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SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – Q3 interface

VB5.2 Management

ITU-T Recommendation Q.832.2

(Previously CCITT Recommendation)

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

VB5.2 MANAGEMENT

Summary

This Recommendation specifies the Q3 interfaces between a Service Node (SN) and the Telecommunications Management Network (TMN) and between an Access Network (AN) and the TMN for the management associated with VB5.2 interfaces [4]. The managed object classes needed in addition to those defined for VB5.1 interfaces [3] in Recommendation Q.832.1 [13] are defined in this Recommendation. 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 Recommendation M.3010 [5].

Source

ITU-T Recommendation Q.832.2 was prepared by ITU-T Study Group 4 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 26th of March 1999.

FOREWORD

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Recommendation G.832.2

VB5.2 MANAGEMENT

(Geneva, 1999)

1 Scope

This Recommendation specifies the Q3 interfaces between a Service Node (SN) and the Telecommunications Management Network (TMN) and between an Access Network (AN) and the TMN for the management associated with VB5.2 interfaces [4]. The managed object classes needed in addition to those defined for VB5.1 interfaces [3] in Recommendation Q.832.1 [13] are defined in this Recommendation. 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 Recommendation M.3010 [5].

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

The coordination of the Operation Systems of the Access Network and the Service Node for both VB5.1 and VB5.2 interfaces is within the scope of the planned ITU-T Recommendation Q.832.3 (Access management for VB5).

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 G.853.1 (1999), *Common elements of the information viewpoint for the management of a transport network*.
- [2] ITU-T Recommendation G.902 (1995), *Framework Recommendation on functional access networks – Architecture and functions, access types, management and service node aspects*.
- [3] ITU-T Recommendation G.967.1 (1998), *V-Interfaces at the Service Node (SN): VB5.1 reference point specification*.
- [4] ITU-T Recommendation G.967.2 (1999), *V-Interfaces at the Service Node (SN): VB5.2 reference point specification*.
- [5] ITU-T Recommendation M.3010 (1996), *Principles for a telecommunications management network*.
- [6] ITU-T Recommendation M.3100 (1995), *Generic network information model*.

- [7] ITU-T Recommendation Q.2811¹, *Broadband Q3 and X interfaces – Lower layer protocols.*
- [8] ITU-T Recommendation Q.2812¹, *Broadband Q3 and X interfaces – Upper layer protocols.*
- [9] ITU-T Recommendation Q.811 (1997), *Lower layer protocol profiles for the Q3 and X interfaces.*
- [10] ITU-T Recommendation Q.812 (1997), *Upper layer protocol profiles for the Q3 and X interfaces.*
- [11] ITU-T Recommendation Q.824.5 (1997), *Stage 2 and stage 3 description for the Q3 interface – Customer administration: Configuration management of V5 interface environments and associated consumer profiles.*
- [12] ITU-T Recommendation Q.824.6 (1998), *Stage 2 and stage 3 description for the Q3 interface – Customer administration: Broadband switch management.*
- [13] ITU-T Recommendation Q.832.1 (1998), *VB5.1 Management.*
- [14] CCITT Recommendation X.720 (1992) | ISO/IEC 10165-1:1993, *Information technology – Open Systems Interconnection – Structure of management information: Management information model.*
- [15] CCITT Recommendation X.721 (1992) | ISO/IEC 10165-2:1992, *Information technology – Open Systems Interconnection – Structure of management information: Definition of management information.*
- [16] CCITT Recommendation X.731 (1992) | ISO/IEC 10164-2:1993, *Information technology – Open Systems Interconnection – Systems management: State management function.*
- [17] CCITT Recommendation X.732 (1992) | ISO/IEC 10164-3:1993, *Information technology – Open Systems Interconnection – Systems management: Attributes for representing relationships.*
- [18] ITU-T Recommendation I.751 (1996), *Asynchronous transfer mode management of the network element view.*

3 Definitions, abbreviations, and conventions

3.1 Definitions

This Recommendation defines the following term:

VB5 Resources: The management of user port functions and service port functions providing User Network Interface (UNI) and Service Node Interface (SNI) functionality, respectively, are considered in this Recommendation based on the framework defined in Recommendation G.902 [2]. Transmission specific resources lie outside its scope. VB5 Resources are referred to in this Recommendation as resources.

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

G.902 [2]: Access network (AN), User port functions, Service node (SN), Service node interface (SNI), Service port functions.

