Emerging Internet Services: An Overview

Pranay Biswas

Department of Computer and Information Science, Raiganj University, Raiganj, Uttar Dinajpur, West Bengal, India

Corresponding author: pranaybiswas2014@gmail.com

ABSTRACT

In this work I present a systematic way by which we can monitor, quantify and also improve the reliability of outgoing emerging Internet services. In this paper our focus is on the Internet services allows us to access huge amount of Information such as text, graphics, Sound, software and so on, over the Internet by the Internet Services Providers. There are different types of Internet services such as- Communication Services – This service divided into Electronic mail, Telnet, News group, Internet relay chat, Mailing lists, Internet telephony, Instant messaging, Information Retrieval Services – This service divided into Archie, Gopher, File transfer protocol, Very easy rodent oriented net wide index computer achieved, Web Services, World Wide Web.

Keywords: Emerging internet services, internet services, internet, web technology, internet development, Information society, cloud computing, grid computing etc.

From 1988. The Internet repeating itself. In Worldwide more than 500 million people are using The Internet, over 150 million hosts are on global Internet in present days. By 2006, the surface of global Internet is calculated to overpass the surface of the global telephone network. It is accounted that the e-business on Internet will reach somewhere between $1.8T and $3.2T approximately by the observation of 2003. Users always hope for an open, common, accessible, reliable and secure Internet service. Very obviously security and reliability are the two most expected concern of every user of Internet based service. In this day, some group studies and surveys happened on this topic and they report that in the field of electronic-commerce and electronic-business, the serious two factors are security as their very important need, because of failed and slow web service, Internet service waste billions of dollars each year, which is very big deal. This day's electronic-commerce and electronic-business development is awesome, so reliability and security are very important for the users as well as for the service providers. As we know real state stock and many other online assets are now selling for thousands of dollars, so a more reliable and secure financial exchange has become increasingly very obvious necessity[1],[4].

THE INTERNET

The Internet is a world's wide area network that connects all over the computer systems across the world. It includes between high bandwidth data lines that comprise the Internet "backbone". These lines are connected with the major Internet hubs that distribute data to other locations, such as web servers and Internet service providers that are mainly called The Internet. In our daily life Internet is most essential thing[2],[5].

The Internet Infrastructure

Internet infrastructure is a collection of millions inter-connected networks. It is a media for information exchange between computers of all around the world. Consumers are use Internet to exchange electronic mail, bug and sell stocks, bill pay etc. In the use of business Internet to sell, place order, train employees, conferences in use of internet and also provide customer service. In over the Internet we are transmitted voice, video, music, fax and etc.[3],[7].
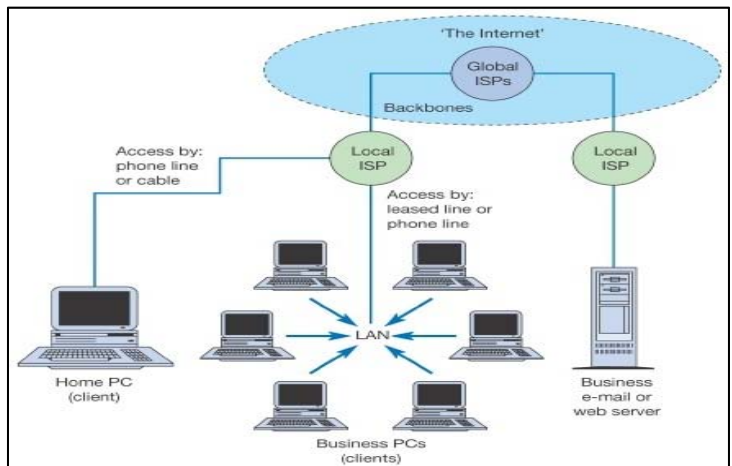
Backbone

Backbone carries data to smaller lines of transmission. Local backbone networks refer to the main network lines and that connect several local area networks together. Result of a wide area network linked by a backbone connection. The Internet, is the ultimate wide area network, relies on a backbone to carries data over long distances. Internet backbone consists of several ultra high bandwidth connections that link with many types nodes around the world. This is why many Web hosts and Internet Service Providers (ISPs) have direct connections to the Internet backbone[6].

