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Telecommunications Management Network (TMN); Management interfaces associated with the VB5.1 reference point;

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Telecommunications Management Network (TMN).

National transposition dates	
Date of adoption of this EN:	6 July 2001
Date of latest announcement of this EN (doa):	31 October 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2002
Date of withdrawal of any conflicting National Standard (dow):	30 April 2002

1 Scope

The present document specifies the management interfaces (Q3 interfaces) associated with the VB5.1 reference point [1], [2] and EN 301 217-1 (see bibliography) for the support of configuration, fault & performance management functions. Fault and performance management together include both passive monitoring of reports and active fault isolation.

The Q3 interface [9] is the TMN interface between network elements or Q-adapters which interface to OSs without mediation and between OSs and mediation devices.

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 the present document.

ITU-T Recommendation Q.2931 [11] is supported at the UNI, and the ATM Forum UNI is supported for compatibility with the established base of ATM equipment.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   ETSI ETR 257: "V interfaces at the digital Service Node (SN); Identification of the applicability of existing protocol specifications for a VB5 reference point in an access arrangement with Access Networks (ANs)".

[2]   ETSI EN 301 005-1: "V interfaces at the digital Service Node (SN); Interfaces at the VB5.1 reference point for the support of broadband or combined narrowband and broadband Access Networks (ANs); Part 1: Interface specification".

[3]   Void.

[4]   ITU-T Recommendation G.773: "Protocol suites for Q-interfaces for management of transmission systems".

[5]   ITU-T Recommendation G.784: "Synchronous digital hierarchy (SDH) management".

[6]   ITU-T Recommendation G.902: "Framework Recommendation on functional access networks (AN) Architecture and functions, access types, management and service node aspects".

[7]   ITU-T Recommendation G.967.1 (1998): "V-interfaces at the service node (SN): VB5.1 reference point specification".

[8]   ITU-T Recommendation I.751: "Asynchronous transfer mode management of the network element view".

[9]   ITU-T Recommendation M.3010 (1996): "Principles for a telecommunications management network".

[10]   ITU-T Recommendation M.3100 (1995): "Generic network information model".

[11]   ITU-T Recommendation Q.2931 (1995): "Broadband Integrated Services Digital Network (B-ISDN) - Digital Subscriber Signalling System No. 2 (DSS 2) - User-Network Interface (UNI) - Layer 3 specification for basic call/connection control".

[12] ITU-T Recommendation Q.811: "Lower layer protocol profiles for the Q3 and X interfaces".

[13] ITU-T Recommendation Q.812: "Upper layer protocol profiles for the Q3 and X interfaces".

[14] Void

[15] ITU-T Recommendation Q.824.6: "Stage 2 and stage 3 description for the Q3 interface - Customer administration: Broadband switch management ".

[16] ITU-T Recommendation Q.832.1 (1998): "VB5.1 Management".

[17] ITU-T Recommendation Q.832.2 (1999): "VB5.2 Management".

[18] ITU-T Recommendation X.721 | ISO/IEC 10165-2 (1992): "Information technology - Open Systems Interconnection - Structure of management information: definition of management information".

[19] ITU-T Recommendation X.731 | ISO/IEC 10164-2 (1992): "Information technology - Open Systems Interconnection - Systems management: State management function".

3 Definitions, abbreviations, and conventions

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ITU-T Recommendations G.902 [6] , G.967.1 [7] and M.3010 [9] and the following apply:

resources: management of user port functions and service port functions providing User Network Interface (UNI) and Service Node Interface (SNI) functionality, respectively, are considered in the present document based on the framework defined in ITU-T Recommendation G.902 [6]. Transmission specific resources lie outside the scope of this term in the present document.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AEMF	ATM Equipment Management Function
AN	Access Network
ASN.1	Abstract Syntax Notation One
ATM	Asynchronous Transfer Mode
GDMO	Guidelines for the Definition of Managed Objects
LME	Layer Management Entry
LSP	Logical Service Port
LUP	Logical User Port
ME	Management Entry
MIB	Management Information Base
MOC	Managed Object Class
OAM	Operations, Administration and Maintenance
OS	Operations System
RTMC	Real Time Management Coordination
SAAL	Signalling ATM Adaptation Layer
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
VP	Virtual Path
VPC	Virtual Path Connection