¹ Presently at the stage of draft.

- G.967.1 [3]: Logical service port (LSP), Logical user port (LUP), Physical service port (PSP), Physical user port (PUP), Real-time management coordination (RTMC), Virtual user port (VUP).
- G.967.2 [4]: Broadband bearer connection control (B-BCC).
- I.751 [18]: Message communication function (MCF).

3.2 Abbreviations

This Recommendation uses the following abbreviations:

AAL	ATM Adaptation Layer
AIS	Alarm Indication Signal
AN	Access Network
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
B-BCC	Broadband Bearer Connection Control
ERD	Entity-Relationship Diagram
GDMO	Guidelines for the Definition Of Managed Objects
LSP	Logical Service Port
LUP	Logical User Port
MIB	Management Information Base
MOC	Managed Object Class
OAM	Operations, Administration and Maintenance
OLT	Optical Line Terminal
ONU	Optical Network Unit
OS	Operations System
PON	Passive Optical Network
RDI	Remote Defect Indication
RDN	Relative Distinguished Name
RTMC	Real-Time Management Coordination
SDH	Synchronous Digital Hierarchy
SN	Service Node
SNI	Service Node Interface
TMN	Telecommunications Management Network
TTP	Trail Termination Point
UNI	User-Network Interface
VC	Virtual Channel
VDSL	Very high speed Digital Subscriber Line
VP	Virtual Path

VPC	Virtual Path Connection
VPCI	Virtual Path Connection Identifier

3.3 Conventions

NOTE – While this specification on VB5.2 management makes use of Recommendation X.722/Amd.1 (1995) on the SET-BY-CREATE property, the reader should be aware that Recommendation X.722/Amd.1 (1995) has not been applied in the VB5.1 management specification.

Objects and their characteristics and associated ASN.1 defined here are given names with capitals used to indicate the start of the next word and acronyms are treated as if they were words.

Throughout this Recommendation, all new attributes are named according to the following guidelines:

- The name of an attribute ends in the string "Ptr" if and only if the attribute value is intended to identify a single object.
- The name of an attribute ends in the string "PtrList" if and only if the attribute value is intended to identify one or more objects.
- The name of an attribute is composed of the name of an object class followed by the string "Ptr" if and only if the attribute value is intended to identify a specific object class.
- If an attribute is intended to identify different object classes, a descriptive name is given to that attribute and a description is provided in the attribute behaviour.
- The name of an attribute ends in the string "Id" if and only if the attribute value is intended to identify the name of an object, in which case this attribute should be the first one listed, should use ASN.1 NameType and should not be used to convey other information.
- The name of an attribute is composed of the name of an object class followed by the string "Id" if and only if the attribute value is intended to identify the name of the object class holding that attribute.

4 General overview

The following information model diagrams have been drawn for the purpose of clarifying the relations between the different object classes of the model.

- 1) Entity-relationship models showing the relations of the different managed objects.
- 2) Inheritance Hierarchy showing how managed objects are derived from each other (i.e. the different paths of inherited characteristics of the different managed objects).

These diagrams are only for clarification. The formal specification in terms of GDMO templates and ASN.1 type definitions are the relevant information for implementations.

4.1 Entity-relationship models

The following conventions (Figure 1) are used in the diagrams:

