Digital subscriber line

DSL (for **Digital Subscriber Loop** or **Digital Subscriber Line**) is the base for a number of technologies used to transmit digital data over a telephone line. Telephone lines only transmit a limited spectrum of signals (roughly 20 Hertz to 20.000 Hertz, for voice). This means that the other frequencies can be used to transmit data. The data is multiplexed onto the telephone line. At both ends, a device called *Splitter* (or DSL filter) separates the data part and the telephony part. DSL provides the physical layer, the lowest layer of the OSI Model. ATM or Ethernet is used as data link layer, IP at the network layer.

DSL signals can also be used without a telephony line (or multiplexed onto something else, for example Cable TV). Multiplexing onto telephone lines is the most common scenario though.

At the end of the consumer, a DSL modem converts the signals to be able to travel on the phone line; at the other end, a DSLAM multiplexes the signals onto the internet backbone of the provider.

Typically, the download speed of consumer DSL services ranges from 256 kilobits per second (kbit/s) to 24,000 kbit/s, depending on DSL technology, line conditions and service level implemented. Typically, upload speed is lower than download speed for Asymmetric Digital Subscriber Line (ADSL) and equal to download speed for the rarer Symmetric Digital Subscriber Line (SDSL).