort of bias information.

From the research it is found that most of the Internet users consider speed, availability, affordability, and downloading speed as the critical factor while purchasing an Internet connection. Therefore, our main task is to spread awareness among the masses regarding the leading ISPs' performance in Islamabad.

The Target Market set by me can be bifurcated into two main categories:

- Corporate Customer
- General Customer
    - Residential/ Home user
    - Student

The clients are bifurcated into categories because the Corporate clients generally use the several services which are required to transfer a huge amount of data ,very high downloading

and uploading speed for the business use whereas the general customer require internet facility for personal use which doesn't require very high speed and numerous services.

After careful analysis of the latest market trends, we have conducted survey of aforementioned ISPs'. Thus, it will give the client explicit and readily available information of the ISP's overall performance. The ISP will be selected which provide state-of-the art technology to the masses to get maximum benefit of the services in less expensive and shorter time.

1.2 BASIC CONCEPT OF AN ISP

1.2.1 WHAT IS AN INTERNET SERVICE PROVIDER (ISP)

An ISP (Internet Service Provider) is a company that collects a monthly or yearly fee in exchange for providing the subscriber with Internet access.

Every ISP has a privacy policy and Terms of Service (TOS) contract that subscribers must agree to before subscription will be accepted.

ISP services range in price according to the package offered, and type of service.

Services provided by ISPs':

- Dial-up service
- Cable
- DSL
- Other types of Internet access.

Types of ISPs':

- A **National ISP** will provide access throughout most of the nation,

- A **Local ISP** will only serve subscribers in a limited geographical region.

1.2.2 ATTRIBUTES OF A GOOD ISP

The info web library explains some features of a good Internet Service Provider. It states that ISPs' which have following characteristics can be graded a good and reliable ISPs' for Internet connections.

- Stable
- Socially Responsible (http://www.infoweb.org/access/access.html#3isp)
- Offer Flexible Services (cgi-scripts, Java)
- Ease of implementation on user's department's computers
- How much tech support do user get and how quickly, how skilled?
- References?
- Do they have a search engine? Can user put one up?
- Will they support database searches? How? How much?

(www.infoweb.org/library/access, 2003)

CHAPTER 2

LITERATURE SURVEY OF THE INTERNET MARKET IN PAKISTAN

Before I move further into the core discussion its pertinent here to give a brief aboput the current internet market scenario in Pakistan.

2.1 INTRODUCTION

The Internet market in Pakistan is moving in a positive direction, but there is a need for certain steps, such as allowing more competition in the Internet market, making Internet tariff rates affordable for the common man, protecting the service providers' interest as also of the users and positive use of the Internet technology by the individuals.

The idea that we are living in a global or borderless world is relatively new. The meaning we now attach so easily to the word "global" was unknown 100 years ago when the world was still in the process of being divided up into independent sovereign nation states.

However, the dramatic events which have taken place in the 20th century - including global welfare, the development of global transportation and telecommunication systems, and the rise of global products, markets and corporations - have convinced many people that we are, indeed, living in a new era in which the economic, social, culture and political structures that shaped relations between people over the past two centuries will be transformed.

There are accounts of why this is the case, but most emphasized is the central role played by developments in telecom, computer and Information Technology. This historical change is often described as the passage from an industrial to an information age. Electronic information system is facilitating the information communication around the globe within seconds. No more information barriers exist in the world now. Internet has made the world markets more competitive; transaction cost has been reduced; information is easily available to the economic agents.

2.1.1 IT (INFORMATION TECHNOLOGY) MANIA

According to the ITU estimates, Internet subscribers are more than 300 million on the globe and Internet growth rate is 100 percent per year. Internet took only five years to reach 50 million users.

After a revolutionary change in the world, telecommunications government of Pakistan has defined broad objectives in the telecom sector as follows:

- The expansion and improvement of the telecom infrastructure to better support economic, social and cultural developments in Pakistan.

- The facilitation of new investment and competition in the telecom sector by developing the legal and regulatory framework.
- The encouragement of increased private sector participation in the development of telecom, in particular by the participation of PTCL through the recruitment of strategic investors.
- Encouraging the development of local telecom expertise to promote local research and manufacturing so as to create a telecom industrial base in Pakistan.
- The protection of consumer interest.

2.1.2 GOVERNMENT INITIATIVE

Pakistan government has taken initiatives to spread Internet in the country. For this purpose, Internet accessibility has been made available at local charges just by dialing 031. Within a few years almost 95 per cent of the population will be on line and 450 cities will be connected to the Internet. PTCL is decreasing the higher charges of leased lines for the ISPs. International leased line charges have been decreased five times in the last three years. Currently, 53 per cent reduction has also been made. PTCL is also decreasing the domestic leased lines charges. PTCL has recently decreased the bandwidth charges by 25 per cent. On the other hand to enhance the data processing rate, the government has taken steps to ensure using of 128 kilobyte per second (Kbps) loop line by the ISPs. For the time being, ISPs are using the 64Kbps loop line for the data communication. More advance technologies are available now and advance countries and most of the regional countries are using them.

Telecom investment has increased in the last few years. Many of the new investors have found attraction in this sector. Now software export is worth $30 million. The government has targeted to increase the software exports equal to $100 million in the coming three years.

The government of Pakistan has launched an integrated programme to promote Information Technology. Under this programme, new IT Universities, including virtual University and Institutes, will be established under the public and private supervision and a heavy amount has been allocated in the current budget for the promotion of IT in the country.

In Pakistan, ISPs started to provide services in 1996. Today, the ISP market in Pakistan is booming, and new ISPs are being set up at a regular interval. Currently, the ISP market in Pakistan has a large number, 122 licensees. This shows there is an increasing trend in the Internet market business and numbers of ISPs are increasing over the years. According to the PTCL, Pakistan has 1,500,000 Internet subscribers by the year 2005 but still these are lower compared to other regional countries.

2.1.3 INTERNET USAGE AND POPULATION IN ASIA

ASIA	Population (2005 Est.)	Internet Users (Year 2000)	Internet Users, Latest Data	Use Growth (2000-2005)	Penetration (%Population)	(%) Users in Asia
Bangladesh	134,792,167	100,000	243,000	143%	0.20%	0.10%
China	1,296,110,643	22,500,000	103,000,000	357.80%	7.90%	31.80%
Hong Kong	6,898,686	2,283,000	4,878,713	113.70%	70.70%	1.50%
India	1,094,870,677	5,000,000	39,200,000	684.00%	3.60%	12.10%
Korea, South	49,929,293	19,040,000	31,600,000	66.00%	63.30%	9.80%
Pakistan	160,166,742	133,900	1,500,000	1020.20%	0.90%	0.50%
Singapore	3,547,809	1,200,000	2,135,000	77.90%	60.20%	0.70%
Sri Lanka	19,466,567	121,500	250,000	105.80%	1.30%	0.10%

It shows that Pakistan still has to travel a long distance even to compete with regional countries. Until now Internet facility is available to large cities only and small cities are still far away in utilizing this revolutionary benefit.

2.2 CHARACTERISTICS OF THE MARKET

Ubiquitous Internet access is fast becoming a prevalent phenomenon in the developed world. Always-on Internet connectivity, as opposed to dial-up connectivity is a more productive and

cost effective way of accessing the Internet. Typically, always-on connectivity is realized via wireless (radios and satellites earth stations), Digital Subscriber Lines (DSL) or modified Cable TV Networks. These technologies provide fast, reliable and always-on Internet connectivity to the users in the developed countries.

2.2.1 MARKET ANALYSIS

Although Internet access has been available in Pakistan since 1995, Internet penetration remained low at around 2% by early 2005. Following the military regime of General Pervez Musharraf taking control of the country in October 1999, an aggressive IT policy has been pursued, aimed at boosting Pakistan's drive for economic modernization and creating an exportable software industry. Whilst this has been helping boost the popularity of the Internet, there is still a long way to go. The broadband Internet market in Pakistan is almost non-existent.

The population in Islamabad is growing at an explosive rate and so far it is approximately 8 to 9 lac, So for this much population the currents ISPs in the market can't provide the high quality internet facilities to satisfy their needs.

The need is that new ISPs should pay attention to income distribution as well as average income, educational level, spending habits etc.

2.2.2 WHERE WE STAND IN THE REGION

Index/Rank	**Sources**	**Pak / India / China (Rank)**
Network Readiness Index	World Economics Forum	.-0.36 (63rd) / 0.23 (39th) / 0.17 (41st)
Digital Access Index	ITU	0.24 (17th) / 0.32 (16th) / 0.43 (85th)
Maximum Number of Internet	Internet.com & Chinese Academy of Labor & Social	**Subscriber**: 1.5mil / 6 mil / 37.94mil **Users:** 7.5 mil / 35 mil / 100 mil

	Society	

India: 2002 Planning Commission targeted 35 million subscribers by 2007. 2004 Broadband Policy targeted 40 million subscribers by 2010

Pakistan: None of the National Development Plan mentions Internet. 2004 Broadband Policy Envisages 200,000 Broadband expansion per year

2.2.3 A REGIONAL COMPARISON

	China	**India**	**Pakistan**
Internet Subscriber	37.94 million	6 million	1.5 million
Broadband	45%	8%	1.9%

2.3 MARKET NEEDS

The rapid growth of the internet and online services that has been witnessed worldwide is only the beginning of a long-lived trend towards and economy built on the infrastructure of the internet. The potential growth of the internet is enormous, to the point where one day a computer terminal with an online connection will be as common and necessary as a telephone or food. This may be 5 or 10 years down the road, but for the next years, the online service provider market is sure to experience tremendous growth. ISPs need proper telecom infrastructure with fast connections. They also need appropriate bandwidth to insure speed and reliability. They need to promote their services and for this reason they need proper sales and marketing departments.