VPCI   Virtual Path Connection Identifier

3.3   Conventions

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 the present document, all new attributes are named according to the following guidelines:

- the name of an attribute ends in the string "Ptr" if and only the attribute value is intended to identify a single object;

- the name of an attribute ends in the string "PtrList" if and only 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 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 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 the attribute value is intended to identify the name of the object class holding that attribute.

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4   General Overview (standards.iteh.ai)

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 are used in the diagrams (see figure 1):

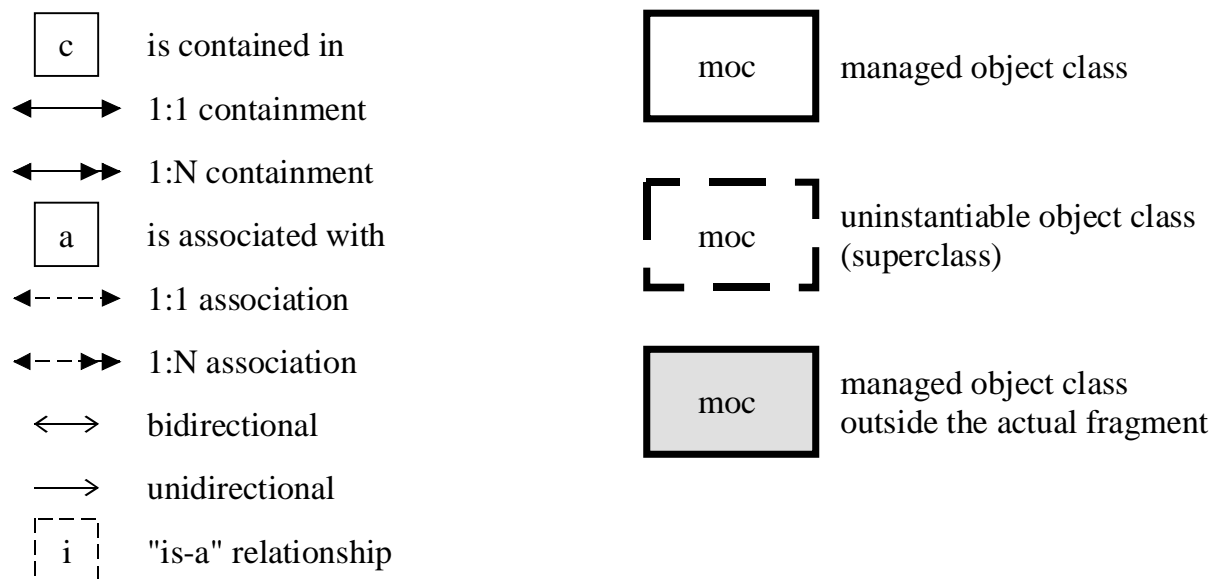|			
c	is contained in	moc	managed object class
←——→	1:1 containment		
←——►►	1:N containment		
a	is associated with	moc	uninstantiable object class (superclass)
◄- - -►	1:1 association		
◄- -►►	1:N association		
←——→	bidirectional	moc	managed object class outside the actual fragment
——→	unidirectional		
i	"is-a" relationship		

