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ITU-T

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TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

INTEGRATED SERVICES DIGITAL NETWORK (ISDN) OVERALL NETWORK ASPECTS AND FUNCTIONS

ISDN CONNECTION TYPES

ITU-T Recommendation I.340

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation I.340 was published in Fascicle III.8 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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ISDN CONNECTION TYPES

(Malaga-Torremolinos, 1984; amended at Melbourne, 1988)

1 General

The ISDN may be described by a limited set of user-network interfaces (refer to Recommendation I.411) and a limited set of ISDN connection types to support the telecommunication services described in the I.200-Series of Recommendations. This Recommendation identifies and defines these connection types which are a description of the lower layer functions (refer to Recommendation I.310) of the ISDN network needed to support the basic services.

This Recommendation should be considered in conjunction with other Recommendations in the I-Series, with particular reference to Recommendations I.120, I.200-Series, I.310, I.320, I.324, I.411 and I.412. For definitions of terms used in this Recommendation, refer to Recommendation I.112.

2 Basic concept of ISDN connection types

2.1 Introduction

An ISDN provides a set of network capabilities which enable telecommunication services to be offered to a user (refer to I.200-Series Recommendations).

ISDN connection types are a description, using the attribute method of Recommendation I.140, of the basic low layer functions (BLLFs) of the ISDN. The set of possible values of attributes is given in § 3. It is possible to select combinations of attribute values which are either impractical or of little use; therefore, a set of agreed connection types is given in § 3.

An ISDN connection is a connection established between ISDN reference points (see Recommendations I.310, I.410 and I.411). All ISDN connections are made to support a request for an ISDN service and are time dependent and of finite duration. All ISDN connections will fall under the category of one or other of the connection types. It follows therefore that an ISDN connection type is a time dependent description and an ISDN connection is an instance of a type.

2.2 Purpose of international connection types

The definition of a set of ISDN connection types provides the necessary input to identify the network capabilities of ISDNs. Other key requirements of an ISDN are contained in other I-Series Recommendations, in particular in Recommendations I.310, I.410 and I.411.

In addition to describing network capabilities of an ISDN, the identification of ISDN connection types facilitates the specification of network-to-network interfaces. It will also assist in the allocation of network performance parameters.

It should be noted that the user specifies only the service required while the network allocates resources to set up a connection of the specific type as necessary to support the requested service. It is further noted that for certain services additional functions (e.g. additional lower layer functions and or higher layer functions) may be required as depicted in Figure 1/I.340. For examples of such cases, refer to Recommendation I.310.

2.3 Functions associated with ISDN connection types

Any ISDN connection type involves an association of functions to support telecommunication services. These functions are fully described in Recommendation I.310.

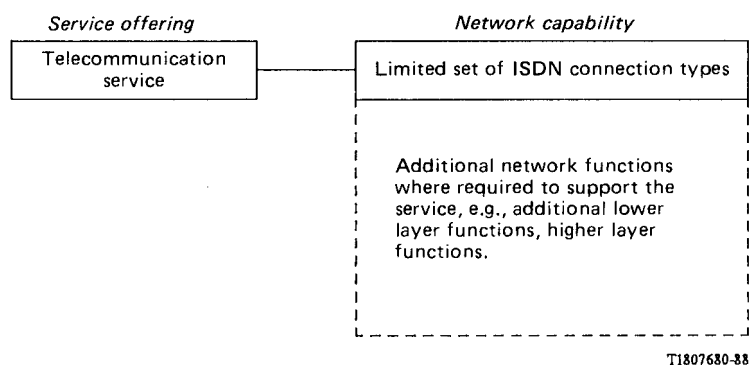


FIGURE 1/I.340

The role of network capabilities in supporting service offerings

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2.4 Applications of ISDN connection types

Four situations have been identified thus far to which ISDN connection types apply:

- between two ISDN user-network interfaces, i.e. between S/T reference points (refer to Figure 2a/I.340);
- (Note – There may be a need in certain cases to differentiate between the S and T reference points. This is for further study.)
- between an ISDN user-network interface and an interface to a specialized network resource (refer to Figure 2b/I.340));
 - between an ISDN user-network interface and a network-to-network interface (refer to Figure 2c/I.340);
 - between two ISDN-to-other network interfaces (refer to Figure 2d/I.340).