2.3.1 DEMAND FORECASTING

After forecasting the demand of the users we analyze that usage at present is 25,000 people whereas demand is there for up-to 50,000 people with diversified interests to use the net.

2.4 MARKET TRENDS

The internet has become a point of conversation in almost all social groups. People are talking about sites they visited, business people are talking about internet-based businesses, and kids are talking about the latest internet clubs and chat rooms. People like to communicate their internet experiences with their friends, colleagues and family. This kind of a trend is asking for internet service providers who are reliable, fast, accessible and economical. The assurability of the internet services providers is becoming a real need.

2.5 SITUATIONAL ANALYSIS

There are several Internet Service Providers (ISPs) in Islamabad. The main ISPs at present are:

1. **COMSATS**
   www.comsats.net.pk
2. **APOLO ONLINE**
   www.apollo.net.pk
3. **PAKISTAN ONLINE**
   www.pol.com.pk
4. **SHOA PVT. LTD.**
   www.shoa.net.pk
5. **MEGANET INTERNET SERVICES**
   www.meganet.com.pk
6. **BEST NET**
   www.best.net.pk
7. **HUNGAMA**
8. **WOL**
   www.isd.wol.net.pk
9. **NET 2 NET**
   www.net2net.net.pk

2.6 TARGET MARKET

Internet Service providers are extremely competitive in today's market. They offer their services to all kind of people of all ages.

1. Students
2. Parents
3. Professionals i.e. Engineers, Doctors etc
4. Business Houses
5. corporate Sectors
6. Governmental Institutions
7. Educational Institutions including Universities
8. Libraries

2.7 BARRIERS TO INTERNET MARKET

Internet market in Pakistan is still facing certain barriers and Internet growth rate is not matching up to the regional countries' growth rates. Historically, Internet subscription is related with the numbers of PCs. Internet users are increasing with the increase in the number of computers. Another important variable affecting the spread of Internet is tele-density. Tele-density is a tool for gauging penetration rate of basic telephony.

2.7.1 TELE-DENSITY

Pakistan has just 2.34 per cent tele-density, which, compared to other regional countries, is low but still greater than India. Sri Lanka is having tele-density equal to 2.84, China has 8.62 per cent and Malaysia has 20 per cent penetration rate, in the region. PTCL is targeting to have it 5.6 per cent by 2003. Cost of the computers is a factor defying spread of the Internet. In the last few years, although there was sharp decrease in the prices of computers, still these are not in the income horizon of the common people.

2.7.2 PRICES

An important thing for the sharp decrease in the computer prices is the free competition in the world markets. Developing countries, such as Pakistan, are really benefiting from the unbranded computers and violation of copyright laws. Unbranded computers have lower

prices compared to the branded ones. China, Taiwan, Singapore and some other regional countries are producing inexpensive computer products.

2.7.3 COPYRIGHT VIOLATION

On the other hand, due to the copyright violations, computer software's are available at very nominal rates. It is discouraging the software development market in the country and people find less attraction in the software development due to the less reward for their efforts. It is the need of the time that the Government takes steps to encourage the software developers to work in this field just by making possible the competitive rewards to them.

This is only possible through the proper implementation of the copyrights law but, unfortunately, trade-off lies between the spread of computers and copyrights implementation for the computer software's for the low-income countries like Pakistan. As the per capita income of Pakistan is just $442 per year and computer software's are very expensive, it seems that implementation of copyrights will shrink the Internet subscription growth in Pakistan.

2.7.4 INSUFFICIENT PHONES

Another snag in the expansion of Internet services is inadequate basic telecom infrastructure to meet the demand for telephone. According to PTCL, 3.12 million people have telephones. On the other hand, telephone exchanges are also not digitized completely, till June 2000, most of the telephone exchanges have been digitized, and digital telephone exchange is a necessary condition for the Internet connection.

2.7.5 COMPUTER ILLITERACY

Computer illiteracy is another constraint to the spread of Internet. People are not familiar with the use of computers. Now there is increasing trend to be equipped with computer knowledge. Unfamiliarity with the English language is also causing less Internet subscription. Only a few percent Pakistanis are familiar with the English language. Recently, the government has decided to develop Urdu software's, which will lead to increase in the computer usage and ultimately Internet subscription will increase.

2.7.6 PTCL MONOPOLY

ISPs have their reservations about the non-professional behavior of the PTCL representatives. They are not finding appropriate response from the concerned persons. Among the 122 license-holders, only 43 ISPs are operational. Others have not started their operations yet. They have complaints against the higher cost of leased lines, bandwidth charges, license fee, renewal charges and royalty. Most of them are waiting the PTCL monopoly coming to an end in December 2002 to be operational, when market will be competitive and ISPs will not be needing any assistance from PTCL. At present, PTCL is fully exploiting its monopoly, not allowing the ISPs to use their own networks for the provision of Internet connection.

This policy is forcing the ISPs to restrain the Internet subscription. If PTCL liberalize the Internet market more, it will help the ISPs to expand their operations and invest more in the telecom sector. This will also assist the service providers to use high-speed networks for Internet subscription. It is suitable for the Internet market that PTCL allow more freedom to the service providers.

2.8 BAD CONSEQUENCES

Most important consequence of the Internet is the easy availability of pornography that can lead our youngsters to moral disaster. There is dire need that the government, as well as the guardians, control and check the usage of Internet by the young people.

Emerging problem in Pakistan is the migration or brain drain to foreign countries. More and more software experts are leaving the country.

Advanced countries are attracting the young Pakistani IT experts. This situation will hinder the government to achieve the proposed IT goals and until now no serious efforts have been made to stop the brain drain.

In sum, Internet market in Pakistan is moving in positive direction but there is need for certain steps, such as allowing more competition in the Internet market, making Internet tariff

rates affordable for the common man, protecting the service providers' interest as also of the users and positive use of the Internet technology by the individuals. PTA should take bold steps by reducing renewal fee and royalty for the ISPs. PTCL should also reduce the leased line and bandwidth charges more to equate them to international charges.

A market survey shows that most of the people are using Internet for entertainment and fewer use it for productive purposes. It is the need of the time to use the modern Information Technology to acquire modern knowledge and produce skilled labor.

CHAPTER 3

RESEARCH METHODOLOGY

3. RESEARCH METHODOLOGY

Research Methodology implies the pre-planned strategy and technique to conduct a research, which eventually provides the required results.

3.1 TYPE OF STUDY

This was a research based study because it dealt with finding the answers of some questions and was conducted to carry out comparison using through statistical tools like histogram, pie charts, and graphs**.**

The study dealt with explaining the different factors that are important for the Internet users to select an ISP.

The study also emphasized on the future prospects of market share of each ISP and how can they show their competitive edge on other ISPs'.

3.2 RESEARCH INSTRUMENTS

The method used to collect was both primary and secondary sources of data. Secondary sources of data such as published magazines, the Internet archives, ISP survey websites and company profile of related ISP.

The research instruments used were survey forms and formal interviews. The structured interviews were designed specifically for the technical staff and management working at ISP. The survey form consisted of the closed ended alternatives except the third question that was meant for the respondent's own choice for using an ISP currently, than those that were formally selected. The survey forms were distributed personally.

- **Survey Form**
  - **Universities**
    - Quaid-e-Azam
    - MAJU
    - Bahria
    - Comsats
    - Iqra
    - Islamic International

- **Sector/ Markaz**
  - F-10
  - G-9
  - I-10

- **Interviews**
  - **Corporate Management**
    - Comsats
    - Cyber Net
    - Hungama
    - WOL

3.3 RESPONDENTS OF THE STUDY

The respondents of the study were Corporate Customers and Students in general. An effort was made to meet the technical and management personnel in person by each member of the group, but they had few reservations regarding the disclosure of their respective *market share*. Rest of the useful information was gathered through survey forms and web browsing.

3.4 SAMPLING PROCEDURE

In research, investigations involving several and even thousands of technical elements, it was practically impossible to collect data from, or test, or examine every single element. Even if it was possible, it was prohibited in terms of time, cost and human resource. Studying a sample rather than the entire population was also likely to lead to more reliable results.

The research was based on random sampling. A homogeneous random sample of 450 respondents was selected for this purpose.

3.5 STATISTICAL TOOLS

Statistical presentation tools like, histogram, pie charts, graphs, mean, median were used to evaluate the results.

