# ISDN

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## ABSTRACT

In our research paper we are going to focus on what is isdn its architecture, elements, uses and its applications.

## INTRODUCTION

It is a set of communication standards for simultaneous digital transmission of voice, video, data, and other network services over the traditional circuits of the public switched telephone network. Prior to ISDN, the telephone system was viewed as a way to transport voice, with some special services available for data. The key feature of ISDN is that it integrates speech and data on the same lines, adding features that were not available in the classic telephone system .

## ARCHITECTURE

It is defined to follow an evolutionary path. The wide range of telecommunication systems cannot be replaced by ISDN. It is a collection of few networks.

## ELEMENTS

Integrated services refers to ISDN's ability to deliver at minimum two continous connections, in any combination of data, voice, video, and fax, over a single line. Multiple devices can be attached to the line, and used as needed. That means an ISDN line can take care of most people's complete communications needs at a much higher transmission rate, without forcing the purchase of multiple analog phone lines. It also refers to integrated switching and transmission in that telephone switching and carrier wave transmission are integrated rather than separate as in earlier technology.

## APPLICATIONS

1. High speed image application
2. High speed data transfer
3. Good voice service
4. Used in video conferencing
5. Also provides additional telephone lines

## CHANNELS

1. Basic information channel
2. High speed channel
3. Signalling channel

## REFERENCE POINT

- R – defines the point between a non-ISDN terminal equipment 2 (TE2) device and a terminal adapter (TA) which provides translation to and from such a device
- S – defines the point between the ISDN terminal equipment 1 (TE1) or TA and a Network Termination Type 2 (NT2) device
- T – defines the point between the NT2 and network termination 1 (NT1) devices.

## CONFIGURATIONS

In ISDN, there are two types of channels, B (for "bearer") and D (for "data"). B channels are used for data (which may include voice), and D channels are intended for signaling and control (but can also be used for data).

There are two ISDN implementations. Basic Rate Interface (BRI), also called basic rate access (BRA) which consists of two B channels, each with bandwidth of 64kbit/s, and one D channel with a bandwidth of 16 kbit/s. Together these three channels can be designated as 2B+D. Primary Rate Interface (PRI), also called primary rate access (PRA) in Europe — contains a greater number of B channels and a D channel with a bandwidth of 64 kbit/s. The number of B channels for PRI varies according to the nation: in North America and Japan it is 23B+1D, with an aggregate bit rate of 1.544 Mbit/s (T1); in Europe, India and Australia it is 30B+1D, with an aggregate bit rate of 2.048 Mbit/s (E1).

This precludes use of the line for voice calls while the internet connection is in use. The B channels of several BRIs can be bonded, a typical use is a 384K videoconferencing channel.

Using bipolar with eight-zero substitution encoding technique, call data is transmitted over the data (B) channels, with the signaling (D) channels used for call setup and management. Once a call is set up, there is a simple 64 kbit/s synchronous bidirectional data channel (actually implemented as two simplex channels, one in each direction) between the end parties, lasting until the call is terminated. There can be as many calls as there are bearer channels, to the same or different end-points. Bearer channels may also be multiplexed into what may be considered single, higher-bandwidth channels via a process called B channel BONDING, or via use of Multi-Link PPP "bundling" or by using an H0, H11, or H12 channel on a PRI.