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SERIES D: GENERAL TARIFF PRINCIPLES

General tariff principles – Charging and accounting principles for international telecommunication services provided over the ISDN

Charging and accounting principles to be applied to frame relay data transmission service

ITU-T Recommendation D.225

Superseded by a more recent version

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION D.225

CHARGING AND ACCOUNTING PRINCIPLES TO BE APPLIED TO FRAME RELAY DATA TRANSMISSION SERVICE

Source

ITU-T Recommendation D.225 was prepared by ITU-T Study Group 3 (1993-1996) and was approved by the WTSC (Geneva, October 9 - 18, 1996).

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. 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, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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 D.225

CHARGING AND ACCOUNTING PRINCIPLES TO BE APPLIED TO FRAME RELAY DATA TRANSMISSION SERVICE

(Geneva, 1996)

Preamble

This Recommendation sets out the general principles for charging and accounting for the provision of Frame Relay Data Transmission Service (FRDTS) via dedicated circuits (permanent virtual circuits). This service is defined in Recommendation X.36. The frame relaying bearer service in the ISDN (including frame relaying multicast service) is described in Recommendation I.233.1. (Frame relay data transmission service provided by switched virtual circuit connections is for further study.)

1 General

FRDTS provides bi-directional transfer of data frames between Data Terminal Equipment/Data Circuit-terminating Equipment (DTE/DCE) interfaces with content transparency, error detection, and preservation of the order of transmitted frames. FRDTS does not provide procedures for error notification, error recovery, nor re-transmission of lost frames. These are functions of the DTE.

Data is transferred at a Committed Information Rate (CIR) which the network is committed to transfer under normal conditions. The CIR is selected from a set supported by the network for an agreed period of time. In addition, customers may send data at times at selected rates above the CIR, which the network will endeavour to deliver, but with the possibility of a lower probability of delivery.

Loss of frames can result not only from transmission errors but also from congestion within the network. The FRDTS notifies the sending DTE when there is network congestion or failure, so that the DTE may take appropriate action to reduce or stop the transmission of frames.

In addition to the Recommendations mentioned in the Preamble, information on the FRDTS may also be found in Recommendations I.370 and Q.933.

2 Charging

2.1 Network access charges

Network access charges are a national matter; however, the network charging options provided in 2.2 may also be applied to network access.

2.2 Network charges

The following charging options may be applied to the FRDTS. In addition, a non-recurring charge may be applied for the initial establishment of the service.

2.2.1 Flat rate option

Since this option treats the permanent virtual circuit in a manner similar to a leased circuit (i.e. independent of usage), the charges would be established consistent with other non-usage sensitive permanent virtual circuit applications, and would relate to the capabilities of the facilities provided (reserved), and the charging interval (i.e. the period that the facilities are reserved, for

example, on a monthly basis). Administrations would each charge their customers for the portion of the permanent virtual circuit which they provide.

2.2.2 Reservation and usage option

Under this option charges are applied to both the reservation of network capabilities (as in the flat rate option) and the traffic usage. The traffic usage component would be based upon a specified charging unit (see 2.2.4). It may be appropriate to establish a different charge (than that applied to units transferred below the CIR, if applicable) for charging units which are transferred above the committed information rate.

2.2.3 Usage option

Under this option, charges are only applied to traffic usage, using the specified charging unit (see 2.2.4), without charging for the reservation of network capabilities. It may be appropriate to establish a different charge (than that applied to units transferred below the CIR) for charging units which are transferred above the committed information rate.

2.2.4 Usage charging unit

Due to the variable size of frames, charging for frames transmitted to the network may not be appropriate for international application. Usage charging units of thousands or millions of octets are therefore recommended for international applications (for further study).

3 Accounting

The following accounting options are applicable to the FRDTS:

3.1 Network access

Accounting is not applicable for network access since this is a national matter.

3.2 Flat rate option

Since Administrations charge their customers for the portion of the permanent virtual circuit that they provide, no international accounting is required under this option.

3.3 Reservation and usage option

This option has two components: reservation and traffic usage. Since each involved Administration charges their customer for the reservation of the portion of the permanent virtual circuit that they provide, no international accounting is required for this component. For the traffic usage component, Administrations should agree as to the usage accounting unit (see 3.5) to be used, and the accounting rate to be applied for the carriage of usage accounting units. In addition, Administrations may agree to apply a different accounting rate (than that applied to units transferred below the CIR) for usage accounting units which are transferred above the committed information rate.

3.4 Usage option

Administrations should agree as to the usage accounting unit to be used, and the accounting rate to be applied for their carriage. In addition, Administrations may agree to apply a different accounting rate (than that applied to units transferred below the CIR) to usage accounting units which are transferred at a rate above the committed information rate.

3.5 Usage accounting unit

Ideally, the usage accounting unit would be the same as the usage charging unit, although Administrations may agree to a different usage accounting unit, where appropriate.

4 Other options

Charging and accounting options for other service applications in the FRDTS are for further study.

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