Peering

In a different Internet networks exchange data at network access points that's called peering sites. These network access points are distributed worldwide in major metropolitan cities including Washington, D.C., Chicago, San Francisco, Dallas, London, Amsterdam, and Frankfurt. Peering sites are operated by commercial organizations. Internet Service Providers and Network Service Providers lease ports at peering sites and connect to their routers. Different peering arrangements are made between different network operators, meeting certain levels of reliability, service quality, and exchange speed. Network Service Providers own and

Fig. 1: Showing the Internet Infrastructure

operate high-speed links that exchange data at peering sites and make up the Internet. At the peering sites,

routers transfer messages between backbones owned and operated by many network service providers. To prevent traffic congestion at major exchange centers, network service providers have arranged private peering sites. Private peering sites are direct exchange places that carriers agree on many aspects of the data exchange including the performance and reliability related parameters of delay, service level, and amount of the data to be transferred.

WORLD WIDE WEB

 The World Wide Web is information space where web resources and documents are identified by Uniform Resource Locators, and interlinked by hypertext links, and can be accessed by the Internet. In 1989s Scientist Tim Berners-Lee invented the World Wide Web. He wrote in 1990 the first web browser computer programmed while employed at CERN in Switzerland. The terms Internet and World Wide Web are often used without much distinction. The World Wide Web is a global collection of documents and other resources, linked by hyper-links and URIs. Web resources are accessed using Hyper-Text Transfer Protocol, which is one of many Internet communication protocols.

Web Browser

Web browser is a software program which allows to users to locate access and display web pages. In common usages a web browser is called as a "Browser". Browsers is commonly used for accessing and displaying websites on The Internet, web pages are created using Hypertext markup language (HTML) and Extensible markup language (XML). The web browsers translate web pages and websites delivered using Hypertext transfer protocols into human readable content. They also have ability to display other protocol and prefixes, such as HTTP, FTP, E-mail handling and files. Most of web browser supports external plug-ins, required to display some of content, in a web page - video, audio, flash content and etc. There are many types of web browser for access the web pages such as – Microsoft edge, Opera web-browser, Internet explorer, Mozilla Firefox, Google chrome, and etc.

Client–Server Model

 Client-server model is a distributed application structure that partitions tasks or workloads between the providers of resources, called servers, and service requesters, called clients. Often servers and clients communicate over a computer network on separate hardware, but both server and client may reside in the same system. Server host runs one or more server programs which share their resources or services with clients. A client does not share any of its services, but requests a server's content or service function. Clients initiate communication sessions with servers which wait incoming requests. Computer applications examples are that use the client server model are Network printing, E-mail and the World Wide Web and etc.

INTERNET ACCESS

 Internet access is the process that enables organizations and individuals to connect to the Internet using computer terminal, computers and mobile devices, sometimes also computer networks. Once users connected to the Internet, the users can access Internet services, such as email and the World Wide Web

and etc. Internet service providers offer Internet access through various technologies that offer a wide range of data signal rates. Consumer use of the Internet first became popular through In 1990s dial-up Internet access. By the first decade of the 21st century, many of consumers in developed nations used faster Internet access by ISPs, broadband Internet access technologies. Individuals, small-office users, homes, corporations, and institutions connect to the Internet between many types of telecommunication services.

Dial-up Access

Dial-up access for Internet, uses a modem and a phone call placed over the public switched telephone networks to connect to a pool of modems operated by the Internet service providers. The modem converts a computer's digital signal into an analog signal that travels over a phone lines local loop until it reaches a telephone companies switching facilities where it is switched to another phone line that connects to another modem at the remote end of the connection. In Operating on a single channel, a dial-up connection is monopolizes the phone lines, is the slowest methods of accessing the Internet. Dial-up is the only form of Internet access available in rural areas as it requires no new infrastructure beyond the already existing telephone network, to connect to the Internet. The dial-up connections are primarily made using modems that operate at a maximum data rate of 56 kbps for download and 34 or 48 kbps upload.

Integrated Services Digital Network (ISDN)

ISDN is a switched telephone service capable of transporting digital data and voice, is one of the oldest Internet access procedure. ISDN has been used for conferencing, voice, video and broadband data application. ISDN was most popular in Europe, but less than in North America. In 1990s its use peaked before the availability of DSL and cable modem technologies. These channels can be used separately for voice or data calls or bonded together to provide a 128 kbps service. Multiple ISDN-BRI lines can be bonded together to provide data rates above 128 kbps. Primary rate ISDN, known as ISDN-PRI, has 23 bearer channels for a combined data rate of 1.5 Mbps (US standard). An ISDN European standard line has 30 bearer channels and 1.9 Mbps combined data-rate.

