Digital Subscriber Line (DSL)

(xDSL) A whole class of digital telecommunication technologies that can offer BROADBAND data rates, up to 50 megabits per second (Mbps), over the existing copper wires of the analogue public telephone system. Its aim is to maintain the high speed of the internet being transferred.

Benefits

- ✓ No Additional Wiring – A DSL connection makes use of your existing telephone wiring, so you will not have to pay for expensive upgrades to your phone system.
- ✓ Cost Effective – DSL internet is a very cost-effective method and is best in connectivity
- ✓ Availability of DSL modems by the service providers.
- ✓ User can use the both telephone line and internet at a same time. And it is because the voice is transferred on other frequency and digital signals are transferred on others.
- ✓ User can choose between different connection speeds and pricing from various providers.

DSL Internet service only works over a limited physical distance and remains unavailable in many areas where the local telephone infrastructure does not support DSL technology. The service is not available everywhere. The connection is faster for receiving data than it is for sending data over the Internet.

In simple terms, DSL technologies can be subdivided into two broad classes, Symmetric and Asymmetric.

1. Asymmetric DSL

Asymmetric types of DSL connections provide more network bandwidth for downloading from the internet service provider to the subscriber's computer than for uploading in the other direction. Asymmetric DSL technology is popular residential DSL service where home internet users predominately use downstream bandwidth. It supports telephone service and data transmission at the same time. It has downstream up to 8Mpbs.

Common forms of asymmetric DSL include the following:

- **ADSL 2+** is a newer version of ADSL that delivers download speeds of up to 20 Mbps and upload speeds of up to 850 Kbps.
- **ADSL Lite or G. Lite** is a version of ADSL that offers slower speeds of up to 1 Mbps downstream speed and 512 Kbps upload speed.
- **R-ADSL** (Rate-Adaptive Digital Subscriber Line) delivers the same transmission rates as ADSL, but the transmission speed can be adjusted by the modem.
- **VDSL** (Very High Bit-Rate Digital Subscriber Line) is the fastest DSL service. It offers downstream rates of up to 52 Mbps and upstream rates of up to 2.3 Mbps over a single copper wire.

2. Symmetric DSL

Symmetric types of DSL connections provide equal bandwidth for both uploads and downloads. Symmetric DSL technology is popular for business-class DSL services as companies often have greater needs for transferring data. It is also the technology of choice for simultaneous voice and video communications, which require a high speed in both directions for effective communications.

Forms of symmetric DSL include:

- **SDSL** (Symmetric Digital Subscriber Line) offers equal upstream and downstream transmission speeds of up to 1.54 Mbps.
- **SHDSL** (Symmetrical High-Speed Digital Subscriber Line) is the same technology as SDSL, but the two standards were approved separately. SHDSL was approved by the International Telecommunications Union, and SDSL was approved by the European Telecommunications Standards Institute.
- **HSDL** (High Bit-Rate Digital Subscriber Line) was developed in the early 1990s, making it one of the oldest forms of symmetric DSL. HDSL offered data rates up to 2.048 Mbps but required multiple phone lines, which eventually made it obsolete.