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SERIES Q: SWITCHING AND SIGNALLING
Q3 interface

**Stage 2 and stage 3 description for the Q3
interface – Customer administration: Enhanced
broadband switch management**

ITU-T Recommendation Q.824.7

(Formerly CCITT Recommendation)

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For further details, please refer to the list of ITU-T Recommendations.

Stage 2 and stage 3 description for the Q3 interface – Customer administration: Enhanced broadband switch management

Summary

This Recommendation specifies the Q3 interface between an ATM switch with enhanced functionality and the Telecommunications Management Network (TMN). The interface specified is that between TMN Network Elements or Q-Adapters which interface to TMN Operations Systems (OSs) without mediation and between OSs and Mediation Devices, as defined in ITU-T Recommendation M.3010.

The scope of this Recommendation includes the management of switched VPs as defined in ITU-T Recommendations Q.2766.1 and Q.2934 and of soft PVCs as defined in ITU-T Recommendation Q.2767.1.

Source

ITU-T Recommendation Q.824.7 was prepared by ITU-T Study Group 4 (1997-2000) and approved under the WTSC Resolution 1 procedure on 4 February 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 Conference (WTSC), 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 WTSC 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 Q.824.7

Stage 2 and stage 3 description for the Q3 interface – Customer administration: Enhanced broadband switch management

1 Purpose and Scope

This Recommendation specifies the Q3 interface between an ATM switch with enhanced functionality and the Telecommunications Management Network (TMN). The interface specified is that between TMN Network Elements or Q-Adapters which interface to TMN Operations Systems (OSs) without mediation and between OSs and Mediation Devices, as defined in ITU-T Recommendation M.3010 [5].

The scope of this Recommendation includes the management of switched VPs as defined in ITU-T Recommendations Q.2766.1 [8] and Q.2934 [11] and of soft PVCs as defined in ITU-T Recommendation Q.2767.1 [9]. The associated management for customer administration and for call routing is also within the scope of this Recommendation. The object model in this Recommendation is based on and extends the model in ITU-T Recommendation Q.824.6 [12].

The definition of the functionality of TMN Operations Systems is outside the scope of this Recommendation. Security management is also outside the scope of this Recommendation.

Existing protocols are used where possible, and the focus of the work is on defining the object model.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] ITU-T Recommendation I.311 (1996), *B-ISDN general network aspects*.
- [2] ITU-T Recommendation I.363.5 (1996), *B-ISDN ATM Adaptation Layer (AAL) specification: Type 5 AAL*.
- [3] ITU-T Recommendation I.610 (1999), *B-ISDN operation and maintenance principles and functions*.
- [4] ITU-T Recommendation I.751 (1996), *Asynchronous transfer mode management of the network element view*.
- [5] ITU-T Recommendation M.3010 (2000), *Principles for a telecommunications management network*.
- [6] ITU-T Recommendation M.3100 (1995), *Generic network information model*.
- [7] ITU-T Recommendations Q.2761 (1999), Q.2762 (1999), Q.2763 (1999), Q.2764 (1999), *B-ISDN User Part (B-ISUP) of Signalling System No. 7*.
- [8] ITU-T Recommendation Q.2766.1 (1998), *Switched virtual path capability*.
- [9] ITU-T Recommendation Q.2767.1 (2000), *Soft PVC capability*.



- [10] ITU-T Recommendation Q.2931 (1995), *Digital Subscriber Signalling System No. 2 – User-Network Interface (UNI) layer 3 specification for basic call/connection control*.
- [11] ITU-T Recommendation Q.2934 (1998), *Digital subscriber signalling system No. 2 – Switched virtual path capability*.
- [12] ITU-T Recommendation Q.824.6 (1998), *Broadband Switch Management*.
- [13] CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1992, *Information technology – Open Systems Interconnection – Structure of management information: Management information model*.
- [14] CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information*.
- [15] CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1992, *Information technology – Open Systems Interconnection – Systems management: State management function*.
- [16] CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1992, *Information technology – Open Systems Interconnection – Systems management: Attributes for representing relationships*.

3 Definitions, abbreviations and conventions

3.1 Definitions

This Recommendation defines the following terms:

3.1.1 permanent VCC: A permanent VCC is a virtual circuit connection which is established by configuration management, not by on-demand call control.

3.1.2 soft PVC: A connection which is provisioned via management at the soft PVC Calling Endpoint (at the source interface) and established by signalling procedures across a network to the soft PVC Called Endpoint (at the destination interface).

3.1.3 virtual channel trail: This corresponds to a VCC in standard ATM terminology.

3.1.4 virtual channel trail termination point: This corresponds to the end point of a VCC and marks the extremity of an end-to-end F5 OAM flow.

3.1.5 virtual channel connection termination point: This corresponds to an intermediate point of a VCC and may mark the extremity of a segment F5 OAM flow.

3.1.6 virtual path trail: This corresponds to a VPC in standard ATM terminology.

3.1.7 virtual path trail termination point: This corresponds to the end point of a VPC and marks the extremity of an end-to-end F4 OAM flow.

3.1.8 virtual path connection termination point: This corresponds to an intermediate point of a VPC and may mark the extremity of a segment F4 OAM flow.

In addition, this Recommendation uses terms defined in ITU-T Recommendations:

3.1.9 F4 OAM flow: See ITU-T I.610 [3].

3.1.10 F5 OAM flow: See ITU-T I.610 [3].

3.1.11 soft PVC called endpoint: See ITU-T Q.2767.1 [9].

3.1.12 soft PVC calling endpoint: See ITU-T Q.2767.1 [9].

3.1.13 trail termination point: See ITU-T M.3100 [6].

- 3.1.14 virtual channel:** See ITU-T I.311 [1].
- 3.1.15 virtual channel connection:** See ITU-T I.311 [1].
- 3.1.16 virtual path:** See ITU-T I.311 [1].
- 3.1.17 virtual path connection:** See ITU-T I.311 [1].

3.2 Abbreviations

This Recommendation uses the following abbreviations:

AAL	ATM Adaptation Layer
AIS	Alarm Indication Signal
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
ERD	Entity Relationship Diagram
GDMO	Guidelines for the Definition of Managed Objects
MIB	Management Information Base
MOC	Managed Object Class
NNI	Network-Network Interface
OAM	Operations, Administration and Maintenance
OS	Operations System
PVC	Permanent Virtual Connection
PVCC	Permanent Virtual Channel Connection
PVPC	Permanent Virtual Path Connection
RDI	Remote Defect Indication
RDN	Relative Distinguished Name
SDH	Synchronous Digital Hierarchy
SVP	Switched Virtual Path
TMN	Telecommunications Management Network
TTP	Trail Termination Point
UNI	User-Network Interface
VC	Virtual Channel
VCC	Virtual Channel Connection
VCI	Virtual Channel Identifier
VP	Virtual Path
VPC	Virtual Path Connection
VPCI	Virtual Path Connection Identifier
VPI	Virtual Path Identifier