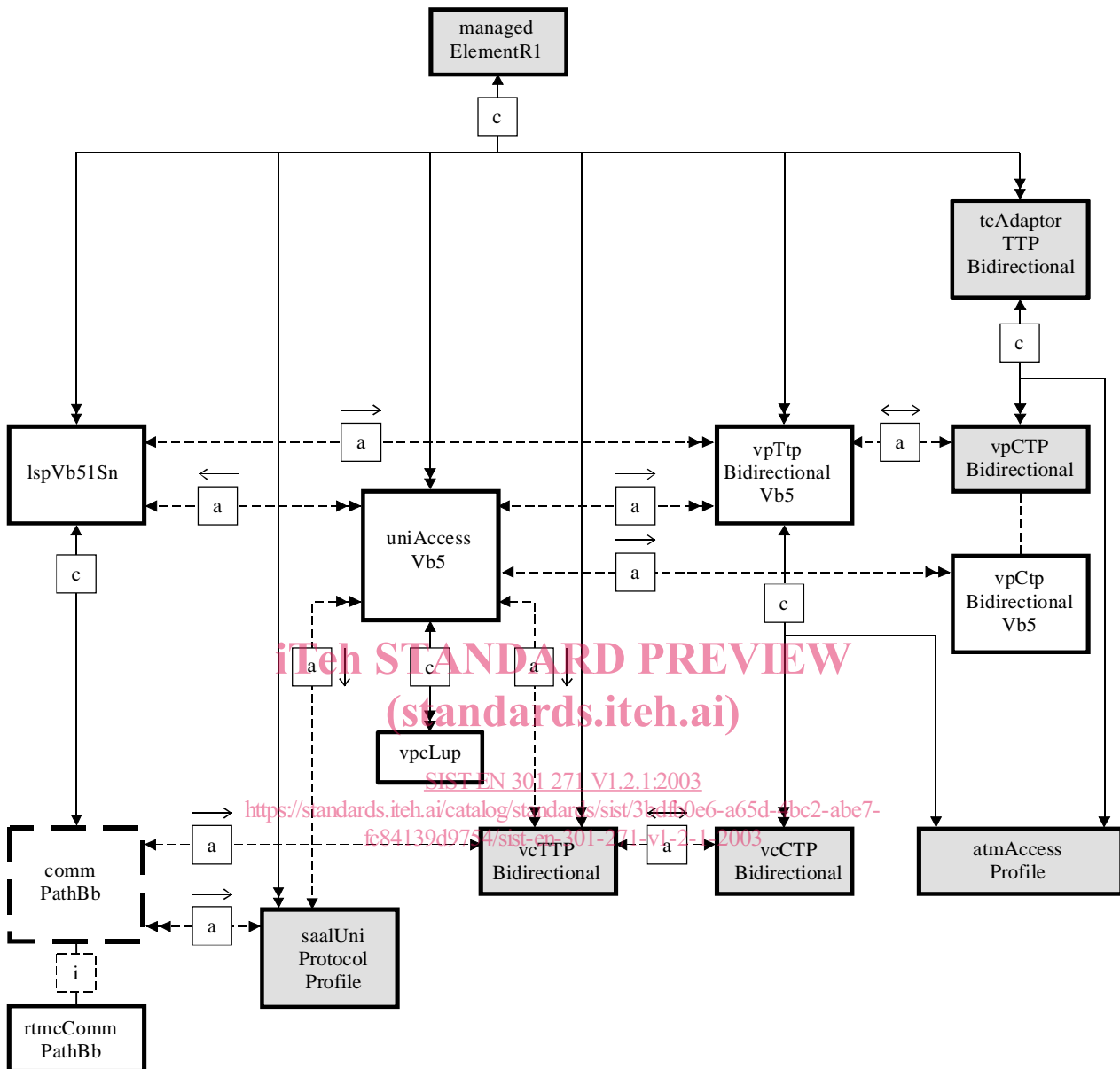**Figure 1: Conventions used in diagrams for entity-relationship models**