## Digital Subscriber Line (DSL, ADSL, SDSL, and VDSL)

Digital Subscriber Line (DSL) service provides a connection to the Internet through the telephone network. A new DSL technology, generically called xDSL. Unlike dial-up, DSL can operate using a single phone line without preventing normal use of the telephone lines for voice phone calls. DSL used the high frequencies, while the low frequencies of the line are left free for regular telephone communication. These frequency bands are subsequently separated by filters installed at the customer's premises. DSL (Digital Subscriber Line) originally stand for Digital Subscriber Loop. The distinguishing feature of the DSL based ISDN is higher speed. ADSL is capable of delivering up to 9 million bit/s downstream and up to 1.5 million bit/s upstream. The data throughput of consumer DSL services typically ranges from 256 kbps to 20 Mbps in the direction to the customer, depending on Digital Subscriber Line technology, line conditions, and service-level implementation. Very-high-bit-rate digital subscriber line is a digital subscriber line (DSL) standard approved in 2001 that provides data rates up to 52 Mbps downstream and 16 Mbps upstream over copper wires and up to 85 Mbps down- and upstream on coaxial cable.

Cable Modem Access

In recent years the cable industry has been working to leverage the cable TV network infrastructure for residential and business high-speed Internet access. A cable TV network, initially designed for TV signals, utilizes fiber optics from the "head end" to the neighborhood and coaxial cable for the last hop into the customer premises. The hybrid fiber coax (HFC) technology provides an alternative high-speed Internet access. Using cable modems, subscribers connect their PCs to the cable TV network for high-speed full-time Internet access. Cable modems technology provide high-speed data transfer rates of up to 10 million bit/s depending on the number of users and the particular cable modem configuration. By year's end (2001), cable companies are expected to have 7 million residential broadband subscribers, up from 3.7 million in 2000, according to the Yankee Group. The high-speed DSL access or CM accesses are generally called broadband services. According to the Yankee Groups by January 2002 some 10.7 million of the US households have a broadband service or about 16% of all households online.

Dedicated Access

Large and medium businesses with high volume of traffic use dedicated, private lines to access the Internet. The ISP arranges for the dedicated T1/T3 line to run from the customer site to the ISP point of presence. T1 and T3 speeds are 1.54 million bit/s and 44 million bit/s respectively. In the end-to-end users experience of reliability and performance of a given Internet application depends on reliability and performance of a number of distinct networks, and their associated hardware/software, systems, and subsystems that make up an end-to-end Internet application. Furthermore, different operators often administer the Internet distinct networks. An end-to-end the Internet application therefore is impacted by a number of Autonomous Systems in the Internet.
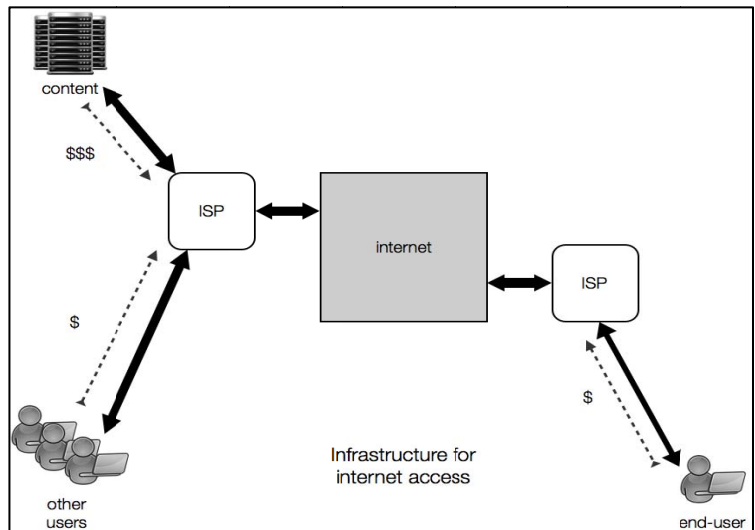

Fig. 2: Showing Infrastructure of the Internet Access

EMERGING INTERNET SERVICES

Recently information technology has changed its nature into much smarter and user friendliness. The advantages in Internet science provide so many new tools and technologies. Among these few importance are Instant messaging, VoIP, Internet forum, Online shopping, Internet telephony etc. However In most of the services VoIP, AoIP, MoIP are very much important. Internet telephony services provide offering modern digital communication services. Using various services protocol, such as session initiation protocol media gateway protocol, H323 protocol etc.