CHAPTER 4

INTRODUCTION TO WOL, COMSATS & CYBERNET (THE MAJOR ISPs IN PAKISTAN)

4.1 WOL

4.1.1 VISION AND MISSION

To create and maximize value and opportunity for all our stakeholders, To be the leading, innovative and dynamically growing organization in the information technology and communication sectors so as to: deliver superior, sustained shareholder value; achieve total customer satisfaction; and become the employer of choice.

Cyber Soft Technologies (CST) is a leading provider of Internet and data services of Pakistan. Under the well-established brand name of WOL, we deliver dial up Internet, broadband and data access services to consumer and businesses across the country in more than 350 cities across Pakistan.

4.1.2 WOL TEAM

CST currently employs more than 200 engineers and business graduates from leading universities like MIT, Harvard, BU, LUMS and FAST. CST is the group company of one of the largest business groups of Pakistan, The Shafi Group, which consists of nine different ventures in leather, chemical, leasing and IT industry and employs more than 1500 people with annual exports of US$ 100+ million.

4.1.3 WOL SERVICES

Operating on a single platform using leading edge technology, the network offers broad range of IP and data services at company maintained sales outlets “WOL Net Dokaans” and round the clock customer support in 20 cities country wide. WOL’s complete line of services include: Dial Up access, IP VPN, Fixed Access, Web Hosting, WOL X.25, WOL ATM, Data Services and Software Service.

In the fast pace growing demand for broadband Internet, WOL recently introduced its DSL (Digital Subscriber Line) services. DSL is an access technology that converts ordinary copper telephone line into access paths for high-speed data communications (data, audio & video).

4.1.4 WOL FOCUS

WOL is focused at providing you with maximum value for your money by not just offering Internet connectivity but providing you with Internet solutions along with differentiated features.

4.1.5 WOL MISSION

To be the leading, innovative and dynamically growing organization in the information technology and communication sectors so as to: deliver superior, sustained shareholder value, achieve total customer satisfaction, and become the employer of choice.

4.1.6 WOL OBJECTIVE

To attain market leadership and expansion in the IT and communication sectors by leveraging ISP/ASP, Data Networking and Software capabilities.

4.1.7 IP SERVICES

Whatever your location or application requirements, WOL has the right network access option for you. We offer a full suite of access services designed to connect you anywhere, anytime with wide range of access speeds. With an installed base of over 5000 dialup ports accessible from **350+ cities** and towns of the country WOL's IP Services portfolio is unmatched in its coverage and performance.

4.1.8 DATA SERVICES

At WOL, we offer end-to-end, integrated data network solutions designed to meet the needs of your growing business. Our specialists can help you select the services that are right for your business and budget. Select from a wide range of high-quality, reliable data services to enhance your employees' productivity and provide the power that your business applications demand.

WOL's complete suite of Data Services can leverage your existing investments while giving you a high-performance foundation for the future. With our Data Services portfolio, you're promised:

- Solid transport for multimedia applications
- Seamless nationwide connections - provided via a single national service provider

- Support for current, future and legacy protocols
- Multiple access options, such as dialup/ISDN, satellite, DSL and wireless local loop
- 24x7 network monitoring and management
- Industry-leading Service Level Agreements (SLA's)

4.1.9 ACCESS SERVICES

ISDN is a popular connection method for businesses because of its high speed and rapid connection. WOL offers ISDN as a dedicated digital connection for customers who need 24/7 access to the Internet. By using ISDN connection, a user can establish a 64Kbps or 128Kbps data link. This link can support the requirements of a small scale LAN. Benefits of WOL ISDN services are:

- High-speed, rapid and 100% digital Internet access. Offers up to 128Kbps
- Offers up to 128Kbps
- Unlimited mail, browsing, ftp etc
- Static IP address
- No busy signals

4.1.10 WEB HOSTING

With the speed that today's technology moves, you need a hosting partner that can match the pace of your company's growth every step of the way, and a partner that understands your needs and challenges in order to help you meet them.

WOL's services are built with customer's growth in mind. WOL uses a data center, housing over 20,000 clients and 100,000 domain names and have hundreds of servers to serve our growing client base. The data center has connections running at 155 Mb/s and OC12 fiber optic cable. Each connection is presented on gigabit fiber, allowing us to instantly upgrade our bandwidth when required to cope with future demand. The connections are also diversely routed to different channels allowing us to cope with the most severe physical disasters.

WOL is committed to delivering outstanding levels of performance and service to our

customers 24 hours a day, 365 days a year. Our high capacity fiber optic backbone connections deliver blazingly fast speeds to serve your web site.

4.1.11 SOFTWARE SERVICES

The software development and consulting division of CST is providing consulting and custom software development services to clients in the Middle East, Europe and the US.

With WOL's office in Boston, USA and our development facility in Pakistan, we provide cutting edge solutions to our local and foreign customers on latest state-of-the-art technologies. We at CST deliver high quality products as can be seen from our work. We have developed applications directly and through our business affiliates for Fortune 100 as well as small and medium organizations. Our software and consulting division has also been actively participating in trade shows like Comdex, DCI Outsourcing, and Outsource World London etc.

We have expertise in both web based and client/server applications. In web based applications we do development in Microsoft (.Net, C#, ASP, CDO 2000, and Microsoft Exchange etc.), Sun (J2EE, Java, Servlets, EJB, JSP, etc.) and other technologies like Web Logics, Web Sphere, Tom Cat, Cold Fusion, PHP, Perl, Flash, Adobe and XML. In client/server applications we work in VB, Developer 2000, PowerBuilder, Visual FoxPro, VC++, C/C++. To compliment this we have a very strong database team with expertise in Oracle, MS SQL Server, Sybase, DB2 and Access.

4.1.12 COVERAGE

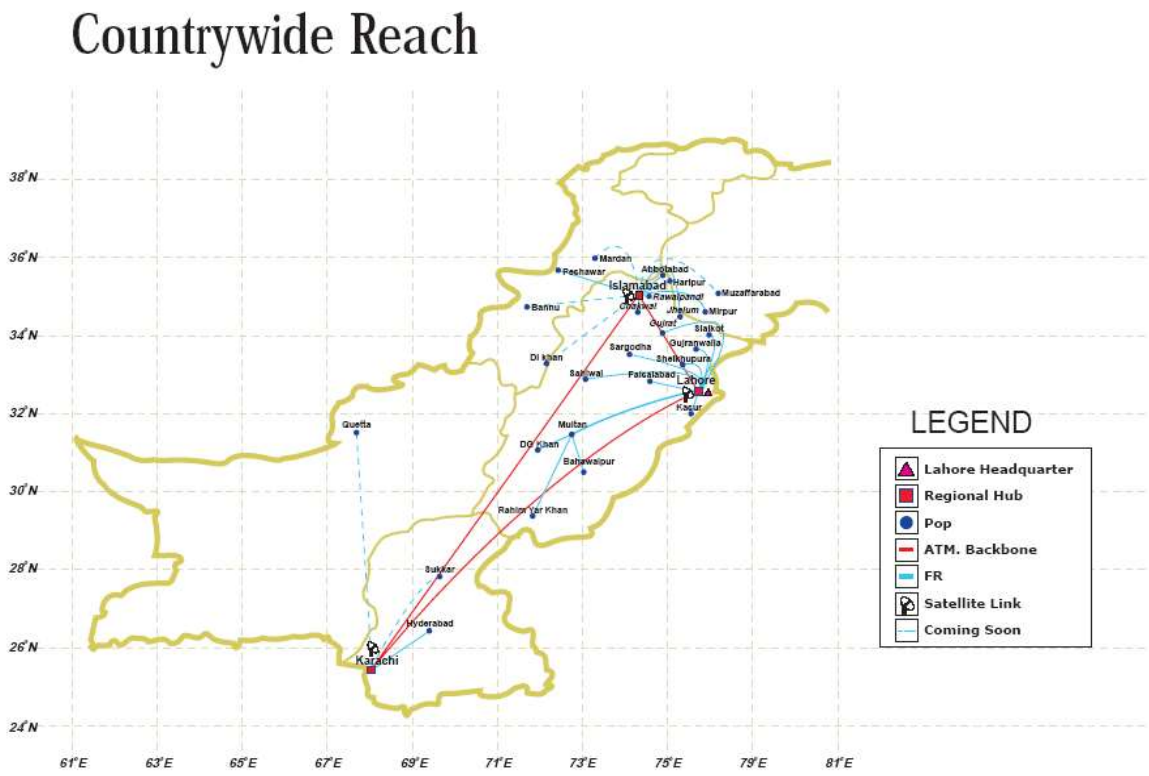
Spanning more than 300 cities and territories, Operating on a single platform using leading edge technology, the Network offers a broad range of IP, voice and data solutions to corporations in a variety of industries, with help desk and customer support available in 20 cities countrywide.

As a single integrated countrywide network, services are fully managed from end-to-end by WOL. Offered on an unrivaled nationwide scale, these include business intranet and Internet

solutions, high performance remote access services over local fixed or dial-up lines, and many other Wide Area Network services, such as x.25, Frame Relay and ATM.