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

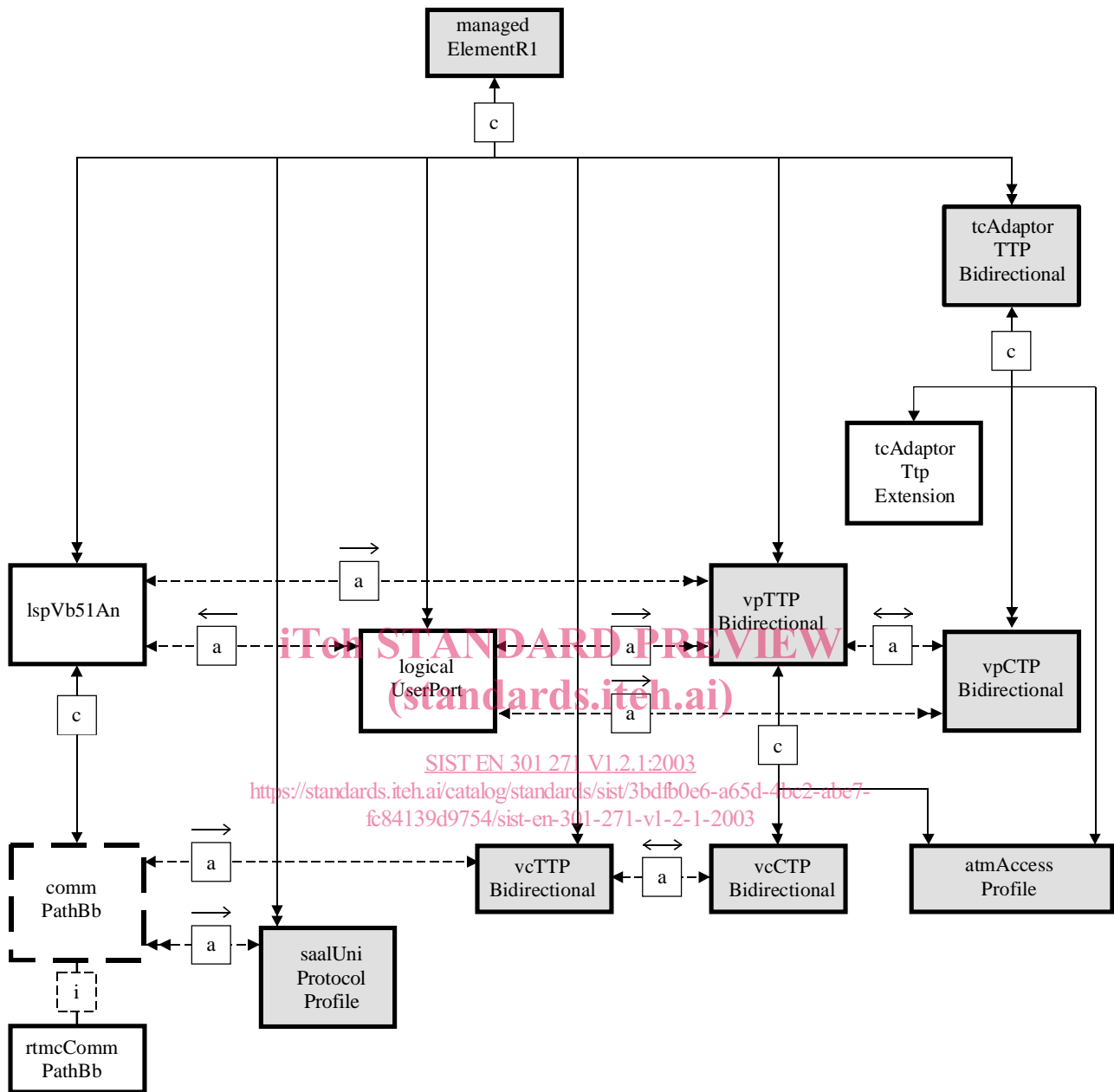iTeh STANDARD PREVIEW
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4.1.1 Entity relationship diagram for the service node

NOTE: Not all object classes are shown in this diagram as some object classes are reused unchanged from ITU-T Recommendation I.751 [8].

Figure 2: Entity-relationship diagram - Service node

4.1.2 Entity relationship diagram for the access network

NOTE: Not all object classes are shown in this diagram as some object classes are reused unchanged from ITU-T Recommendation I.751 [8].

