traffic allowed in terms of bit rate or bandwidth) and should not be interpreted as cost evaluation.

3.4Reference configuration for packet-mode

For further study.

3.5Reference configuration for HLF

For further study.

3.6Reference configuration for ALLF

For further study.

3.7Reference configuration for Public Land Mobile Telecommunication services

Reference configuration for Public Land Mobile Telecommunication Systems can be found in Recommendation D.93.

- International transit connection element.

The minimum relative resource requirements for international transit connection elements are described in Table 1/I.326 below:

TABLE 1/I.326

Service request	Possible resources for an international transit connection element	Relative resource requirement (see Note 4)
1) 64 kbit/s unrestricted	64 kbit/s	1
2) Speech	64 kbit/s, DSI/LRE gain 5:1 (see Note 1) A/μ, echo control (see Note 2)	as low as 0.2
3) 3.1 kHz Audio	64 kbit/s, LRE gain 2:1 (see Note 3) A/μ, echo control (see Note 2)	as low as 0.5

Note 1 - State-of-the-art voice processing technology is capable of achieving a circuit gain of up to 5:1 on speech calls by using a combination of digital speech interpolation (DSI) and low rate encoding (LRE) at 32 kbit/s. Even higher gains are conceivable in the future with advances in LRE technology.

Note 2 - The need for echo control in end-to-end ISDN connections is under study.

Note 3 - ISDN services when used to support voice-band data via modems cannot benefit from DSI gains.

Note 4 - The values mentioned in the third column represent relative resource requirements (i.e.

2.2Information transfer on network resource usage

Information on ISDN network resources utilized and that of any interworked networks needs to be gathered for charging or for accounting purposes and conveyed to possibly several points within the network(s). Much of this information is likely to be derived from data carried on signalling network (e.g. information associated with set-up, clear down, and/or change of status of connections). It may be passed in batch-mode between administrations or may be conveyed in real-time.

3.Reference configuration for charging

3.1Development

Recommendation I.340 and other relevant Recommendations: I.310, I.324, I.325; are considered as the starting point for the development of reference configuration for relative cost evaluation.

ISDN resources would be represented by network functions as, for example:

- transmission functions (local, transit) using different techniques (digital, analogue, speech interpolation ...);

- switching functions (local, transit) for circuit-mode, packet-mode;

- interworking functions;

- high layer functions.

3.2Situations

Reference configurations should include a description of the various situations encountered in international interconnections. This description should include the originating country, the boundary, the destination country, interworking unit location, international transit.

3.3Reference configuration for circuit-mode

The reference configuration for circuit-mode ISDN connection types is made of three connection elements:

- Access connection element;

- National transit connection element;

2.4 Recommendation I.326

REFERENCE CONFIGURATIONS FOR RELATIVE NETWORK RESOURCE REQUIREMENTS

1. General

The purpose of this Recommendation is to evaluate the relative network resource requirements associated with the provision of ISDN telecommunication services to subscribers as they are defined in the I.200-Series.

The evaluation of relative network resource requirements and the definition of reference configuration is the first step in cost evaluation for ISDN services. Such cost evaluation is not covered in this Recommendation.

2. Relative resource requirements

2.1 Relation with service provision

For each service requested by a user the network has to provide network resources. These network resources involve switching, signalling and transmission capabilities. The selection of the appropriate network resource is part of the routing function.

The combination of permissible network resources is described by the logical concept of ISDN connection types. The list of agreed ISDN connection types can be found in I.340.

The network resources described by an ISDN connection type are:

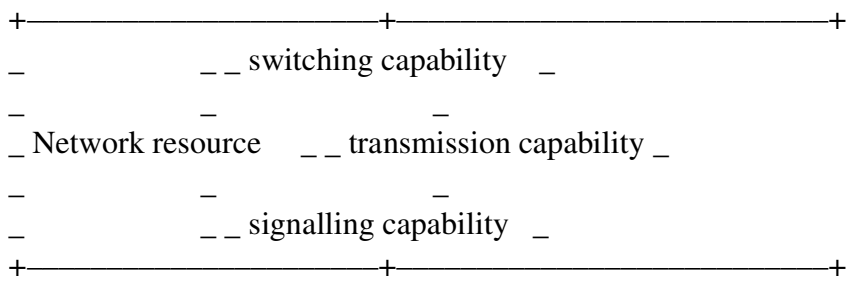

FIGURE 1/I.326

Network resource components

The network resource has an overall scope and may imply several sub-networks, each having to provide an appropriate part of the overall network resource.