Broadband Communication

More detail of some topics from:

1: Introduction to Broadband Communication Systems
(Matthew N. O. Sadiku)
2: Telecommunication Switching and Networks
(P.Gnanasivam) 2nd edtion
3: Introduction to Data Communications and Networking
(Wayne Tomasi)
4: Telecommunications Switching, Traffic and networking
(J.E Flood)
5: Internet & Other materials

Note: Calculations & Related Numerical details are attached on separate sheets

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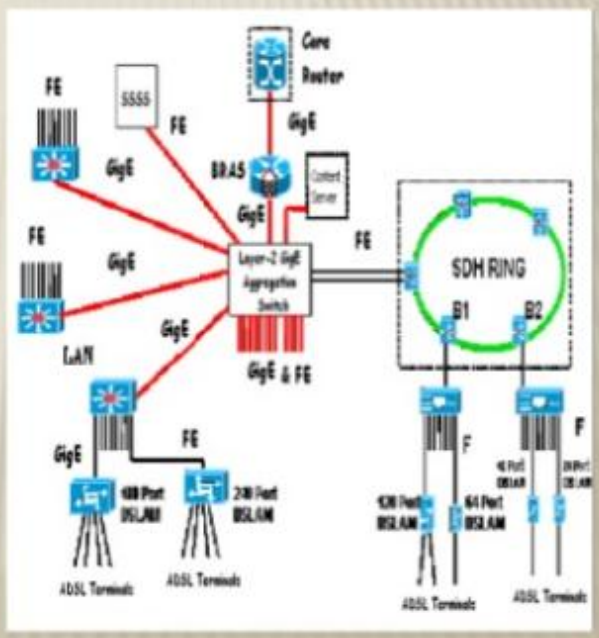
A BRIEF HISTORY OF BROADBAND

- The first broadband packages were introduced shortly after the millennium and soon after there were numerous companies trying to claim a piece of the market for themselves. As time passed by the broadband providers began to offer packages based on the varying needs of the consumer and they included fast broadband.

- Fibre optics paved the way for even faster broadband, enabling a connection speed of up to 50Mb. Today, the most common form of broadband is ADSL, which has become available even in remote areas of the country. More recently, broadband has developed further, with the advent of Wi-Fi, which enables the user to connect to the Internet without the need for wires.

WORKING PRINCIPLE

- Network for Providing Broadband Access
- Network built on Broadband RAS (BRAS), Tier-1 Switch, Tier-2 Switch and DSLAMs
- Provides Broadband internet access.
- Broadband RAS (BBRAS)
- Authentication authorization accounting(AAA)
- Tier-1 Switch co-located with and connected to BRAS
- Layer 2 Network below is aggregated by Tier-1 Switch
- Tier-2 Switches connecting to Tier-1 Switches in Star Fashion
- DSLAMs connect to Tier-2 Switch



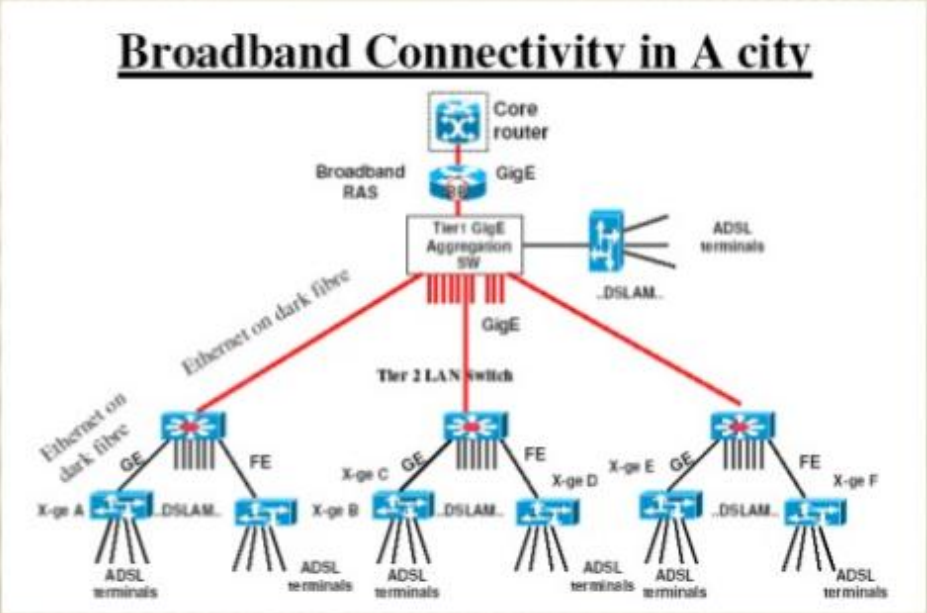
DIGITAL SUBSCRIBER LINE (DSL)

Digital Subscriber Line (DSL) is a broadband high-speed Internet technology that brings high-bandwidth information to home and offices over existing twisted-pair telephone line as the access media.

Following are some of the key features of DSL:

- Distance-sensitive technology
- Internet connection is always ON
- Simultaneous use of the phone line for voice as well as data traffic
- Internet Connection is highly reliable and secure
- High Speed (Mbps)

BLOCK DIAGRAM



ADVANTAGE

- Fast connection.
- The connection is always on, which means user can access internet.
- Information can be downloaded into the computer at significant high speeds than traditional modems.
- Users can go on without tying there phone lines.
- All computers within a building can surf using a wireless router.
- Uses same line phone but allows calls to be made at the same time.
- It provides security.

APPLICATION

- **Personal Services**
  - High Speed Internet Access
  - Multimedia
- **Governments Public services**
  - E-governance
  - E-education
  - Tele-medicine
- **Commercial services**
  - E-commerce
  - Corporate Internet
  - Videoconferencing
- **Video & Entertainment services**
  - Broadcast TV
  - Video on Demand
  - Interactive gaming
  - Music on Demand
  - Online Radio

FINANCIAL COST

- The price of Broadband in India is very high compared to Europe or other parts of Asia, with a 1 Mbit/s connection costing between US$20 and $30 per month. Because of this, broadband is yet to filter down to the masses, with a penetration rate of 8.03 million.
- In addition to the high prices, many providers have introduced a Fair Usage Policy on "Unlimited" plans, while data plans still have very low data transfer limits

PRESENT SCENARIO

- **Wireless LAN**: Widespread use has helped WLANs to mature as an access technology in short-to-medium distances.
- **Wireless technologies**: It can be categorized based on their coverage area.
- **Authentication and encryption**: Security is handled in the MAC layer.

EXTENSION OF INTERNET TECHNOLOGY

- **EVOLUTION OF DATA ONLY (EV**

  EVDO data service with internet surfing peak speed up to 3.1 Mbps.

- **WI-MAX :**

  WiMAX acronym meaning "Worldwide Interoperability for Microwave Access". It is an IP based Wireless Broadband Access Technology

WHAT IS BROADBAND ?

Broadband refers to high internet access. It allows to access the internet and internet related services at significant higher speeds than modems. It provides service more than 256 kbps to several mbps. There are many Different technologies both wired and wireless. Bsnl's Broadband works under the brand name "cellone".