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ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
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G.853.3

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SERIES G: TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

Digital transmission systems – Digital networks – Management of transport network

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Information viewpoint for topology management

ITU-T Recommendation G.853.3

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION G.853.3

INFORMATION VIEWPOINT FOR TOPOLOGY MANAGEMENT

Summary

The topology management community is used to manage the topology of a layer network domain and the relationships between the resources of the layer network domain being managed. The service provided by the community allows for the creation and deletion of the following resources inside a layer network domain: subnetwork, link, topological link, link end, topological link end and access group. The service also provides a set of reporting actions to advise potential notification receivers of creation and deletion of resources in the community. The service is available between one single caller and one single provider.

The partitioning of subnetworks and links is not addressed in this community.

Source

ITU-T Recommendation G.853.3 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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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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 term *recognized operating agency (ROA)* includes any individual, company, corporation or governmental organization that operates a public correspondence service. The terms *Administration, ROA* and *public correspondence* are defined in the *Constitution of the ITU (Geneva, 1992)*.

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As of the date of approval of this Recommendation, the 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.

CONTENTS

Recommendation G.853.3

INFORMATION VIEWPOINT FOR TOPOLOGY MANAGEMENT

(Geneva, 1999)

1 Scope

This information viewpoint specification is related to the topology management enterprise specification defined in Recommendation G.852.3.

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.851.1 (1996), *Management of the transport network – Application of the RM-ODP framework.*

[2] ITU-T Recommendation G.853. 1 (1999), *Common elements of the information viewpoint for the management of a transport network.*

[3] ITU-T Recommendation G.852.3 (1999), *Enterprise viewpoint for topology management.*

[4] ITU-T Recommendation G.854.3 (1999), *Computational viewpoint for topology management.*

3 Definitions

None.

4 Abbreviations

This Recommendation uses the following abbreviations:

AG	Access Group
CTP	Connection Termination Point
Id	Identifier
imp	imported
LE	Link End
LND	Layer Network Domain
RM-ODP	Reference Model for Open Distributed Processing
SN	Subnetwork
SNC	Subnetwork Connection

SNTP	Subnetwork Termination Point
TL	Topological Link
TLE	Topological Link End
topman	topology management
TP	Termination Point
TTP	Trail Termination Point
UML	Unified Modelling Language

5 Conventions

None.

6 Class diagrams

6.1 UML class diagrams representing relationships between classes

See Figures 1 to 4.

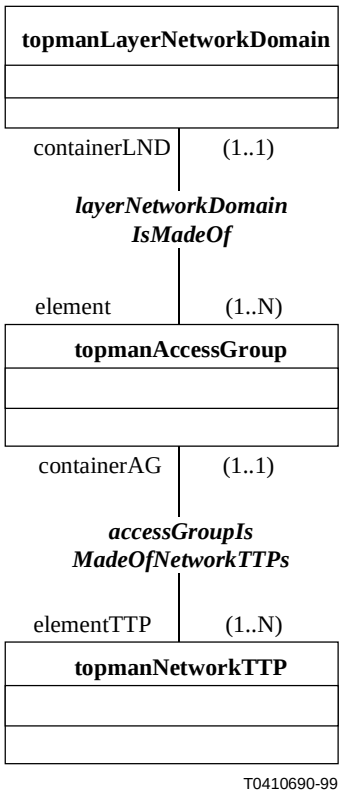

Figure 1/G.853.3 – UML class diagram representing topmanAccessGroup relationships