Our Country Wide Network is divided into three regions – South, Central and North.
The Southern region covers the Provinces of Sindh and Baluchistan and all major cities in these regions are connected to the regional hub at Karachi through High Speed Digital Links. The Central region has Lahore as its hub and covers eighty percent of the province of Punjab. The Northern region has Islamabad as its hub and covers the remaining twenty percent of the province of Punjab, the entire province of NWFP, AJK and Northern Areas.

There are currently 20 cities in our network, which include Karachi, Lahore, Islamabad, Rawalpindi, Peshawar, Faisalabad, Multan, Gujranawala, Sialkot, Rahim Yar Khan, Sahiwal, Sheikhupura, Jhelum, Sargodha, Bahawalpur, Gujrat, Haripur, DG Khan, Hyderabad and Abottabad. We expect to have another 5 cities online before the end of this year, which include Sukkur, Chukwal, Mardan, Mirpur and Quetta.



4.1.13 CUSTOMERS AND TARGET MARKETS

The company's customer base includes all consumers and all small- to medium-sized businesses, including start-ups, educational institutions. The company plans to concentrate on SOHO clients, as these are perfect targets for our new high-speed offerings, and hold the greatest growth potential for the company. Fast Track feels that these market segments have special pricing and service needs, and make more dedicated, reliable customers.

4.1.14 COMPETITION AND BUYING PATTERNS

WOL believes that its customers choose its products and services based on the following criteria:

- Price.
- Experience.
- Reputation.
- Service.
- Accessibility.

4.1.14 MAIN COMPETITORS

Competitive threats come from other ISPs, including the following companies: COMSATS, Apolo online, hungama, Pakistan Online, sky net.

4.2 COMSATS

COMSATS Internet Services (CIS) is one of the leading Internet Service providers in Pakistan. CIS provides variety of Internet access services ranging from dial up, leased lines and Broadband connectivity through DSL and Radio-Links to value added services to corporate and residential users. Our specialty in LAN & WAN connectivity gives us an edge over our competitors. CIS has the fiber backbone terminated at NOC Islamabad and all connectivity is “Copper-less”.

4.2.1 INTERNET ACCESS SERVICES

- Prepaid Internet Cards
- Dial up services upto 56 Kbps

- Leased Lines connectivity upto 128 Kbps
- Broadband and wireless access through ISDN from 64K to 128Kbps, and Digital Cross Connect from 64 to 512 Kbps and Radio links upto 2 Mbps
- Provision of bandwidth from 64K to 20 Mbps
- COMSATS Wireless Internet Service (CWIS) upto 20 Mbps.

4.2.2 WEB BASED SOLUTIONS

- Web design and development
- Domain name registration and web hosting
- Intranet, Extranet and Portals
- Multimedia presentations and Interactive CDs
- E-Learning and Training
- Customized web applications development
- E-Commerce Applications

4.2.3 NETWORKING AND COMMUNICATION SERVICES

- Network Consultancy, support and training
- Server Set up and configuration services
- Virtual Private Networks
- VOIP Enterprise Solutions
- Corporate Network solutions

4.2.4 TRAINING

- CISCO Certified Training Programs
- Diploma in Telecommunication
- ISP Set Up and Networking Essentials

4.3 CYBER.NET

Cyber.Net is the largest Internet and Data Communication Network Service Provider in Pakistan. The company offers various services to the corporate and consumer sectors and it is exploring the possibilities to extend several other unique online services to its over 80,000 valued customers.

Since its commencement in March 1997, in the city of Karachi, having its share of trials and tribulations, Cyber.Net has made a name for itself as one of the leading ISP's in the country. A group company of the Lakson Group of Companies, Cyber.Net has maintained the tradition of dedication and service par excellence, which has been, and continues to be, its motto.

Cyber.Net offers Total Internet Solutions for the business and family alike. With ever expanding horizons, Cyber.Net aims to be the largest Internet Service Provider in the country with features and facilities like 24-hour technical assistance, 7 days a week, best modem to user ratio preventing busy signals, powerful, direct connection via satellite to the Internet backbone, firewall security features to safeguard against hackers. Cyber.Net with approximately 280Mbps bandwidth countrywide and approximately 18000 dialup ports at present is completely geared towards providing customers with timely, reliable, superior services and solutions.

4.3.1 SERVICES

- VSATs (DAMA and SCPC)
- Satellite Broadband Solutions
- Internet Bandwidth Solution
- Virtual Private Network
- Hosted Exchange
- Optical Fiber Frame Relay Services for Domestic Connectivity
- Corporate Leased Line Access
- Internet Downlink Services
- VPDNs (Virtual Private Dial Networks) Services
- Network Designing for Inter-Branch Connectivity
- ISDN Services
- DDP – Dedicated Dialup Port services
- Video Conferencing
- Server co-location
- Wireless Solutions

- Corporate Mail Solutions
- Customized Web mail solution (POP3 Based)
- Web-Hosting Services
- Application Hosting
- FTP Services
- Real Time Branch Office Connectivity
- Domain Registration and Mapping
- Managed Firewall Services
- Back-up Secondary Mail Solution (Pakistan/USA)
- Incoming Virus Free Emails for Whole Domain (Anti-Virus Mail Guard-Trend Micro)
- Incoming Virus Free Emails for Mail Boxes created on Relay (Anti-Virus Mail Guard)

CHAPTER 5

CRITERIA FOR SELECTING ISP's

5.1 CRITERIA FOR SELECTING AN ISP

Each ISP has its own Company Profile and Criterion to facilitate their Customers, which include its evolution into the market, achievements, facilities and equipments, reliability and quality, methodology and competitive edge, partnerships and affiliations, public and corporate governance strategies and future vision.

To set criteria among the aforementioned features was a daunting task because every ISP is improving its Standards and giving great importance to Customer Care on daily basis.

5.2 SUGGESTED CRITERIA FOR SELECTING AN ISP

After careful analysis of Internet users in Islamabad, we have selected the criterion that provides extensive though basic information to the client, regarding leading ISPs'.
The basic findings of the survey conducted were related to QUALITY and AFFORDIBILITY covering the two generic levels:

- Corporate Level
- Student Level

Corporate Level gives importance to Quality in terms of:

- Services
- Speed (time factor is the key, in any transaction of a business)

Student Level gives importance to Quality in terms of:

- Charges (affordability)
- Speed (time factor is the key, in any transaction of a business)

The Suggested Criteria thus selected is as follows:

CRITERIA	PRIORITIY ASSIGNED
Connectivity/ Speed	1
Services	2

Note: Priorities assigned are in accordance to the criteria defined, with level 1-2. The criteria having the highest priority would be the most significant of all. According to the connectivity speed and services four ISPs are selected from the 15 ISPs operating in Islamabad

1. Connectivity/ Speed

The term connectivity implies the time it takes to make a connection between the selected ISP and the customer himself. Connectivity eventually relates to the quality of service provided by the ISP to its customer.

2. Tariff

The term tariff implies to the table of fixed charges; list of duties on particular class of products and services, which are provided by the ISP to its customer.

3. Services

The term service implies to the work done for the employer or for community. It's the assistance or a benefit given by the ISP to its customer in the form of products and packages, such as:

- Internet Access Services
- Web Based Solutions
- Networking and Communication Services

4. Facilities

The term facility implies to the ease, opportunity or equipment for doing something. The ISP provides the facilities to its customer in terms of:

- Websites
- Customer Support
- Availability of Services

5. Clients

The term client implies to the customer or user of a particular product or service. The ISP provides the products/ services and facilities to its customer to make up their market. The Clients can be categorized as follows:

- Corporate Clients
    - Government Institutes
    - Universities
    - Commercial Organizations

- Residential Clients

CHAPTER 6

COMPARISION & FINDINGS

COMSATS

CYBERNET

HUNGAMA®

WOL
the internet lifestyle

6.1 COMPARISON

6.1.1 SPEED

In this research the speed is the most critical factor which affects the users choice in selecting. According to the survey, Cybernet provide the highest speed, WOL is the second number in the connection speed, Hungama and Comsats are the 3rd and 4th position with 28MB and 18MB respectively.

Total Bandwidth offered by the selected ISPs' (2002)

BANDWIDTH	**COMSATS**	**CYBER NET**	**FC**	**WOL**
DOWN-LINK	6 MB	36 MB Full	12 MB	17 MB
UP-LINK	3 MB	Duplex	6 MB	11 MB
Total	**9 MB**	**36 MB F/D**	**18 MB**	**28 MB**

The total bandwidth that is offered by the ISPs' is given in the above table. Here the bandwidth offered by the Cyber net is Full Duplex (can be used for uplink/ upload speed and down-link/ download speed simultaneously).

6.1.2. TARIFF

The consumers over in Islamabad are very price conscious and want to use Internet at the minimum prices. This factor has forced PTCL time and again to slash its bandwidth charges. Today there are ISPs in the market who offers low price as Rs. 5 per hour at day time and free night package at night. Hungama was the most popular but Cyber net has introduce new student packages which provide service at 6Rs per hour.

The different services that are offered by the top 4 ISPs' with their relative tariff rates are given below.

