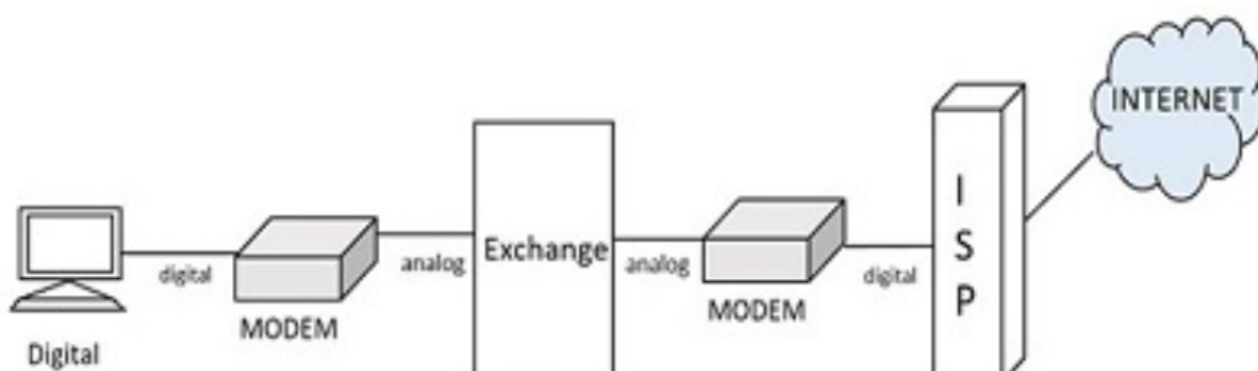


What is ISDN in the
Computer Network?

Integrated Services Digital Network is a telephone system network. It is a wide area network becoming widely available. Prior to the ISDN, the phone system was viewed as a way to transport voice, with some special services available for data. The key feature of the ISDN is that it integrates speech and data on the same lines, adding features that were not available in the classic telephone system.

The process of connecting a home computer to the Internet Service Provider used to take a lot of effort. The usage of the modulator-demodulator unit, simply called the MODEM was the essential thing to establish a connection. The following figure shows how the model worked in the past.

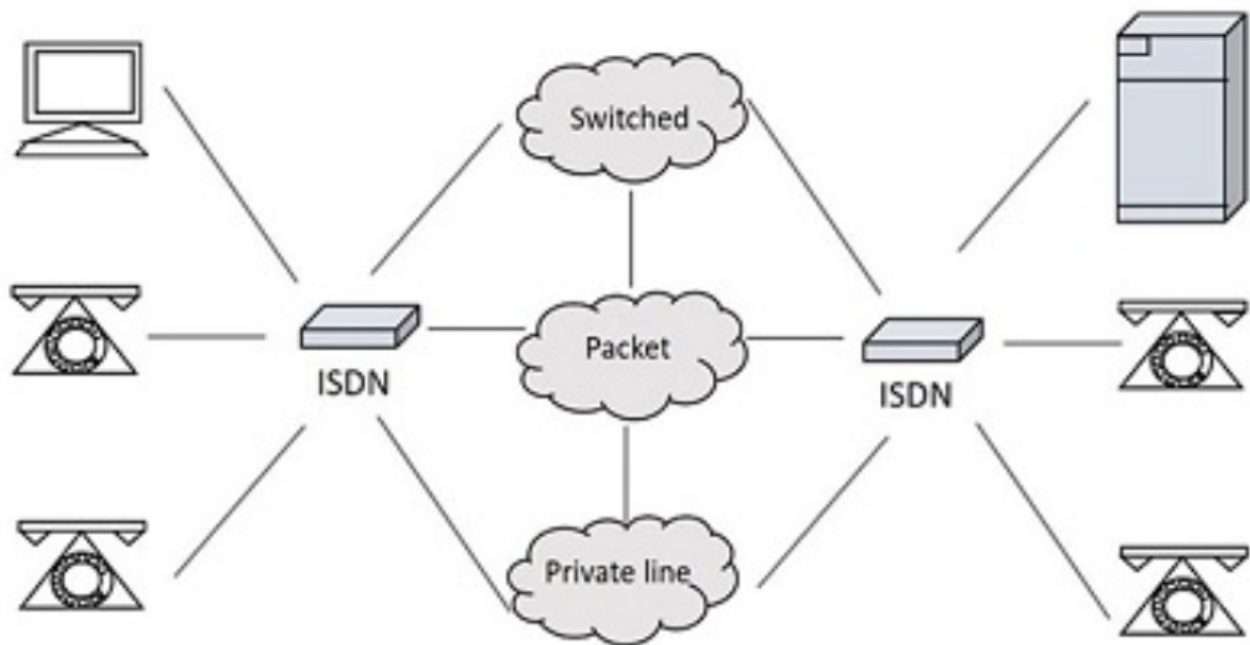


The above figure shows that the digital signals have to be converted into analog and analog signals to digital using modem during the whole path. What if the digital information at one end reaches to the other end in the same mode, without all these connections? It is this basic idea that lead to the development of **ISDN**.

As the system has to use the telephone cable through the telephone exchange for using the Internet, the usage of telephone for voice calls was not permitted. The introduction of ISDN has resolved this problem allowing the transmission of both voice and data simultaneously. This has many advanced features over the traditional PSTN, Public Switched Telephone Network.

ISDN is a circuit -switched telephone network system, that also provides access to packet switched networks, designed to allow digital transmission of voice and data over ordinary telephone copper wires,

The model of a practical ISDN is as shown below.



ISDN supports a variety of services. A few of them are listed below -

- ▣ Voice calls
- ▣ Facsimile
- ▣ Videotext
- ▣ Teletext
- ▣ Electronic Mail

Narrowband ISDN

The Narrowband Integrated Services Digital Network is called the **N-ISDN**. This can be understood as a telecommunication that carries voice information in a narrow band of frequencies. This is actually an attempt to digitize the analog voice information. This uses 64kbps circuit switching.

The narrowband ISDN is implemented to carry voice data, which uses lesser bandwidth, on a limited number of frequencies.

Broadband ISDN

The Broadband Integrated Services Digital Network is called the **B-ISDN**. This integrates the digital networking services and provides digital transmission over ordinary telephone wires, as well as over other media. The CCITT defined it as, “Qualifying a service or system requiring transmission channels capable of supporting rates greater than primary rates.”

The broadband ISDN speed is around 2 MBPS to 1 GBPS and the transmission is related to ATM, i.e., Asynchronous Transfer Mode. The broadband ISDN communication is usually made using the fiber optic cables.

As the speed is greater than 1.544 Mbps, the communications based on this are called **Broadband Communications**. The broadband services provide a continuous flow of information, which is distributed from a central source to an unlimited number of authorized receivers connected to the network. Though a user can access this flow of information, he cannot control it.

Advantages of ISDN

ISDN is a telephone network based infrastructure, which enables the transmission of both voice and data simultaneously. There are many advantages of ISDN such as –

- As the services are digital, there is less chance for errors.
- The connection is faster.
- The bandwidth is higher.
- Voice, data and video – all of these can be sent over a single ISDN line.