

# TELECOMMUNICATION THROUGH BROADBAND SERVICES OF BSNL: A BIRD'S EYE VIEW

**Dr Shilpi Verma**

Assistant Professor Deptt. of Library & information Science  
(School for Information Science & Technology)  
Babasaheb Bhimrao Ambedkar University  
(A Central University)  
Vidya Vihar, Rai-bareli Road  
Lucknow-226025 (UP)

**Abstract:** In the cut throat competition every country want to be information equipped, the telecommunication is helping a lot in achieving the same. Integrated communication is emerged as a boom in communication world. The growth of data, communication market and the networking technology trend has amplified the importance of telecommunication in the field of information communication. Telecommunication has become one of the very important part that is very essential to the socio-economic well being of any nation. The paper deals with concept of Broad band services of BSNL, technology options for broadband services. Bharat Sanchar Nigam Limited is providing broadband services across the country, so BSNL Broadband services are discussed in the paper for making us aware about broadband services . BSNL has set up National Internet Backbone (NIB) to provide world class infrastructure to broader customer. This is also highlighted in the paper. The DSL technology is also discussed for providing broadband services. The features of DSLAM (digital subscriber Line Access Multiplexer) are also discussed in the paper. The paper highlights the telecommunication technology mainly used in our country

**Keywords:** Telecommunication, BSNL, DSL

## Introduction

Today internet has transformed our life in a great manner. People rely on internet for their day to day services even. The market of internet is increasing and the demand for greater bandwidth and faster connection speeds have led to various technologies to be emerged. Broadband is one of them and used widely. The society is transforming from paper society to paperless society, In the situation

telecommunication technologies are playing very vital role. The consumers or users are demanding for faster and reliable bandwidth for purpose of e-commerce, videoconferencing, information retrieval and such other applications. Broadband seems as a answer to these questions. Broadband provides means of accessing technologies to bridge the customer & the service provider throughout the world. It basically provides high speed internet access, whereas the dial up connections was having their limitations and low speed. These broadband services allow the user to send or receive video or audio digital content and having real time features also. It is able to provide interactive services.

Broadband services are having always on data connection that has the capability of minimum download speed of 256 kbps to an individual from the point of presence (POP) of the service provider intending to provide Broadband services. It means Broadband has basic three important features embedded in it:

- Enhances communication system involving broadband technology
- Greater band-width
- High speed transmission of voice, video and data

## Concept of Broadband Services:

According to Original Bell system Definition

“A Broadband channel is a communication channel having a Bandwidth greater than a Voice-grade channel and therefore capable of higher speed data transmission”

It means Digital Subscriber Line (DSL) or cable modems or wireless networks providing web access, work at home & audio as well as video content at your doorstep.

### Technology options for broadband services:

Now-a-days telecom industry is undergoing an acute shortage of continuing explosion of the internet and the data markets. Demand is basically coming from three sources: small business houses, small offices, consumers, universities, banks and building demanding for installation of high speed wireless connections throughout their campuses.

Communication of data may be by Narrow band 2.4 kbps - 128 kbps, Broadband 256 kbps-8000 kbps or LAN 1000 kbps- 100 Mbps.

Various technology options are available for delivering the broadband services. The major technologies used for providing these broadband services:

Various access technologies are available for delivery of broadband services. The major technologies used by service providers are

**A. Wire Line Technology:** This technology uses various methods such as Digital Subscriber Lines, optical fibre, Cable TV Network and Power Line Communication.

**B. Wireless Technology:** This technology uses various methods such as Satellite Media, Terrestrial Wireless, 3G Mobile, Wi-Fi(Wireless Fidelity), WiMax, Free Space Optics

### Broadband Applications:

Broadband may be utilised for various purposes. Broadband may be utilised for personal use as it offers high speed Internet access as well as multimedia compatibility.

Government also uses broadband for providing public services. Now govt. is also providing services to community electronically. This is used for e-governance, e-education, tele-medicine etc.

Commercial groups also take facility of Broadband services. They utilise it for E-commerce, corporate internet and videoconferencing.

Another major use of Broadband is done for entertainment & video services. Broadcast TV, Video on demand, Interactive gaming, Music on demand and online radio is used with the help of Broadband services.

### BSNL:

Bharat Sanchar Nigam Limited is already in the process of commissioning of a world class, multi-gigabit, multiprotocol, convergent IP infrastructure through National Internet Backbone-II (NIB-II) that will provide convergent services through the same backbone and broadband access network.

The Broadband services are available on DSL Technology, on the same copper cable i.e. used for connecting telephone.

### Key Objectives:

- To provide high speed Internet connectivity
- To provide Virtual Private Network (VPN) service to the broadband customers
- To provide dial VPN service
- To provide multicast video service, video on demand etc. through the Broadband Remote Access server.
- To Provide a means to bill for the aforesaid services by either time-based or volume based billing. It shall provide the customer with the option to select the services through web server
- To provide both pre-paid and post paid broadband services

### Overview of NIB-II Project:

BSNL has planned to set up NIB-II to provide world class infrastructure to offer various value added services to a broader customer base country wide that will help in accelerate the internet revolution in India. Moreover the NIB-II will create a platform, which enables e-governance, e-banking and e-learning etc.