TARIFF		WOL	CYBER NET	FC	COMSATS
DSL		2	-	1	4
ISDN		-	-	-	4
DIAL UP	**Scratch Cards/Limited**	2	4	4	1
	Unlimited	4	2	1	-

Note: Grading is used by using 4 points maximum and grading is done on relative basis

- **Comments**

  - **LIMITED DIAL UP**

    Hungama dial up (future connect) heads the grading because it offers it's customers a flat rate of Rs. 10p/hr whether other ISPs' offer a decreasing rate policy and are expensive in which rather than hungama.

  - **UNLIMITED**

    WOL offer its customers low priced unlimited package with fiber optics and other value added services, Comsats, Cyber Net and FC takes palaces respectively.

  - **ISDN**

    Comsats is the only ISP service which offers a complete isdn package.

  - **DSL**

    Comsats heads the list because they provide economical regular packages than other ISPs in Islamabad as they provide connectivity in four different speeds 64 kbps 128, 256 and 512 k bps WOL also provide the DSL in four speeds but the are doing it with the collaboration with Broad Band than comes Cyber net and future connect.

- **Result**

  COMSATS leads in tariff with maximum points followed by WOL, Cyber Net and FC.

6.1.3. SERVICES

SERVICES		**COMSATS**	**WOL**	**CYBER NET**	**FUTURE CONNECT**
INTERNET ACCESS SERVICES	Prepaid Internet Cards	1	1	1	1
	Dial up services upto 56 Kbps	1	1	1	1
	Leased Lines connectivity upto 128 Kbps	1	1	1	1
	DSL	1	Collaboration	1	1
	ISDN	1	1	1	1
	Wireless	1	1	1	1
WEB BASED SOLUTIONS	Web design and development	1	0	0	0
	Domain name registration and web hosting	1	0	1	1
	E-Commerce Applications	1	0	1	0
NETWORKING & COMMUNICATION SERVICES	Virtual Private Network	1	0	1	1
	Network Consultancy & support	1	1	1	1
Total points		**11**	**6**	**10**	**9**

Services provided by the ISP:

- If Yes → Represents1
- If No → Represents 0

This represents that **Comsats** provide extra(more)services than any other ISP working in Islamabad and then Cyber net is operating well and that Future connect and then WOL.

WOL provides convenient dialup internet services to its countrywide consumers in Islamabad. WOL consumer services business unit offers various types of convenience packages to its valued customers through a very strong distribution network consisting of company owned outlets. , WOL also offers value added services like 24 hour help desk support, free courier service, roaming facility, CLI restriction facility and Value Card for it customers countrywide.

- **Comments**
    - WOL comparing to others provide 24 hour help desk support to its users.
    - Comsats is better in web based solutions**,** Network support and training, Server Setup and configuration services, Virtual Private Networks.
    - Future Connect and Cyber Net are better for business users and provide better Corporate Network solutions than others.
- **Result**

  COMSATS leads in services with maximum points followed by Cyber Net, FC and WOL.

6.1.4. FACILITIES

A. WEBSITES

WEBSITE	COMSATS	CYBER NET	FC	WOL
EYE APPEAL	1	4	3	2
INFORMATION	4	3	1	2
NAVIGATION	4	3	1	2
Total	**3**	**3.3**	**1.6**	**2**

- **Comments:**
  Comparing the websites of these ISP's Cyber Net tops the list with interactive design as well as information. Comsats follows it and then WOL at 3rd position with Future Connect at 4th position.

B. CUSTOMER SUPPORT

CUSTOMER SUPPORT	COMSATS	CYBER NET	FC	WOL
QUICK RESPONSE	4	2	1	4
COMPLETE INFO	4	2	1	3
Total	**4**	**2**	**1**	**3.5**

- **Comments:**
  Regarding Customer Support Comsats tops the list with quick as well as complete information. WOL follows it with 2nd in the list and then Cyber Net at 3rd position with Future Connect at 4th position.

6.1.5. AVAILABILITY OF SERVICES

AVAILABILITY	COMSATS	CYBER NET	FC	WOL
SCRATCH CARDS	4	4	4	4
CONNECTION	4	4	4	4
Total	**4**	**4**	**4**	**4**

- **Comments**
  Concerning the Availability of Scratch cards and New Connection (Unlimited, ISDN, and DSL) all the ISP's are at the same level with availability of scratch cards and simple and quick procedure for a new Package.

- **Result**
  All the ISPs' lie at the same level as far as the availability of the services are concerned.

RATINGS

Excellent 4
Good 3
Satisfactory 2
Average 1

- **Final Result**
  Comsats leads in all facilities, followed by Cyber Net, WOL and FC

6.2 FINDINGS

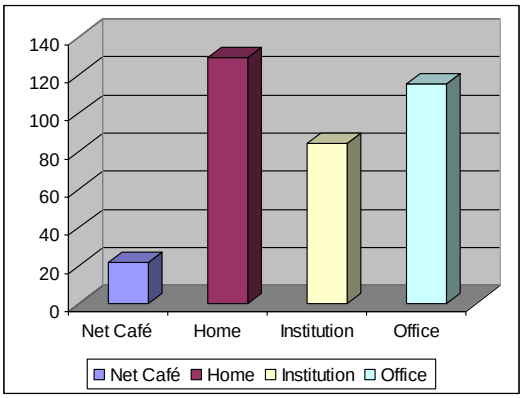
My findings were based on the afore mentioned questionnaire which consisted of 9 questions. These questions were designed according to the problem statements and keeping in view the requirements of the research.

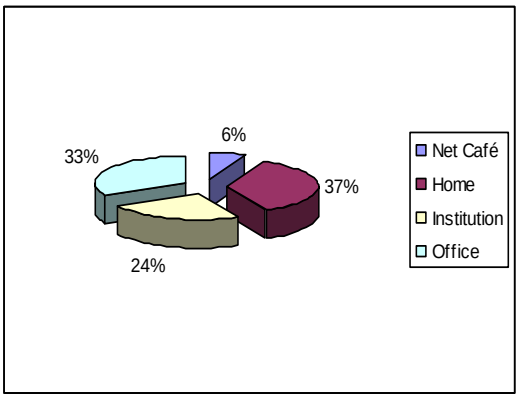
Q1. Where do you use internet?

The question was asked to know the consumer is the corporate client or normal user. The question helped to figure out the usage of Internet at home, netcafe, institute or office. The result showed that out of 400 respondents. The result showed that out of 350 **respondents,**

129 were using at home, 115 were using at Hungama, 63 were using Cyber net, 60 were using WOL and 58 were using other different ISPs. According to this questionnaire, the market share of these ISPs is shown in the following figure.

Net Café	**22**
Home	**129**
Institution	**84**
Office	**115**

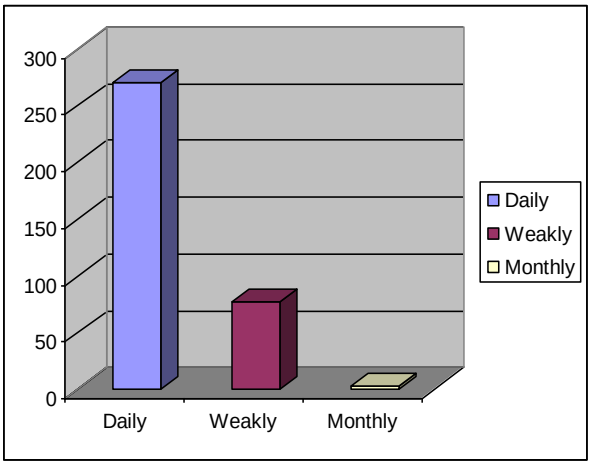


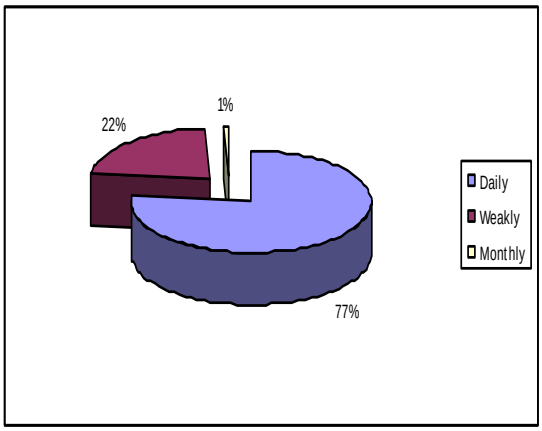


Q2. How often you use internet?

The question helped to figure out the usage of Internet 270 were using the Internet facility daily 77 weekly and 3 on monthly bases. According to this questionnaire, the usage is shown in the table given below.