2.5 ISDN connection involving several networks

An ISDN connection may comprise a number of tandem network connections. Figure 3/I.340 shows an example in which each end network is an ISDN. The intermediate networks may or may not be ISDNs but they offer the appropriate network capabilities for the service supported by the (overall) ISDN connection. Other configurations are for further study.

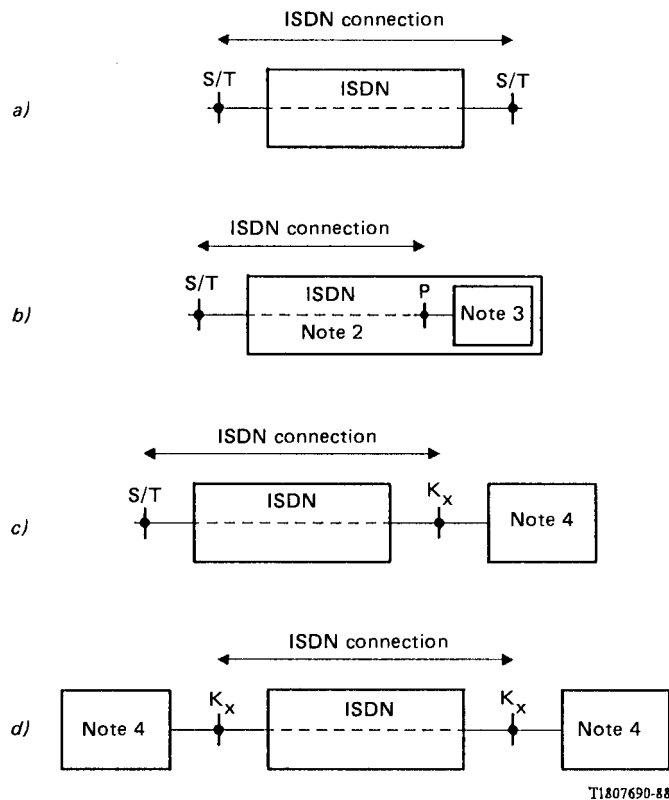
In (overall) ISDN connections involving several networks, each network provides a part of the connection and may be categorized by different attribute values. In such cases, the characterization of the performance for the overall ISDN connection is for further study.

3 ISDN connection types and their attributes

3.1 Attributes and their values

ISDN connection types are characterized by a set of attributes. Each attribute has a set of admissible values. The definitions of these attributes are given in Recommendation I.140. Table 1/I.340 of this Recommendation lists the set of attributes and their possible values for connection types and connection elements. The concept of connection elements is explained in detail in § 4.

Figure 4/I.340 shows an example of three different ISDN connections distinguished by differing values for the attribute “topology” in their ISDN connection types. Values for the other attributes of the connection type may be the same, e.g. speech.



Note 1 — The location of reference points used in this figure is defined in Recommendations I.324 and I.411.

Note 2 — This reference point becomes reference point M if the network specialized resource is outside the ISDN.

Note 3 — This box represents a specialized network resource. The use of a network specialized resource originates from a service request or is for internal administrative purposes. Some examples are:

- 1) a network node incorporating additional lower layer functions (ALLFs) and or higher layer functions (HLFs), (refer to Recommendation I.310);
- 2) a network provided database (which may also be used to fulfil network functions);
- 3) an operation or management centre.