NIB-II has been grouped into the following three major projects:

**Project-I:** MPLS based IP Network infrastructure covering 71 cities along with associated NMS, PMS, Firewall and caching platforms.

**Project 2.1** access Gateway Platform using Dialup comprising of narrow band RAS

**Project 2.2** Access Gateway Platform comprising of Broadband RAS and DSL equipment

**Project 3:** Messaging and storage Platform and provisioning billing and customer care and Enterprise Management System.

### DSL:

Digital Subscriber Line (DSL) has proved to be an important technology for providing broadband services through the copper loop. The DSL is the next generation modem-like technology that allows for the transmission of voice, video and data over existing copper telephone lines at incredible megabit speeds.

DSL provides high-speed Internet Access using regular telephone lines. DSL provides dedicated bandwidth that can be up to 278 times faster than a 28.8 kbps modem, 143 times faster than 56 Kbps modem, 62 times faster than ISDN and up to 4 times faster than normal connection.

Typical DSL systems are:

- Asymmetrical Digital Subscriber Line (ADSL)
- Symmetrical Digital Subscriber Line (SDSL)
- High bit rate Digital Subscriber Line (HDSL)
- Very high speed Digital Subscriber Line (VDSL)

**Digital Subscriber Line Access Multiplexer (DSLAM):**

To enable DSL technology service provides the DSLAM located in their networks to interact with the Customer Premises Equipment (CPE) at the end user location. DSLAM is an integrated hardware and software system that allows the user to access broadband services as well as originate and terminate telephone calls over same single pair of copper wires.

**Customer Requirement for Broadband Use:**

These things are required:

- BSNL Phone
- Computer ( Min. Requirement 10/100 Mbps Ethernet card)
- DSL Modem and Splitter
- PPPoE software in the client
- Broadband Account (Username & Password)

## NIB-II Broadband DSL

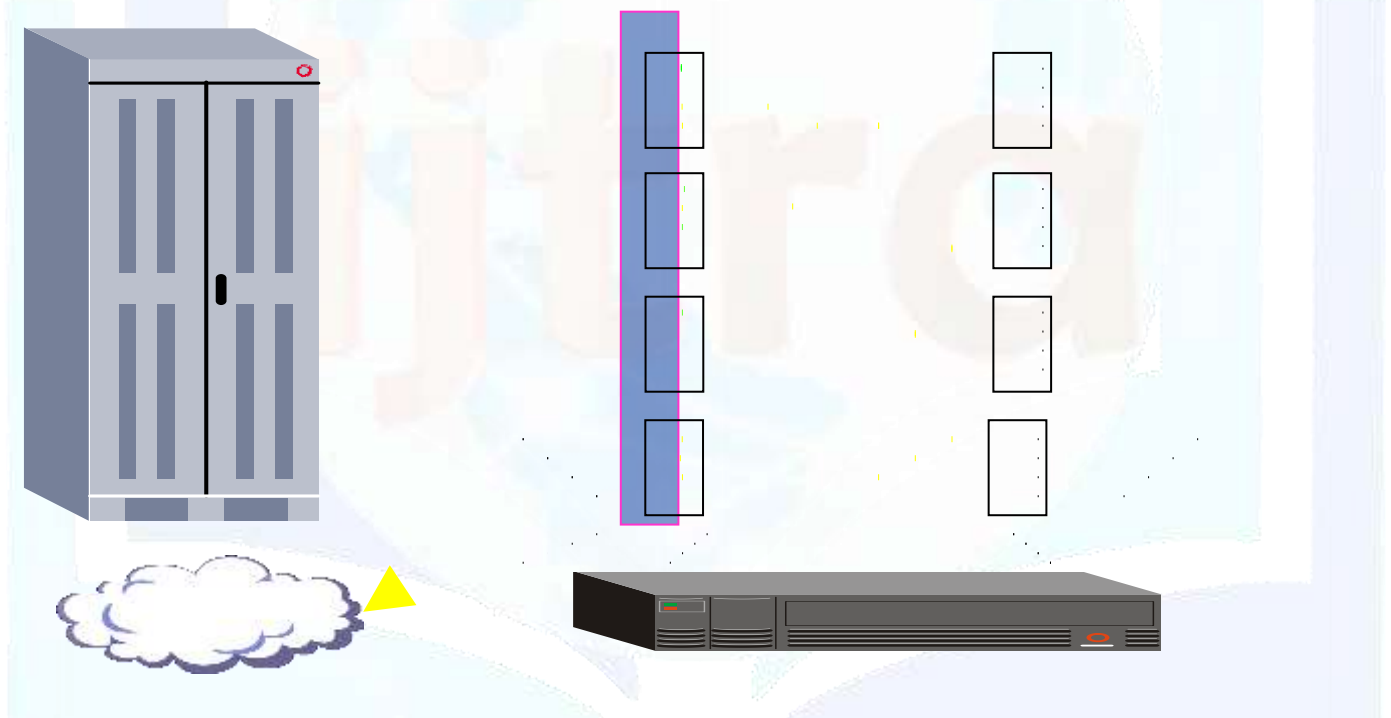


Figure1.NIB-II broadband DSL

**Features of DSLAM:**

- A DSLAM delivers high speed data over copper telephone lines
- DSLAM separates voice and data of the subscriber
- Routes and controls DSL traffic between the subscriber end user requirement and the network service provider's network

- DSLAMs is categories in 6 type based no. of ports (480, 240,120,64,48 & 24) provided on the basis of demand
- DSLAM provides access from 128 Kbps to 8Mbps
- DSLAM works satisfactorily without any degradation in performance and without using any repeater/regenerator over a distance from various access speeds.