VoIP

VoIP stand for Voice over internet protocol is a kind of emerging Internet services, such as twitter, skype, whatsapp voice calling etc. VoIP normally allowed the dynamic connection between the users or two domains. VoIP normally carry the audio screen over IP network by the use of special media delivery as the voice ports, audio ports, video and audio ports. Today smart phone, Intelligent PC and other Internet devices using VoIP systems. It is a fact that due to several dis-advantages of packed switch telephony network (PSTN), the role of VoIP is emerging.
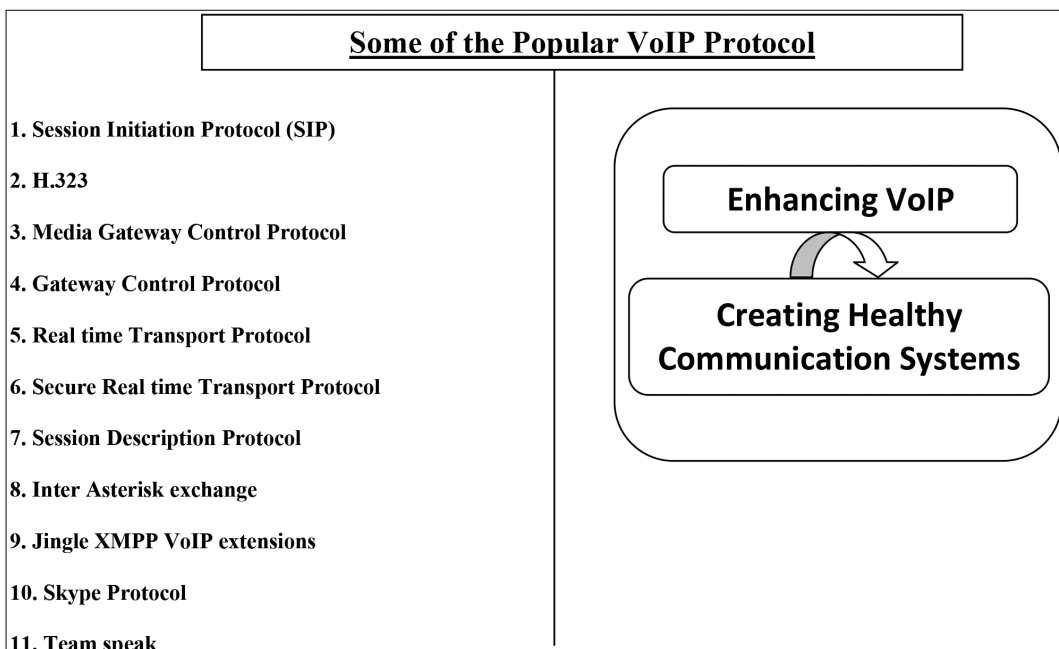
Fig. 3: Showing some of the popular VoIP Protocol

Internet Telephony

Internet telephony is a way of communications technology that allows voice calls and other telephony services, are fax, SMS and other voice messaging applications to be transmitted using the Internet as a connection media. Software under this technology is cost-effective because it allows the user to communicate as well as fax, voice and video calls anywhere in the world only required there is an Internet connection. In this way, users able to bypass the charges. The quality of this service is not as good as that of traditional circuit switched networks used in traditional telephone services because it is very dependent on the quality and speed of the Internet connection. Internet telephony is also called IP telephony an also known as broadband telephony. Even though Internet telephony and Voice over IP (VoIP) are used serially, they meant different things. Internet telephony that encompasses all use of Internet Protocols for voice and telephone like communications transmitted over the Internet which used by public. Voice over IP, on the other hand, is simply one Internet telephony technology. Internet telephony includes a wide range of communication involving various digital phone systems based on numerous IP addresses.

These were developed in order to increase productivity by taking advantage of the Internet and various applications attached to it.

Internet Forum

An Internet forum is on a website a discussion area. Website members can read and respond and discussions to posts by other forum members. A forum focused on nearly any subject and sense of an virtual community or online community, tends to develop among forum members. An Internet forum is an online discussion site, where forum members can hold conversations in the form of posted messages. They are differ from chat rooms in that messages are often longer than one line of text, and are at least of temporarily archived. Also, depends on the access level of a user or the forum set-up, a posted message need to be approved by a moderator before it becomes visible. Forums have a set of jargon associated with them. E.g. a single conversation is called a topic[5],[8]. A discussion forum is hierarchical in structure; a forum can be containing a number of sub forums, each of sub forums may have several topics. In a forum's topic, each of new discussion started is called a thread, and also be replied to by as many people as so wish. Depending the forum's settings, users can be having to register with the forum and then subsequently login in order to post messages. On many forums, users do not have to log in to read existing messages.