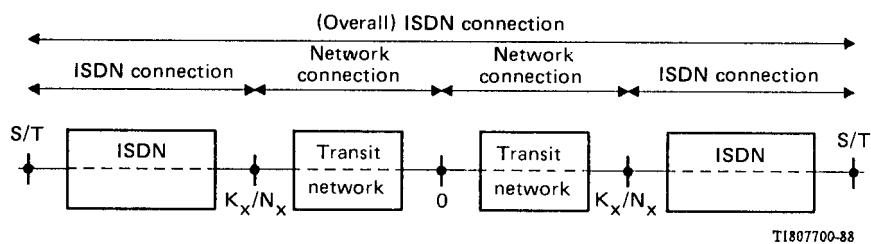
Note 4 — This box represents either an existing telephone network or a dedicated network.

FIGURE 2/I.340

Applications of ISDN connection types

The attributes which are associated with the ISDN connection types have a similarity to those used to define telecommunication services in Recommendations I.211 and I.212. However, the two sets of attributes differ in several important aspects. For example:

- a) ISDN connection types represent the technical capabilities of the network and are a means to ensure defined performance and interworking between networks. Telecommunication services supported by the ISDN are the packages offered to users and the definition of their attributes is the means to standardize the service offerings worldwide.
- b) Quality of service and commercial attributes are relevant to telecommunication services, whereas network performance, network operation and maintenance attributes are relevant to connection types.

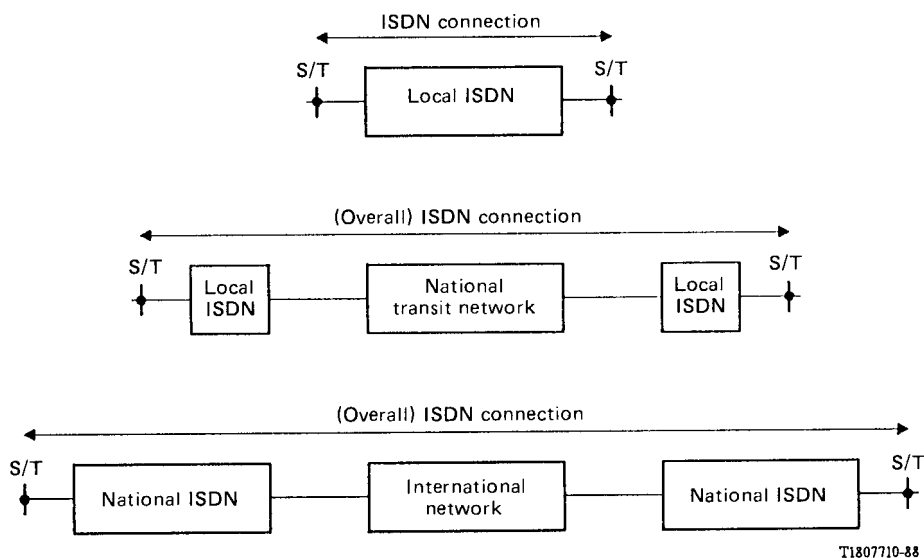


Note — Reference points are defined in Recommendation I.324 and I.411. Reference point 0 may or may not be an ISDN defined reference point.

FIGURE 3/I.340

Example of an ISDN connection involving several networks

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Note 1 — (Overall) ISDN connections involving several networks are covered in § 2.5.

Note 2 — The interface points between the national ISDNs and the international network need not necessarily be at the highest hierarchical level of the national ISDNs.

FIGURE 4/I.340

An example of three different ISDN connections distinguished by differing values for the attribute “topology” in their ISDN connection types

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3.2 Rules of association for the attribute values of connection elements and connection types

This section describes the relationship between the attribute values of connection elements and connection types (see Table 1/I.340). For each attribute the possible values recommended are listed. The definitions of the attributes and attribute values are contained in Recommendation I.140. In addition to the (possible) attribute values applicable to the connection elements, an association law is given (where appropriate) for each attribute to show how the value of the attribute for the overall connection type is obtained from the values of the attribute applicable to the connection elements.