Figure 3: Entity-relationship diagram - Access network

4.2   Inheritance hierarchy

Figure 4 traces the inheritance relationships from the highest level object (ITU-T Recommendation X.721 [18], "top") to the managed objects which are defined in the present document.
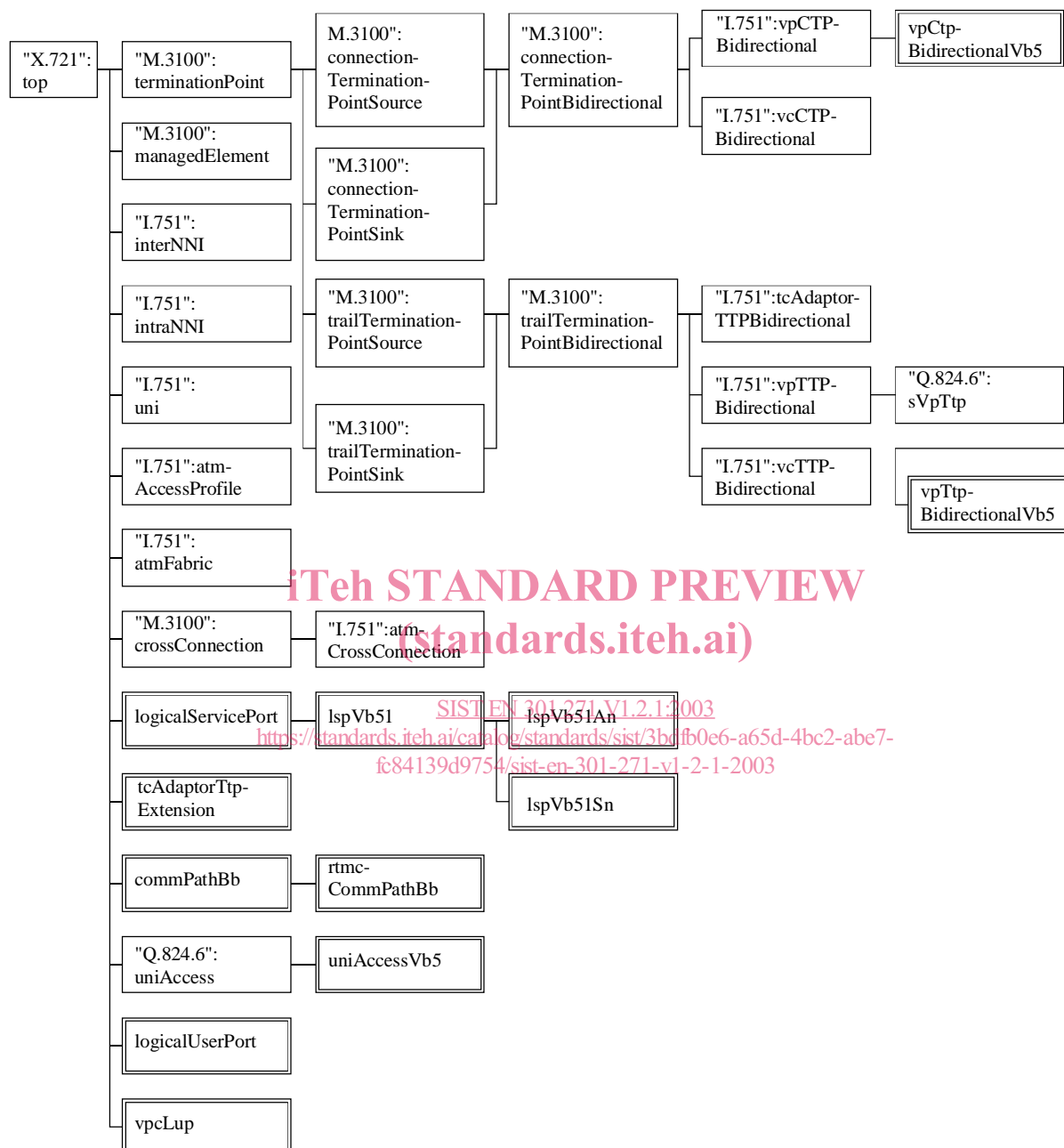

Figure 4: Inheritance hierarchy

5   Formal Definitions

This clause gives the formal definitions of the managed object classes, name bindings, general packages, behaviours, attributes, actions and notifications.

Formal definitions are shown in annex F.