Daily	**270**
Weakly	**77**
Monthly	**3**



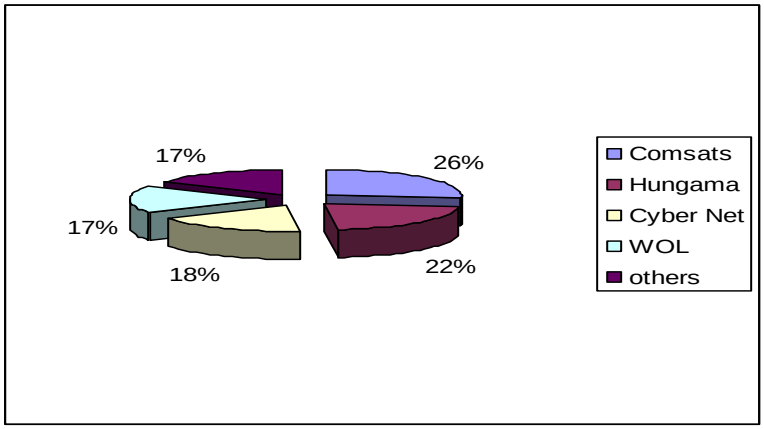


Q 3. Which Internet service provider service do you use?

The question was asked to know the consumer preference for their selection of an ISP. The question helped to figure out the most four popular ISPs in the region of Islamabad. The result showed that out of **350** respondents, 93 were using Comsats, 76 were using Hungama, 63 were using Cyber net, 60 were using WOL and 58 were using other different ISPs.

According to this questionnaire, the market share of these ISPs is shown in the following figure.

Comsats	**93**
Hungama	**76**
Cyber Net	**63**
WOL	**60**
others	**58**



Q4. Which service you use of your ISP?

This question was asked to analyze to ask the user that what type of services they use regularly. This question was asked to figure out the most commonly used services by Internet users.

The result indicate that 49% of the population use pre-paid scratch cards, the monthly unlimited package and postpaid normal hours are on the 2nd which is 21% ,15% people are using DSL .10.5% are using ISDN and 3.5% using wireless **.**

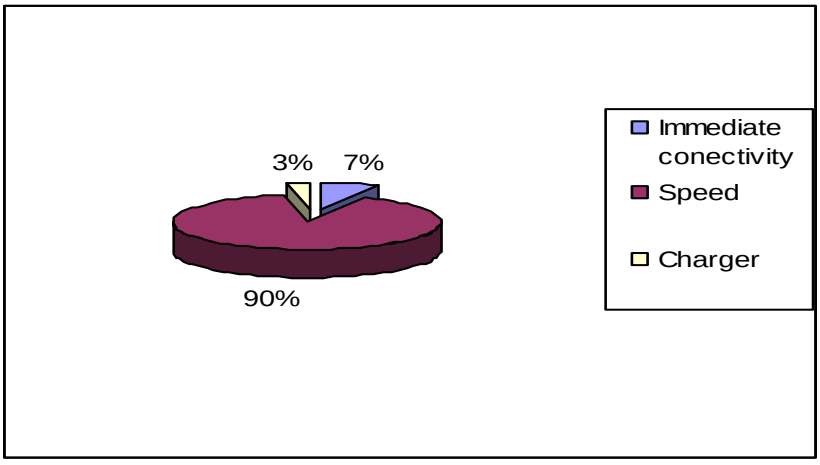
Type of Service	No of users	Percentage
DSL	**60**	**15%**
ISDN	**42**	**10.5%**
Wire less	**14**	**3.5%**
Post paid	**86**	**21%**
Pre paid Scratch Card	**198**	**49%**

Q5. What do you prefer while choosing an internet service provider?

This question was formulated keeping in view one of the criteria on which the best ISP of Islamabad is chosen of this research i.e. (What is the criterion for determining the performance of an ISP?"). This question specifically addressed the factors that influenced on the customer's buying behaviors.

These researches indicate that 90% of the population use for speed, 7% use for the immediate connectivity, 3% choose an ISP due to affordability. Affordability is not a key factor in choosing an ISP because from past two years the ISPs have decreased their rates up to 50%.

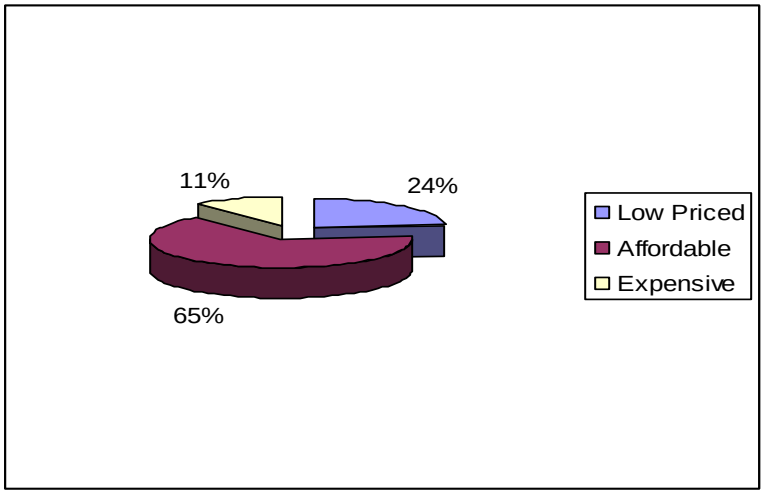
Immediate connectivity	**25**
Speed	**315**
Charger	**10**



Q6. How you rate the charges of your ISP?

This question was asked to know that whether the consumer can afford the services provide by the ISP or not. The research shows that most of the consumer can easily afford the internet facility, because of the different packages offered at low rate i.e. free at night times, extra hours given in purchasing two cards. The table shows that 65% people can afford ,24% think that the price are low and 11% think that the ISP charges is expensive**.**

Low Priced	**105**
Affordable	**289**
Expensive	**49**



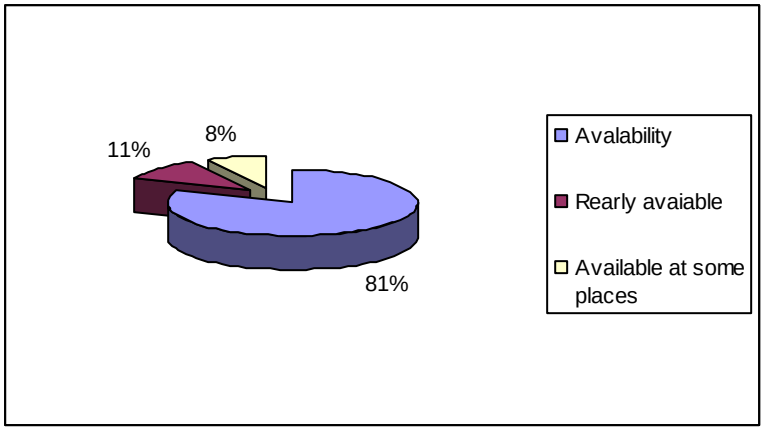
Q7. How much downloading speed normally you observe?

This question was used to collect the information about the speed that particular ISP offers. The result indicate that 5% said that they normally get less than 1kbps ,30% said that they get between 1kbps –2.45 kbps,55% said that they normally get between 2,5- 4kbps and remaining 20% said that they observe downloading speed more than 4kbps.

Q8. Availability of your ISP services?

This question collect the information about the availability of the services out of 400 81% said that the services and the scratch card are easily available, 11% said that it's rarely available and, 8% said that it's available at some places.

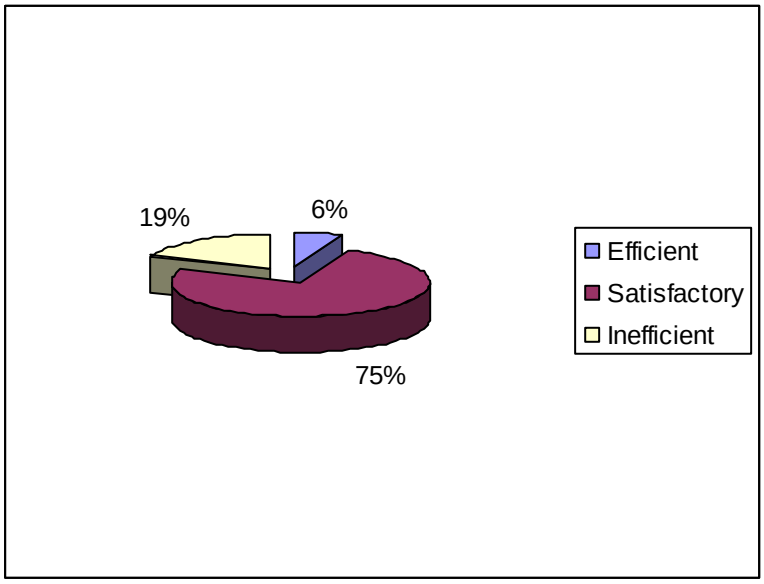
Availability	**284**
Rarely available	**39**
Available at some places	**27**



Q9. Customer Support?

This question was used to check the customer satisfaction level about their ISPs. This question showed that how many no. of people are satisfied with the customer service response of specific ISP. The no of people are shown in the table.

Efficient	**21**
Satisfactory	**263**
Inefficient	**66**



CHAPTER 7

CONCLUSION
AND
RECOMMENDATION

7.1 CONCLUSION OF THE STUDY

The research was very helpful in finding the questions mentioned in the chapter four. From all the data analysis, questionnaires, interviews and physical observations, this research have come up with the following conclusion.

