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INTEGRATED SERVICES DIGITAL NETWORK (ISDN) GENERAL STRUCTURE

ATTRIBUTE TECHNIQUE FOR THE CHARACTERIZATION OF TELECOMMUNICATION SERVICES SUPPORTED BY AN ISDN AND NETWORK CAPABILITIES OF AN ISDN

ITU-T Recommendation I.140

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation I.140 was revised by the ITU-T Study Group XVIII (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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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Recommendation I.140

ATTRIBUTE TECHNIQUE FOR THE CHARACTERIZATION OF TELECOMMUNICATION SERVICES SUPPORTED BY AN ISDN AND NETWORK CAPABILITIES OF AN ISDN

(Melbourne, 1988; revised Helsinki, 1993)

1 Scope

The purpose of this Recommendation is to introduce the attribute technique and to describe attributes and list attribute values. Attributes are used in the characterization of services and network capabilities provided by an ISDN. The attribute technique can also be used to describe the salient features of other objects of study in telecommunications, e.g. charging.

This Recommendation (in the general I.100-Series) will act as a library of all attributes and attribute values used in other I-Series Recommendations. The inclusion of a particular attribute value in this Recommendation does not mean that this particular object is being recommended by CCITT, but that it is a potential attribute (or attribute value) which may be used in a particular Recommendation in the I-Series (e.g. to describe a CCITT-recommended service).

Annex A includes all attributes and their values so far identified and defined.

2 Attribute technique

2.1 Outline of the technique

This technique is used to describe objects in a structured, simple manner and to highlight the important aspects of the object. In order to be able to identify comparable objects, e.g. bearer services, the general concept of the object is broken down in a number of salient features. The salient features are termed attributes. Each attribute is independent of the others so that a change in the value of one will not affect the others. To describe a particular object the attributes are assigned values which identify that object.

Multimedia services are characterized by service dependent attributes (service attributes) describing the means of communication offered by interactive or distribution services and by service components describing the characteristics of the information to be transferred (e.g. audio, video, data).

It is not always necessary or useful to describe an object in great detail and so attributes have been graded into three levels:

- dominant attributes: these define a sub-set containing similar objects, this sub-set is termed a class or category;
- secondary attributes: these define a particular object; and
- qualifying attributes: these define variants of an object.

Characterization of attributes should be made in the I-Series of Recommendations when appropriate.

2.2 Basic rules

- Each attribute is assigned a name and definition.
- Some attributes may apply to only one object, others may be applicable to several objects. In this case the same attribute name is used.
- A given value should have the same name and definition in all Recommendations.
- Depending on the nature of the object described, a particular attribute may need to be used more than once.
- Each attribute should be described by three perspectives: generic, service and network.

- The service attributes and their values are valid for all communication relations of the service including all types of information supported by the service.
- The service component attributes and their values are associated to a specific type of information described by the service component. Several services may support the same service component.

2.3 Attribute lists

2.3.1 Generic attributes

Information transfer mode

Information transfer rate

Information transfer capability

Establishment

Symmetry

Configuration

Structure

Channel (rate)

Control protocol

Information transfer protocol

Performance

Interworking

Operations

Type of user information

High layer protocol

NOTE – This list will be completed according to further results on studies of connectionless, multimedia, broadband and mobile services.

2.3.2 Service attributes

2.3.2.1 Bearer services

2.3.2.1.1 Service attributes for 64 kbit/s-ISDN bearer services

- 1) Information transfer mode
- 2) Information transfer rate¹⁾
- 3) Information transfer capability
- 4) Structure
- 5) Establishment of communication
- 6) Symmetry
- 7) Communication configuration
- 8) Access channel and rate
- 9) Access protocol
 - 9.1) Signalling access protocol layer 1
 - 9.2) Signalling access protocol layer 2
 - 9.3) Signalling access protocol layer 3
 - 9.4) Information access protocol layer¹²⁾

¹⁾ Service information transfer rate considered at the access point.

²⁾ Information access protocol (layer 1 to 3) at the access point.

- 9.5) Information access protocol layer 2²⁾
- 9.6) Information access protocol layer 3²⁾
- 10) Supplementary services provided
- 11) Quality of Service
- 12) Interworking capabilities
- 13) Operational and commercial aspects

2.3.2.1.2 Service attributes for broadband ISDN monomedia and multimedia bearer services

- 1) Information transfer mode
 - 1.1) Connection mode
 - 1.2) Traffic type of virtual channels or virtual path³⁾
 - 1.3) Timing end-to-end of virtual channels or virtual path³⁾
 - 1.4) VCI transparency (for virtual path services)
- 2) Information transfer rate: Peak bit rate, mean bit rate for virtual channels or virtual path³⁾
- 3) Information transfer capability of virtual channels or virtual path³⁾
- 4) Structure of virtual channels or virtual path³⁾
- 5) Establishment of communication
- 6) Symmetry of virtual channels or virtual path³⁾
- 7) Communication configuration
- 8) Access channels and rates
 - 8.1) For user information
 - 8.1.1) Number of channels
 - 8.1.2) Type of channels
 - 8.2) For signalling
- 9) Access protocols
 - 9.1) Signalling access protocol – Physical layer
 - 9.2) Signalling access protocol – ATM layer
 - 9.3) Signalling access protocol – ATM adaptation layer (AAL)
 - 9.4) Signalling access protocol – Layer 3 (above AAL)
 - 9.5) Information access protocol – Physical layer
 - 9.6) Information access protocol – ATM layer
 - 9.7) Information access protocol – ATM adaptation layer (AAL) for virtual channels or virtual path³⁾
 - 9.8) Information access protocol – Layers above AAL for virtual channels or virtual path³⁾
- 10) Supplementary services provided
- 11) Quality of Service of virtual channels or virtual path³⁾ (sub-attributes are for further study)
- 12) Interworking capabilities
- 13) Operational and commercial aspects

2.3.2.2 Teleservices

2.3.2.2.1 Service attributes for 64 kbit/s-ISDN teleservices

1, 2, 3, 4, 5, 6, 7, 8, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6: refer to 2.3.2.1.

³⁾ Virtual path for virtual path bearer services; for further study.