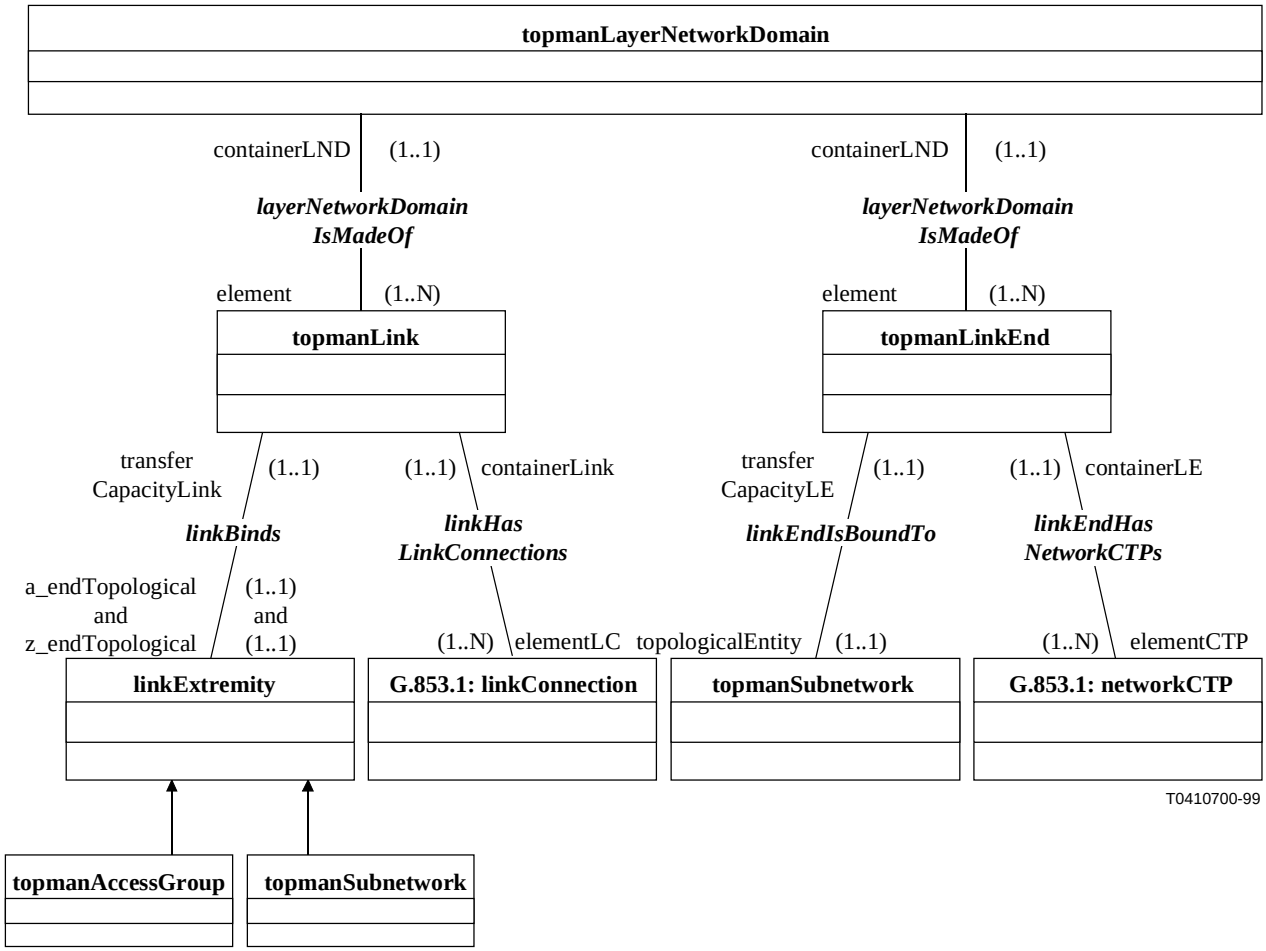

Figure 2/G.853.3 – UML class diagram representing topmanLink and topmanLinkEnd relationships

