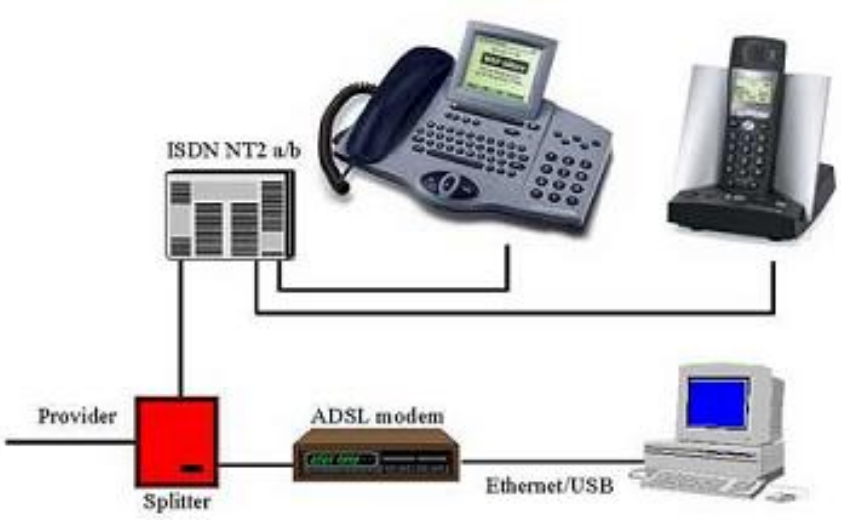
About xDSL technology

The dial-up dial-up connection has become too slow, with a theoretical speed of 56 kps but the reality is much lower. Currently, with ADSL technology, Net shops grow like mushrooms to serve the needs of information ... especially the communication and entertainment needs of young people.

The dial-up dial-up connection has become too slow, with a theoretical speed of 56 kps but the reality is much lower. Currently, with ADSL technology, Net shops grow like mushrooms to serve the needs of information . especially the communication and entertainment needs of young people.

Moreover, Internet service providers (ISPs) offer low-cost ADSL service packages that cater to different needs of people.So, what is ADSL?Is ADSL a branch in xDSL technology?



Alexander Graham Bell invented the phone in 1875, from which the phone has become an indispensable item in human life. The ongoing development of the telephone network has prompted aspiring telecom developers to make phone lines not only for voice communication but also for transmission of many other services. to serve the growing needs of people like TV, videoconferencing, Internet access . .

In the past, the telephone line could only transmit 1 3.4 kHz voice channel. Thanks to the application of digital processing technologies, loss compensation, noise reduction, etc., xDSL technology can transmit 100 digital voice channels or 1 high-quality video channel on a telephone line. DSL (*digital subscriber line*) is a technology that uses complex modulation methods, transforming data into packets for transmission on telephone lines.

The DSL digital modem in another way will transmit data between the two end points of the copper cable line.The signal will not go through the telephone switching system, and therefore does not interfere with the

voice signal.In fact, the voice band on copper cable is only 0 - 4 kHz, while DSL technology often uses frequencies above 100 kHz.

The big advantage of xDSL technology when it was born was the ability to transmit many different applications that had not been implemented before and take advantage of the available and widespread telephone network.A new technology is considered to be effective when taking advantage of available resources and infrastructure.

xDSL is classified as follows:

ISDN - Integrated Services Digital Network (Multi-service integrated network)

ISDN is considered the opening of xDSL.ISDN was born in 1976 with the ambition to unify data and voice communication.In ISDN, the basic communication speed (BRI-Basic Rate Interface) provides two channels of 64kbps (channel B) for voice or data and a channel of 16kbps (channel D) for control signaling information.The disadvantage of technology is that it only transmits voice services and low-speed packet switching.It is not suitable for high-speed packet switching and long-term occupation.This is the characteristic of the Internet today.Therefore, ISDN is not widely applied but only for families or small businesses.However, for ISDN users in the US (home of ISDN), it is hard to forget the benefits that ISDN offers when ISDN is the introduction technology for all types of integrated services.IDSL - ISDN digital subscriber line - is an xDSL technology based on ISDN, guaranteed 144Kbps speed on both B and D channels.

HDSL - high-bit-rate digital subscriber line

HDSL was born in the laboratory in 1986. Essentially, HSDL transceiver devices are the inheritance of ISDN but at a more complex level.HDSL is based on the US / European T1 / E1 standard.HDSL1 allows 1.544Mbps or 2.048Mbps transmission on 2 or 3 pairs of wires.HDSL2 was later released to allow 1 pair of wires to transmit symmetrical 1,544Mbps.HDSL2 was born with many ideas of ADSL.The advantage of HDSL is that this type of technology does not need repeater stations, ie a lower attenuation than other types on the transmission line.Therefore HDSL can transmit further and still ensure signal quality.HDSL is preferred due to the noise diagnosis characteristics (measuring SNR) and less crosstalk.HDSL is used by local operators (telephone companies) or provides high-speed lines between multiple buildings or workplaces together.

VDSL - very high-bit-rate digital subscriber line

VDSL is an xDSL technology that provides symmetrical transmission lines on a pair of copper wires.VDSL's download bit stream is the highest of all xDSL technologies, reaching 52Mbps, the upload line can reach 2.3 Mbps.VDSL usually only works well in short circuit networks.VDSL uses fiber optic cable to transmit mainly, and only uses copper cable at the end.

ADSL - Asymmetrical DSL

ADSL is a branch of xDSL technology.ADSL provides an asymmetric bandwidth on a pair of wires.The asymmetric term here refers to the imbalance in the download and upload streams.The download data stream has a greater bandwidth than the upload data bandwidth.ADSL was born in 1989 in the laboratory.ADSL1 provides 1.5 Mbps for download data and 16 kbps for uplink data, supports MPEG-1 standards.ADSL2 can provide bandwidth up to 3 Mbps for downlink and 16 kbps for uplink, supports 2 MPEG-1 streams.ADSL 3 can provide 6 Mbps for downlink and at least 64 kbps for uplink, supports MPEG-2 standard.The ADSL service that we often use today can theoretically provide 8 Mbps for downlink and 2 Mbps for uplink, but for many reasons from

ISPs, the quality of service using ADSL at our terminals often do not reach the original advertising.

RADSL (rate-adaptive digital subscriber line)

RADSL is a version of ADSL in which modems can check the connection at startup and respond at the fastest speed that the line can provide.RADSL is also known as ADSL with variable speed.