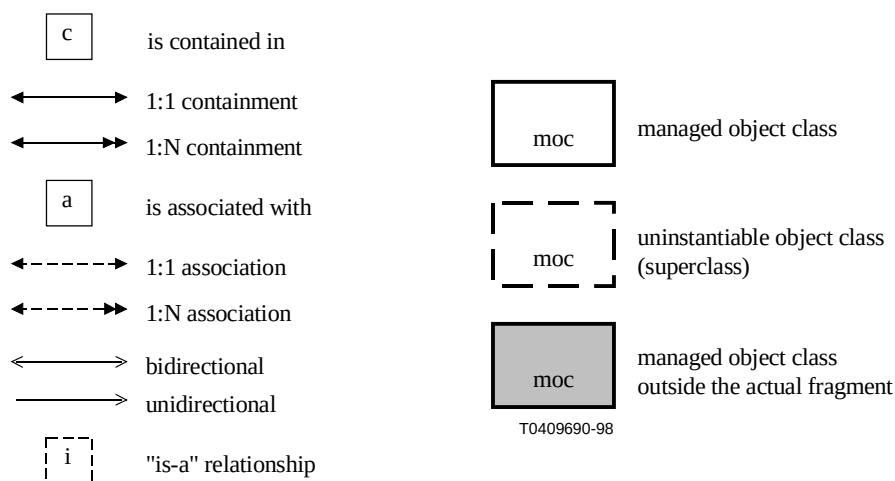
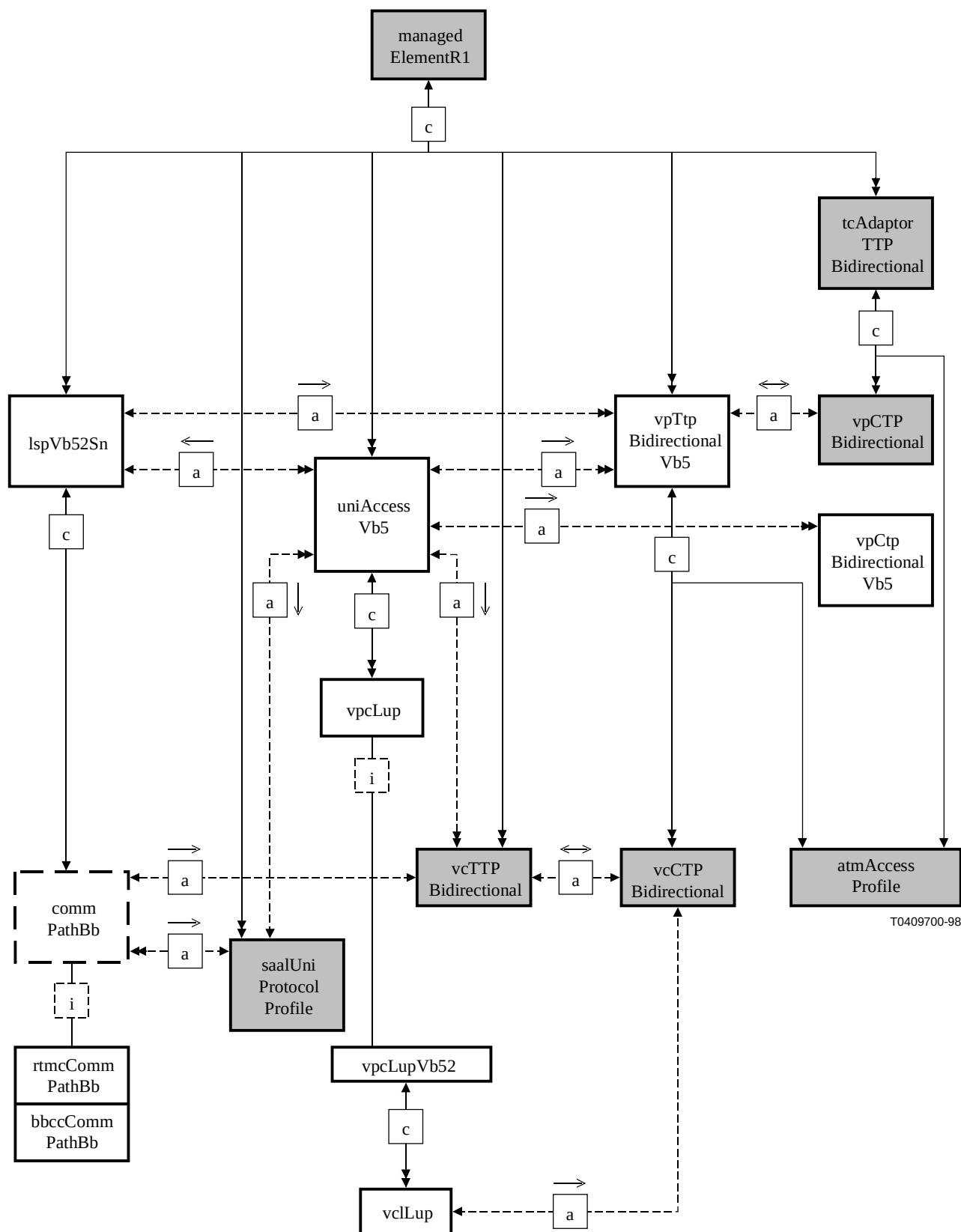


Figure 1/Q.832.2 – Conventions used in diagrams for Entity-relationship models

Where the directionality of containment is not clear, it can be identified by implications since the root class is unique.