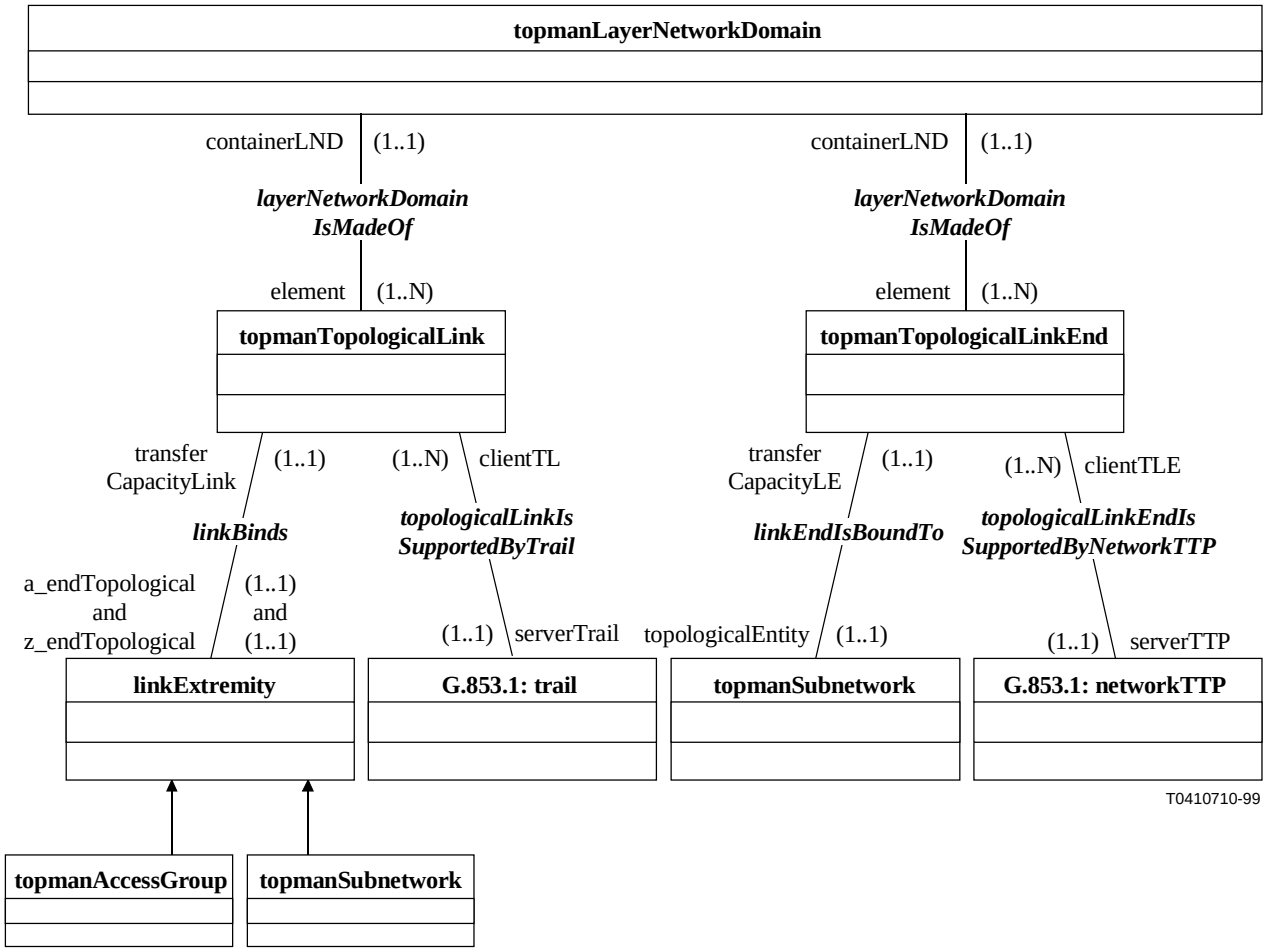

Figure 3/G.853.3 – UML class diagram representing topmanTopologicalLink and topmanTopologicalLinkEnd relationships