Online Shopping

Online shopping is a form of electronic-commerce, where are consumers to directly buy goods from a seller over the Internet using a browser and also shopping applications. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping application, which displays the same product's availability and pricing at different e-retailers. In 2016, customers can shop online using a range of different computers and devices, including Personal computers, laptops, tablet computers and smart phones. An online shop evokes the physical analogy of buying products or services at a regular shopping center; the process is called business-to-consumer (B2C) online shopping. When an online store is set up for enable businesses to buy from another business, these processes is called business to business (B2B) online shopping. A online store enables the customer to browse the firm's range of products and services, view images of the products, along with information about the product specifications, features and prices. Online customers must have access to the Internet and a valid method of payment in order to complete a transaction, such as a credit card, debit card, net banking or use of application wallet. There are many of shopping sites are available E.g. flipkart.com, snapdeal.com, ebay.com etc.

Instant Messaging

Instant messaging is a type of online chat that offers transmission real time text over the Internet. A LAN messenger operates in a same way over a local area network. Short messages are transmitted bi-directionally between two parties. Some of the Instant messaging applications can use to push technology to provide real-time text, which are transmits messages to character by character, as they are composites. More advanced instant messaging can add file transfer, clickable hyperlinks, video chat (VoIP). Non-IM types of chat include multicast transmission are usually referred to as chat rooms, where participants

might be previously known to each other. Instant messaging systems tend to facilitate connections between specified known. Depending on the Instant messaging protocol, the technical architecture can be direct point to point transmission or central server re-transmits messages from the sender to the communication device.

INDIA: INTERNET USERS, SPEED AND EMERGING SERVICES

In India is located in the southern parts of India and has popular of 120 crore+. But it is fact that India ranked #2 among the Internet users in the world. The Business standard mentions that the users of Internet will Cross 500 million in 2016. And here in below we saw the millions of users are using Internet by desktop, laptop, tablets and smart phones.

Year	Internet Users**	Penetration (% of Pop)	Total Population	Non-Users (Internetless)	1Y User Change	1Y User Change	Population Change
2016*	462,124,989	34.8 %	1,326,801,576	864,676,587	30.5 %	108,010,242	1.2 %
2015*	354,114,747	27 %	1,311,050,527	956,935,780	51.9 %	120,962,270	1.22 %
2014	233,152,478	18 %	1,295,291,543	1,062,139,065	20.7 %	39,948,148	1.23 %
2013	193,204,330	15.1 %	1,279,498,874	1,086,294,544	21.5 %	34,243,984	1.26 %
2012	158,960,346	12.6 %	1,263,589,639	1,104,629,293	26.5 %	33,342,533	1.29 %
2011	125,617,813	10.1 %	1,247,446,011	1,121,828,198	36.1 %	33,293,976	1.34 %
2010	92,323,838	7.5 %	1,230,984,504	1,138,660,666	48.5 %	30,157,710	1.38 %
2009	62,166,128	5.1 %	1,214,182,182	1,152,016,054	18.6 %	9,734,457	1.43 %
2008	52,431,671	4.4 %	1,197,070,109	1,144,638,438	12.5 %	5,834,088	1.47 %
2007	46,597,582	4 %	1,179,685,631	1,133,088,049	42.9 %	13,995,197	1.51 %
2006	32,602,386	2.8 %	1,162,088,305	1,129,485,919	19.3 %	5,275,016	1.55 %
2005	27,327,370	2.4 %	1,144,326,293	1,116,998,923	22.8 %	5,067,787	1.59 %

Fig. 4: Showing Indian Internet users from the last few years

CONCLUSION

Now In our daily life The Internet is most essential, for everything. The services of Internet provide by the Internet service providers. The popularization of the network, the online life is not just for those computer geeks. Also, the computer and network are widely used by people all over the world. The Internet can supply numerous information resources which is renewed and up to date, this is very for students. After all, times is advancing, science and technology is developing, it is necessary to refresh our own knowledge and adjust attitudes to keep pace with the times[7]. The network is a new communication tool after land lines and cell phones. At present, with emergence of new style web sites such as Facebook, MySpace and Twitter, and all other social networking even digital devices like IPAD, mobile phones, it is much easier than ever before to join a social networks or establish groups in a short time. No matter where you are, whether you are good at socializing or not, you can chat with other people on the using of Internet without the limitation of time and space. All those new communication relationship websites and chat tools such as MySpace, Facebook, MSN, Whatsapp, Hike and including the widely use of e-mail and

chatting on webcam provide new forms of communication. Based on the Internet which is developed, people can be in touch with friends anytime and anywhere without the traditional communication method face to face. The Result of the Uses of the Internet is front of us, and we all know that.

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