The factors that determine the performance of an ISP includes, speed, connectivity, availability, services, facilities and tariff measures taken by the ISP. The factors that determine the buying behavior of the Internet users are; Speed, Affordability, downloading speed and Availability.

The most popular and efficient four ISP, which are operating in Islamabad, are; Cyber net, WOL, Hungama and Comsats.

CRITERIA	COMSATS	CYBER NET	FC	WOL
Connectivity/ Speed	A	A	B	B
Tariff	A	C	D	B
Services	A	B	C	D
Facilities	A	B	D	C
Positions	**1st**	**2nd**	**4th**	**3rd**

The above table shows the Performance of selected ISPs' against the Criteria defined, by using gradation system.

RATINGS

Excellent A
Good B
Satisfactory C
Average D

We have reached the final conclusion of our research that Comsats leads the market by attaining maximum As'.

The ISP sector of Pakistan is growing at rapid speed but the profitability margin in this business is decreasing day by day. The price war among different ISPs and trend of emerging

new ISPs is leading the industry towards low profitability but higher turnover volumes every month.

7.2 RECOMMENDATIONS

Internet market in Pakistan is moving in the positive direction but there is need for certain steps, such as protecting the service provider's interest as also of the users and positive use of internet technology by the individuals.

Most of the people are using Internet for the entertainment and fewer use it for productivity purpose. It is the need of the time to use the modern information technology to acquire modern knowledge and produce skilled labor.

The entire ISP should take a bold step to prepare them for future challenges. These up coming technologies without which the ISPs can no longer sustain in the market. The ISP must upgrade the present infrastructure by latest technology like fiber optic cable to fulfill the needs of the consumer.

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- **MEGANET INTERNET SERVICES** www.meganet.com.pk
- **BEST NET** www.best.net.pk
- **HUNGAMA** www.hungama.net.pk
- **WOL** www.isd.wol.net.pk
- **NET 2 NET** www.net2net.net.pk

BOOKS

- ISP Survival Guide: Strategies for Running a Competitive ISP by Geoff Huston
- ISP Liability Survival Guide: Strategies for Managing Copyright, Spam, Cache, and Privacy Regulations by Timothy D. Casey
- Building Service Provider Networks by Howard C. Berkowitz
- Strategies for Web Hosting and Managed Services by Doug Kaye
- Deploying License-Free Wireless Wide-Area Networks by Jack Unger
- Performance Solutions: A Practical Guide to Creating Responsive, Scalable Software (1st Edition) by Connie U. Smith

- ISP Liability Survival Guide: Strategies for Managing Copyright, Spam, Cache, and Privacy Regulations by Timothy D. Casey in Front Matter
- ISP Marketing Survival Guide: Proven Strategies and Secrets for Outmaneuvering the Competition by Christopher M. Knight in Front Matter
- The NAT Handbook: Implementing and Managing Network Address Translation by Bill Dutcher
- VPN Applications Guide: Real Solutions for Enterprise Networks by David McDysan
- Breaking the Access Barrier: Delivering Internet Connections over Cable by Mark Laubach

APPENDICES

BACKGROUND OF ISP's IN a GLANCE

1. COMSATS

COMSATS is an international, inter-governmental organization, aiming at socio-economic uplift of the third world through useful applications of science and technology. COMSATS has number of technical and scientific projects including COMSATS Internet Services (CIS) for providing Internet services and COMSATS Institute of Information Technology (CIIT).

CIS started its operation in 1996 and is pioneer in launching Internet Backbone on multi-city basis in the country. Their specialty in LAN & WAN connectivity gives them an edge over other competitors. CIS provides variety of Internet access services ranging from dial up, leased lines and Broadband connectivity through DSL and Radio-Links to value added services to corporate and residential users.

2. CYBER NET

Cyber.Net, a subsidiary of Lakson Group of Companies, is the leading Internet and Data Communication Network Service Provider in Pakistan. The company offers various services to the corporate and consumer sectors and it is exploring the possibilities to extend several other unique online services to it's over 80,000 valued customers.

Since its commencement in March 1997, in the city of Karachi, having its share of trials and tribulations, Cyber.Net has made a name for itself as one of the leading ISP's in the country.

Cyber.Net offers Total Internet Solutions for the business and family alike. Cyber.Net with approximately 280Mbps bandwidth countrywide and approximately 18000 dialup ports at present is completely geared towards providing customers with timely, reliable, superior services and solutions.

3. HUNGAMA

Hungama, a subsidiary of FC (Future Connect (Pvt) Ltd.), is the leading Internet Service Provider. Its head office is in Islamabad with three POPs in Lahore, Sialkot and Chakwal.

Hungama not only offers the best facilities but has a high speed fiber optic backbone. Its strength lies in its marketing strategy and the unique user-friendly and highly economical packages it has to offer to its customer base.

Hungama offers a range of scaleable internet products for home users to business corporate with dial up and wired solutions. It currently offers two different Packages: hourly based prepaid cards and unlimited prepaid cards.

4. WOL

WOL (World OnLine), a well-established brand name under CyberSoft Technologies (CST), is a leading provider of Internet and data services of Pakistan. It delivers dial up Internet, broadband and data access services to consumer and businesses across the country in more than 350 cities across Pakistan.

Operating on a single platform using leading edge technology, the network offers broad range of IP and data services at company maintained sales outlets "WOL Net Dokaans" and round the clock customer support in 20 cities country wide. WOL's complete line of services include: Dial Up access, IP VPN, Fixed Access, Web Hosting, WOL X.25, WOL ATM, Data Services and Software Service.

In the fast pace growing demand for broadband Internet, WOL recently introduced its DSL (Digital Subscriber Line) services.

5. COMPETITION AMONG ISP's

Though the present government has given boast to the I.T. sector, but still it is in the phase of evolution. According to the facts, some three dozens of ISPs' have gone out of business during last four years, half of them alone in 2002. In addition, as many as 18 others are feared to wrap up their operations during the 2002. Price war has resulted in rates which are uneconomic and would allow many ISPs' to get only a breathing space in short term with negative long term impact. Many economists have forecasted the vulnerable position of the many modern day ISPs', and still it remains as an unanswered question for the masses.

TARIFFS AND PACKAGES OF ISP's:

8.1 WOL

WOL TRAFFIC BASED DSL SERVICES (Validity 30 days)

Package	**Traffic Allowed Per Month** (Data Upload and download)	**C O N N E C T I V I T Y**	**Rate per Additional 100 MB**
128 K	DSL Traffic 4	4 GB	Rs. 6,500
		-	-
		-	Rs. 150
256 K	DSL Traffic 8	8 GB	Rs. 12,000
		-	-
		-	Rs. 140
512 K	DSL Traffic 12	12 GB	Rs. 17,000
			Rs. 17,000
		-	-
		-	Rs. 130
	DSL Traffic 24	24 GB	Rs. 32,000
			Rs. 32,000
		-	Rs. 120

DSL Traffic 48
48 GB
-

Rs. 60,000
Rs. 110

WOL CIR BASED BROADBAND SERVICES (Validity 30 days)

Package	Connectivity	Traffic Per Month	Monthly Charges
WOL64	64 Kbps	Unlimited	Rs. 12,000
WOL128	128 Kbps	Unlimited	Rs. 20,000
WOL256	256 Kbps	Unlimited	Rs. 35,000
WOL512	512 Kbps	Unlimited	Rs. 65,000
WOL1MB	1 Mbps	Unlimited	Rs. 125,000

Terms & Conditions:

DSL Modem:	Rs. 12,500 to Rs 35,000 depending on service.
Installation Charges:	Rs. 10,000
Installation Time:	10 Days
Security:	1 Month
Payment Terms:	Monthly Advance
Contract:	1 Year

Card Denominations	Rate/Hour	Hours	Expiry
10	10	1	31 Days

50	10	5	31 Days
100	10	10	31 Days
200	10	20	31 Days
300	10	30	60 Days
500	10	50	60 Days

Flexi Scratch	
Rs20 (24hrs access &31 days expiry)	
From 1:00 A.M To 10:00 A.M	Rs. 5/hr
From 10:00 A.M To 1:00 A.M	Rs. 13/hr

Special Offers:

The key characteristic of this package is to provide very economical rate and flexible hourly plan for the special users by offering quality services.

Package	Amount	Day Rate 9am--1am	Night Rate 1am--9am
Ramzan 1 Unlimited	**500**	**15**	**5**
Ramzan 2 Unlimited	**1000**	**12**	**2**
All packages have 1 Year Expiry expiry.			

24 Hour Packages (No Time Limit):

These packages offer the most flexible rates. You can access your Internet account any time in 24 hours. There is no time restriction and no minimum consumption is required.

Package	Rate/hr	Hours	Amount
Unique	19	5.3	100
Unusual	18	13.5	243
Amazing	17	29	493
Remarkable	15	66	990
Extraordinary	14	107	1498
Incomparable	13	150	1950
Unbelievable	12	205	2460
Fantastic	11	270	2970
Matchless	10	500	5000

All Day Long Packages 18 hours (From 2 a.m. to 8 p.m.):

These packages are especially launched for the Professionals with economical rates. Keeping their requirements in view, we have specified the time span from 2:00 a.m. to 8:00 p.m.

