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SERIES X: DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS

Public data networks – Network aspects

Performance objectives and quality of service classes applicable to frame relay

ITU-T Recommendation X.146

(Formerly CCITT Recommendation)

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ITU-T Recommendation X.146

Performance objectives and quality of service classes applicable to frame relay

Summary

This Recommendation defines the reference model, national/international apportion model, frame relay service classes and their associated delay and loss objectives, applicable to networks providing frame relay PVC or SVC service and supporting frame relay service classes.

Source

ITU-T Recommendation X.146 was revised by ITU-T Study Group 7 (1997-2000) and approved by the World Telecommunication Standardization Assembly (Montreal, September 27 – October 6 2000).

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

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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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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ITU-T Recommendation X.146

Performance objectives and quality of service classes applicable to frame relay

1 Scope

The purpose of this Recommendation is to define frame relay service classes with their associated delay and loss parameters, together with allocations to national and international portions applicable to international frame relay services in accordance with ITU-T Recommendations identified herein. This Recommendation defines frame relay service classes that may be used to describe the information transfer phase of data networks when providing international frame relay service (either permanent virtual connection service or switched virtual connection service). Two frame relay performance parameters of ITU-T X.144 – frame transfer delay and committed frame loss ratio – are used to characterize the various frame relay service classes. This Recommendation applies only to those networks supporting the service class options of X.36 and X.76. Signalling and service class interworking issues are covered in ITU-T X.36 and X.76.

The 3×3 performance matrix defined in ITU-T X.134 (see Figure 1) is used as a guide to identify the applicability of this Recommendation. As mentioned above, this Recommendation applies to the information transfer phase of a frame relay virtual connection.

The parameters defined in this Recommendation may be allocated to specify the performance of end-to-end frame relay connections or connection portions as specified in ITU-T X.144.

The frame relay service classes defined in this Recommendation describe specific design objectives for the information transfer phase of the national and international portions of an international virtual connection. In the context of this Recommendation, the term "service class" is equivalent to the terms "quality of service class" or "QoS class" as used in ITU-T I.356.

NOTE 1 – The service classes defined in this Recommendation may be augmented or modified based upon further study of the requirements of frame relay to be supported on networks.

NOTE 2 – The defined service classes are intended to characterize frame relay connections in the available state.

This Recommendation is organized as follows:

- clause 2 presents references;
- clause 3 presents abbreviations;
- clause 4 reviews the performance model of ITU-T X.144 and its national and international portions that provide the basis for the allocations given in clause 5;
- clause 5 defines frame relay service classes applicable to the user information transfer phase of a frame relay virtual connection, based primarily on the two performance parameters of frame transfer delay (FTD) and committed frame loss ratio (FLR_c);
- clause 6 defines allocations of the service classes defined in clause 5 to the national and international portions described in clause 4.