Figure.2 Figure of DSLAM

**Implementation of DSLAM:**

Broadband connectivity is extended to these DSLAM through the core network via LAN switch. DSLAMs are generally aggregated through a Fast Ethernet or Gigabit Ethernet

Interface. DSLAMs are available with different types of access modules and capacities. The FX or GBIC module in DSLAM or LAN switch should be capable of driving up to 10 Km or a single mode fibre.

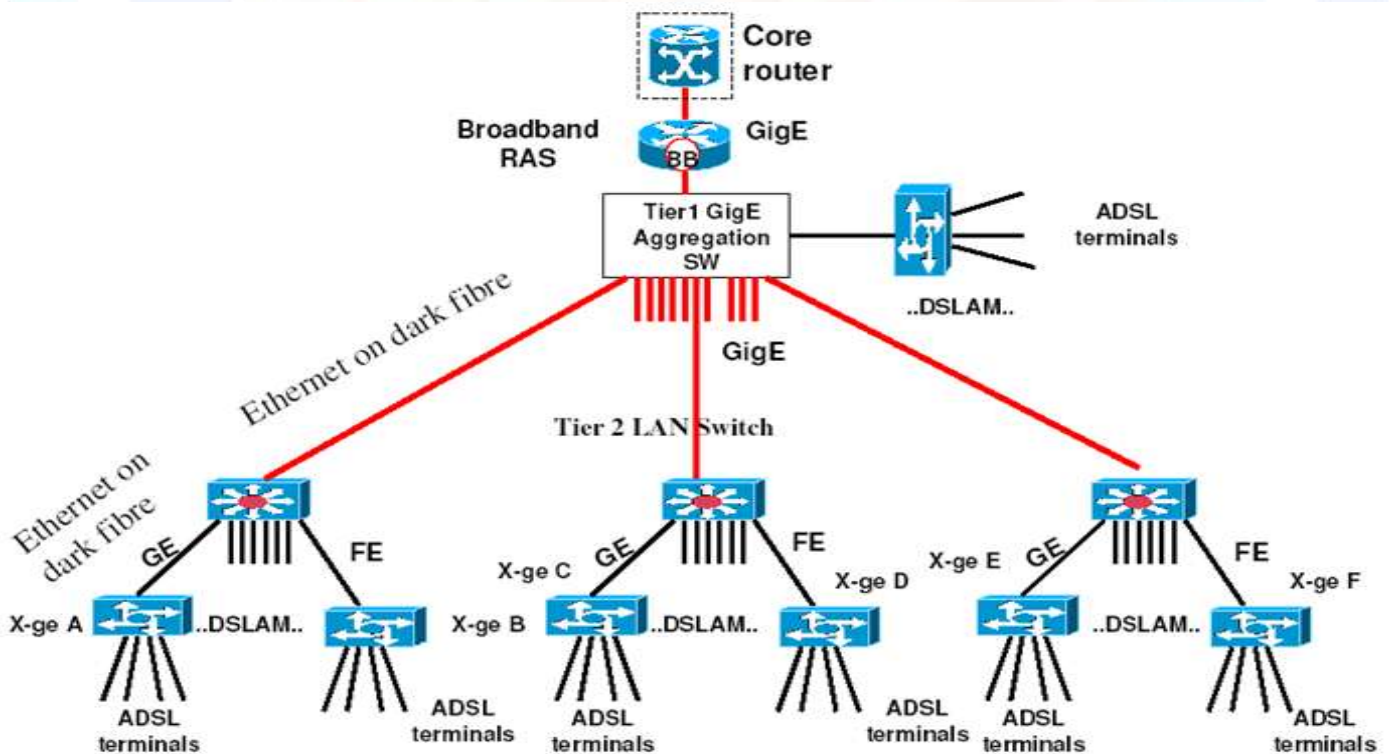


Figure.3 Implementation of Core router to ADSL

**Conclusion:**

In the last, we can say BSNL is providing always on service of Broadband to the various kinds of customers at very high speed. The technology used by BSNL is quiet uninterrupted and enjoyed by users of BSNL. Really the telecommunication has revolutionized the way of life for each individual.

**References:**

1. [www.bsnl.co.in](http://www.bsnl.co.in)
2. Broadband Vol-II, BRBRAITT:2000/2005 May Literature.
3. [www.alttc.bsnl.co.in](http://www.alttc.bsnl.co.in)

