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NETWORK

Overall network aspects and functions – Performance
objectives

B-ISDN semi-permanent connection availability

ITU-T Recommendation I.357

(Formerly CCITT Recommendation)

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B-ISDN semi-permanent connection availability

Summary

This Recommendation defines network performance parameters, objectives and measurement methods for describing B-ISDN ATM semi-permanent connection availability. The specified parameters and objectives apply to international ATM semi-permanent connection portions delimited by measurement points: National Portions, International Transit Portions and International Interoperator Portions. The objectives, which are worst-case values, are intended to assist providers in network planning by limiting the aggregate effect of network impairments, including congestion, equipment failures and transmission errors. Guidance on determining expected end-to-end performance is provided in Annex C.

A two-state availability model is defined along with criteria for entry into and exit from the unavailable state. An estimation procedure is also defined, providing a means of estimating availability performance using sampling techniques.

Source

ITU-T Recommendation I.357 was revised by ITU-T Study Group 13 (2001-2004) and approved under the WTSA Resolution 1 procedure on 24 November 2000.

Keywords

ATM semi-permanent connection portion, availability, availability objectives, availability performance, availability ratio, mean time between outages, severely errored second on the ATM layer, unavailability ratio.

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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ITU-T Recommendation I.357

B-ISDN semi-permanent connection availability

1 Introduction

1.1 Purpose

The purpose of this Recommendation is to define network performance parameters, worst-case objectives and measurement methods for describing B-ISDN ATM semi-permanent connection availability. The specified parameters and objectives apply to ATM semi-permanent connection portions delimited by measurement points (MPT or MPI) as defined in ITU-T I.356: National Portions, International Transit Portions and International Interoperator Portions.

An international B-ISDN ATM semi-permanent connection consists of two national portions, each delimited by a MPT and MPI, and one international portion delimited by two MPIs. The international portion may also be subdivided into a number of connection portions delimited by MPIs. Using this Recommendation, worst-case performance objectives can be derived for the national portions and the international portion of an international B-ISDN ATM semi-permanent connection. Methods for estimating end-to-end availability performance are also provided.

The worst-case objectives specified in this Recommendation are intended to assist providers in network planning by limiting the aggregate effect of network impairments, including congestion, equipment failures and transmission errors, on B-ISDN ATM semi-permanent connection availability. They do not directly correspond to the level of Quality of Service to be expected by customers.

1.2 Scope

This Recommendation currently specifies availability parameters and objectives for B-ISDN ATM semi-permanent connections only. Characterization of the performance of B-ISDN ATM switched connections will be the subject of a future Recommendation.

This Recommendation defines the availability of a semi-permanent connection in a way that is independent of user behaviour (i.e. a semi-permanent connection can be declared unavailable even if the user is not transmitting ATM cells at a given time). Availability objectives need not be met on any connection that a network provider has determined to be non-compliant.

1.3 Related Recommendations

In characterizing availability performance, this Recommendation applies concepts and definitions provided in related ISDN performance Recommendations. These include ITU-T I.353 and ITU-T I.356.

I.353 defines the following:

- Measurement points (MPs) at which ITU-T recommended ISDN protocols may be observed.
- Particular MPs (designated MPT and MPI) that delimit portions of an end-to-end ISDN connection for which performance objectives may be specified.
- A set of performance-significant Cell Reference Events (CREs), each of which corresponds to the transfer of a cell of control or user information across an MP in accordance with an ITU-T recommended protocol.
- Rules for identifying the time of occurrence of any CRE at any MP.