Package	Rate/hr	Hours	Amount
Ultra Violet	15	3.3	50
Violet	14	7.1	100
Indigo	13	17	221
Blue	12	41	492
Green	11	90	990
Yellow	10	150	1500
Orange	9	222	1998
Red	8	312	2496
Infra Red	7	642	4494

WOL Monthly Packages:

Correct package features are: 24 hours access. Unconsumed hours can be carried forward to next month if payment is made in the same or higher and before expiry date. Additional hours can be purchased at the same rate, before expiry date.

Package	Rate/hr	Hours	Amount	Expiry
Alpha	12	25	300	31 days
Beta	8	62.5	500	31 days
Theta	7	114	800	45 days

WOL Unlimited Packages:

This package is especially launched for the Professionals with economical rates. Keeping their requirements in view.

UNLIMITED (6pm – 10am) PACKAGE	**Rs. 995 per Month**
UNLIMITED (12pm – 8pm) PACKAGE	**Rs. 650 per Month**
WOL All Night Unlimted 1.00 AM to 9.00 AM	**Rs. 275 per Month**
All Day Long Unlimited 1.00 AM to 9.00 PM	**Rs. 999 per Month**
WOL 24 Hour Unlimited ***Buy 2& Get 1 Free*** ***(Pay for 2 months and get 1 month free)***	**Rs. 1495 per Month**

8.2 COMSATS

Dial Up Packages
Dial UP regular (Post Paid)
DIAL UP DRIVE PREPAID (As you stay more, the less you pay)
BULK HOURS (FLAT RATE 24 HRS) EXPIRY THREE MONTH
Unlimited Dial Up Packages

High Speed Internet
ISDN Packages
DSL Packages

Other Services
Web Hosting and Domain Registration
Web Hosting New Attractive Rates

Note: These **Tariffs** are applicable to **Islamabad** Region Only. Please visit appropriate link for other Region's Tariffs.

DIAL-UP PACKAGES (56 Kbps)
Dial UP regular (Post Paid)
0900-1900 Rs.20.00 per hours
1900 -0900 Rs.10.00 per hours
Sunday Rs.10 for 24 hours
Security deposit Rs.5000 refundable
Printing and courier charges Rs.50 per month

DIAL-UP DRIVE -Prepaid (Decreasing rate after every 15 minutes from its use)
Time zone based Tariff
No expiry, free roaming, email account with 10 MB space
As you use more, the less you pay (progressive decease feature)
If you refer a customer, you will get 10% of the deposit as credit in your account

DIAL UP DRIVE PREPAID (As you stay more, the less you pay)
0900-1900 Rs.20.00 per hours
1900 -0900 Rs.10.00 per hours
Sunday Rs.10 for 24 hours
Advance usage deposit minimum Rs.500

BULK HOURS (FLAT RATE 24 HRS) EXPIRY THREE MONTH
100 Hrs Rs.16 per hour Rs.1600
200 Hrs Rs.14 per hours Rs.2800
300 Hrs Rs.12 per hours Rs.3600
400 Hrs - Rs.10 per hours Rs.4000
800 Hrs Rs.9 per hours Rs.7200

UNLIMITED DIAL-UP PACKAGES
UNLIMITED PREPAID ONLY- EXPIRY ONE MONTH
DAYLITE UNLIMITED (0900 1900 Hrs) 10 Hrs One CLI compulsory
Rs.1000 per month fixed

SUNDOWN UNLIMITED (1900 0900 HRS) 14 Hours One CLI compulsory
Rs.1200 per month fixed

24 HRS UNLIMITED WITH ONE CLI Compulsory
Rs.2000 per month fixed

24 HRS UNLIMITED WITH NO CLI

Rs. 4000 per month fixed with one static IP compulsory

ONE WEEK UNLIMITED 24HRS WITH ONE CLI

Rs.600 per week fixed

NIGHT UNLIMITED WITH ONE CLI

Rs.300 per month from 0100 1000

DEDICATED DIAL UP

Rs.3000 for 12 hours with one IP and Rs.4000 for 24 hours with one IP

HIGH SPEED INTERNET (From 128 Kbps to 2 Mbps)

ISDN PACKAGES

1- Quarterly Package (Unlimited Data Transfer)

Rs.6000 per months for 64 Kbps
No setup charges

Rs.10,000 per months for 128 Kbps
Payment in advance for three months

2- Monthly Package (24 Hrs) (Unlimited Data Transfer)

Rs.8, 000 per month for 64 Kbps
Rs.2000 setup charges for one time

Rs.14,400 per months for 128 Kbps
Payments in advance for one time.

3- Monthly Package (12 Hrs) (Unlimited Data Transfer)

Rs.4800 per month for 64 Kbps
Rs.2000 set up charges for one time

Rs.8000 per months for 128 Kbps
Payment in advance for one month.

4- Hourly Packages (Unlimited Data Transfer)

Rs.25 per month for 64Kbps
Rs.1000 set up charges one time

Rs.50 per months for 128 Kbps
Minimum orders of 50 Hrs Expiry 60 days.

5- Volume based -Limited Data transfer

Rs.958 per month for 128 Kbps
1GB traffic allowed monthly.
Rate per additional 100MB Rs.100.

Rs.1840 per month for 128 Kbps
2 GB traffic allowed monthly.
Rate per additional 100MB Rs.95.

Rs.2800 per month for 128 Kbps
3 GB traffic allowed monthly.
Rate per additional 100MB Rs.90.

Rs.3600 per month for 128 Kbps
4 GB Traffic allowed monthly.
Rate per additional 100MB Rs.85

ISDN PACKAGES

1- Quarterly Package (Unlimited Data Transfer)
Rs.6000 per months for 64 Kbps
No setup charges

Rs.10,000 per months for 128 Kbps
Payment in advance for three months

2- Monthly Package (24 Hrs) (Unlimited Data Transfer)
Rs.8, 000 per month for 64 Kbps
Rs.2000 setup charges for one time

Rs.14,400 per months for 128 Kbps
Payments in advance for one time.

3- Monthly Package (12 Hrs) (Unlimited Data Transfer)
Rs.4800 per month for 64 Kbps
Rs.2000 set up charges for one time
Rs.8000 per months for 128 Kbps
Payment in advance for one month.

4- Hourly Packages (Unlimited Data Transfer)
Rs.25 per month for 64Kbps
Rs.1000 set up charges one time

Rs.50 per months for 128 Kbps
Minimum orders of 50 Hrs Expiry 60 days.

5- Volume based -Limited Data transfer
Rs.958 per month for 128 Kbps
1GB traffic allowed monthly.
Rate per additional 100MB Rs.100.

Rs.1840 per month for 128 Kbps
2 GB traffic allowed monthly.
Rate per additional 100MB Rs.95.

Rs.2800 per month for 128 Kbps

3 GB traffic allowed monthly.
Rate per additional 100MB Rs.90.

Rs.3600 per month for 128 Kbps
4 GB Traffic allowed monthly.
Rate per additional 100MB Rs.85

Package

Monthly Charges

Time

Per Additional GB

Free GB

Connection Charges

Pay as U Go

0

No time Limit

522

2500

Pay as U Go

0

No time Limit

0

0

2500

Office Silver

1375

9 am to 6 pm
Monthly

385

1

2500

Office Gold

3025

9 am to 6 pm
Monthly

Unlimited

0

2500

Office Platinum

10725

Round the Clock

Unlimited

2500

Power Pack

1595

No time Limit

302

1

2500

128 Kbps

Package

Monthly Charges

Time

Per Additional GB

Free GB

Connection Charges

Pay as U Go

0

No time Limit

950

0

2500

Pay as U Go

0

No time Limit

0

0

2500

Office Silver

2500

9 am to 6 pm
Monthly

700

2

2500

Office Gold

5500

9 am to 6 pm
Monthly

Unlimited

0

2500

Office Platinum

19500

Round the Clock

Unlimited

0

2500

Power Pack

2900

No time Limit

550

1

2500

8.3 CYBER NET

Tariff applicable for **Lahore** and **Islamabad** only. Hourly plans

Net Comfort Revised		
Hours	**Rate (In Rs.)**	**Min. Amount (In Rs.)**
03 - 09	25	75
10 - 19	23	230
20 - 29	22	440
30 - 39	21	630
40 - 49	20	800
50 - 59	19	950
60 - 69	18	1080
70 - 79	16	1120
80 - 119	15	1200
120 and onwards	12	1440

Note :

- One Email and Login ID.
- One time CLI charges Rs. 100/- apply and No Monthly Restriction.

Tariff applicable for **Lahore** and **Islamabad** only... time based hourly plans

Net Office		
Hours	**Rate (In Rs.)**	**Amount (In Rs.)**
01 - 09	22	22
10 - 24	20	200
25 - 39	18	450
40 - 59	16	640
60 - 79	14	840
80 - 109	12	960
110 and above	10	1100

Note :

- Surfing hours: 8:00 AM - 8:00 PM.
- One Email and Login ID.
- No Monthly Restriction
- Installation Charges apply. (Optional)