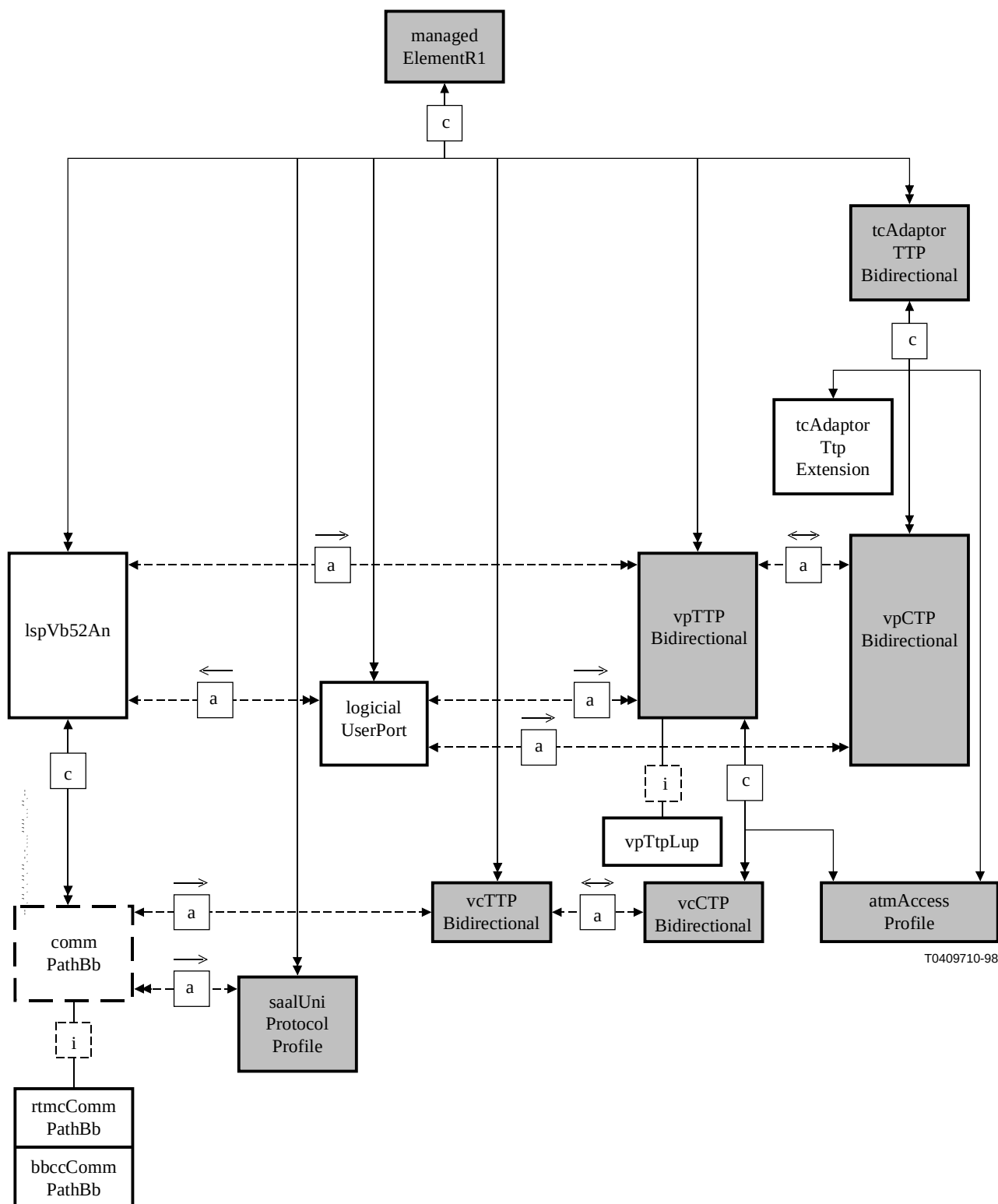
4.1.1 Entity-relationship diagram for the service node (Figure 2)



NOTE – Not all object classes are shown in this diagram as some object classes are reused unchanged from Recommendation I.751.

Figure 2/Q.832.2 – Entity-relationship diagram – Service node

4.1.2 Entity-relationship diagram for the access network (Figure 3)



NOTE – Not all object classes are shown in this diagram as some object classes are reused unchanged from Recommendation I.751.

Figure 3/Q.832.2 – Entity-relationship diagram – Access network