Research Journal of Computer and Information Technology Sciences _____ISSN 2320 – 6527
Vol. **5(9),** 6-7, November **(2017)** *Res. J. Computer and IT Sci.*

Short Communication

Experimental analysis of 3G data card service provided by BSNL and SMART BRO HSDPA USB Modem MF627 having internet service provided by Airtel

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Available online at: www.isca.in
Received 8th April 2017, revised 3rd November 2017, accepted 18th November 2017

Abstract

In this paper experimental valuation of the two services, 3G data service provided by BSNL and SMART BRO HSDPA usb modem MF627 is made. The experiment was carried out in Guru Ghasidas Vishwavidyalaya, Central University Bilaspur, Chhattisgarh, India. The results shows the excellence of the 3G services in terms of speed and consistency. The paper aims at finding of the differences in speeds and consistency of the services. The 3G services are although costly but are very efficient and effective when considered from the point of view of time and portability. We make several different observations on the two types of services and the devices. A brief overview of Mobile broadband service is made. A brief overview of wired communication is also made.

Keywords: 3G, HSDPA.

Introduction

We are moving towards an era where a person wants everything to be placed in his fingertips. Wireless technology is very efficient technology in this regard. The implementation of the desire of having everything in the fingertip has made human beings to look for possible technologies which does the task efficiently. Wireless technology removes the barriers of having wires for performing any electronic or electrical communication operation. The growth in wireless technology has enhanced the possibility of having efficient and effective communication.

3G stands for 3rd Generation mobile telecommunication. 3G technology is one of the latest wireless technologies introduced in India for having internet facility in the Computer System via portable device connected to the system. It may be considered as a technology meant to implement the concept of mobile broad band. 3G is a technology that enables a high degree of network portability at high cost. The limitations of wired connection are resolved to a higher extent in the 3G technology.

2G and 3G Technology

3G is a wireless telephone technology which satisfies the guidelines specified by International Telecommunication Union in IMT-2000. The speed offered by the 3G service is quite more when compared from previous 2G service. The cost of having 3G is currently more when compared from 2G service. In this paper we are making experimental valuation of speed provided by BSNL which is an Indian Government organization. India adopted the technology in the year 2008. However, the implementation of the technology took some more time in the country.

2G stands for second generation wireless telephone technology. The technology was launched in Finland on GSM standard. 2G came after 1G which stands for First Generation of wireless technology. Analog telecommunication standards were utilized in 1G technology whereas in the case of 2G the focus changed to digital telecommunication. When 2G technology is classified on the basis of multiplexing utilized there are two variants utilized TDMA and CDMA.

High speed downlink packet access (HSDPA)

HSDPA is basically an extension of the 3G communication protocol. It is associated with the HSPA family. The above protocol enables the networks based on Universal Mobile Telecommunication Systems to have higher data transfer rates.

Literature Survey

Tthe evaluation of the 3G technology is made by Karjaluoto H. Literature review on 3G technology is made by Karjaluoto H.[1]. Saugstraup D. et al.[2] reported the main purpose was to make an analysis of the standards and technologies which are going to be beneficial in the coming times. The conclusion drawn was that WCDMA technology will dominate the market in near future.

The challenges faced by the 3G technology are discussed by Rehman N.U. et al[3]. A brief overview on the 4G technology is made by Hwang J.S. et al[4]. The financial assessment of the fourth generation mobile technology is made by Bjorkdahl J.[5].

Figure-1: Pictures of the two devices used for this experiment.

Experiment

In this section we will see the experiments carried out in the Institute for analyzing the speeds provided by various service providers. Table-1 shows the time taken by the two systems having internet facility through different sources providing different time limits for downloading of same file downloaded from website www.songs.pk , the file size is 5.941 MB {Latest song Dhing Chika from Ready}. The entries in the table below prove that the BSNL leased line having subscription of 10MBPS downloads the file much faster than the wireless BSNL data card having 3G facilities. It is very clear from the finding that leased line facility is faster when compared with wireless facility. In the experiment carried out the operating systems used in both the cases is same also the hardware platform used in both the cases is same. Thus we can experimentally say that the speed of leased line is faster when compared from wireless facility.

Table-1: Time taken for downloading of same file using different services.

Type of the Service	Total Time Taken for Data Transfer	Operating System	System Configuration
BSNL Leased Line	0:39:10	Windows 7 Professional 32 bit	Intel (R) Core (TM) 2 Duo CPU E8400 @ 3.00 GHz RAM 2.00 GB
BSNL 3G Data Card	3:13:40	Windows 7 Professional 32 bit	Intel (R) Core (TM) 2 Duo CPU E8400 @ 3.00 GHz RAM 2.00 GB

The second table in this section will show the experiments carried out in the two devices to register and compare the speed of data transfer provided by the two technologies in the same area. The results registered in Table-2 are recorded from experiments carried out in GGV, Central University. The BSNL 3G data card that we have taken provides 3G service and can make use of facilities provided by BSNL. The SMART BRO device on the other hand is capable of taking on service of any service provider whether it is AIRTEL, BSNL, IDEA etc. In other words the SMART BRO device supports a number of service providers. In our experiment we took AIRTEL as our service provider. The speed variations are very less among the service providers whether it is AIRTEL, BSNL, IDEA or any other service provider.

Table-2: Receive rate and Transfer rate of BSNL 3G data card and SMART BRO device availing 2G facility.

Type of Service	Receive Rate (Average)	Transfer Rate (Average)	Operating System
BSNL 3G Data Card	34.2 KBPS	5.6 KBPS	WindowsXP
SMART BRO	31.14 KBPS	14.47 KBPS	WindowsXP

Conclusion

At last we made a conclusion that the 3G services offer high data transfer rate at high cost. The technology is having wide acceptability. The researchers are moving towards having more advanced technology. The SMART BRO device we used can be used with any service provider.

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