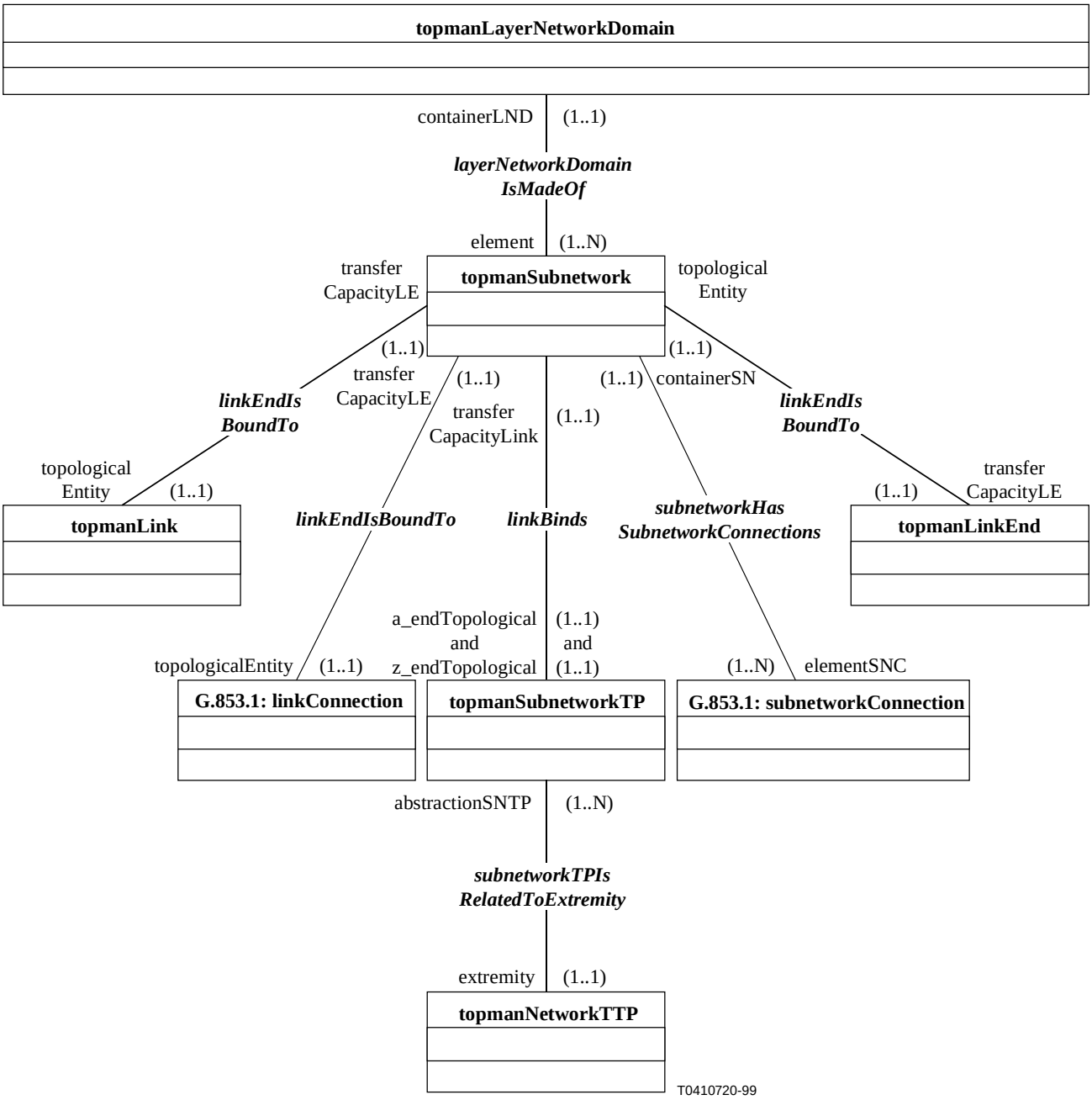

Figure 4/G.853.3 – UML class diagram representing topmanSubnetwork relationships

6.2 UML class diagram representing the inheritance hierarchy

See Figure 5.

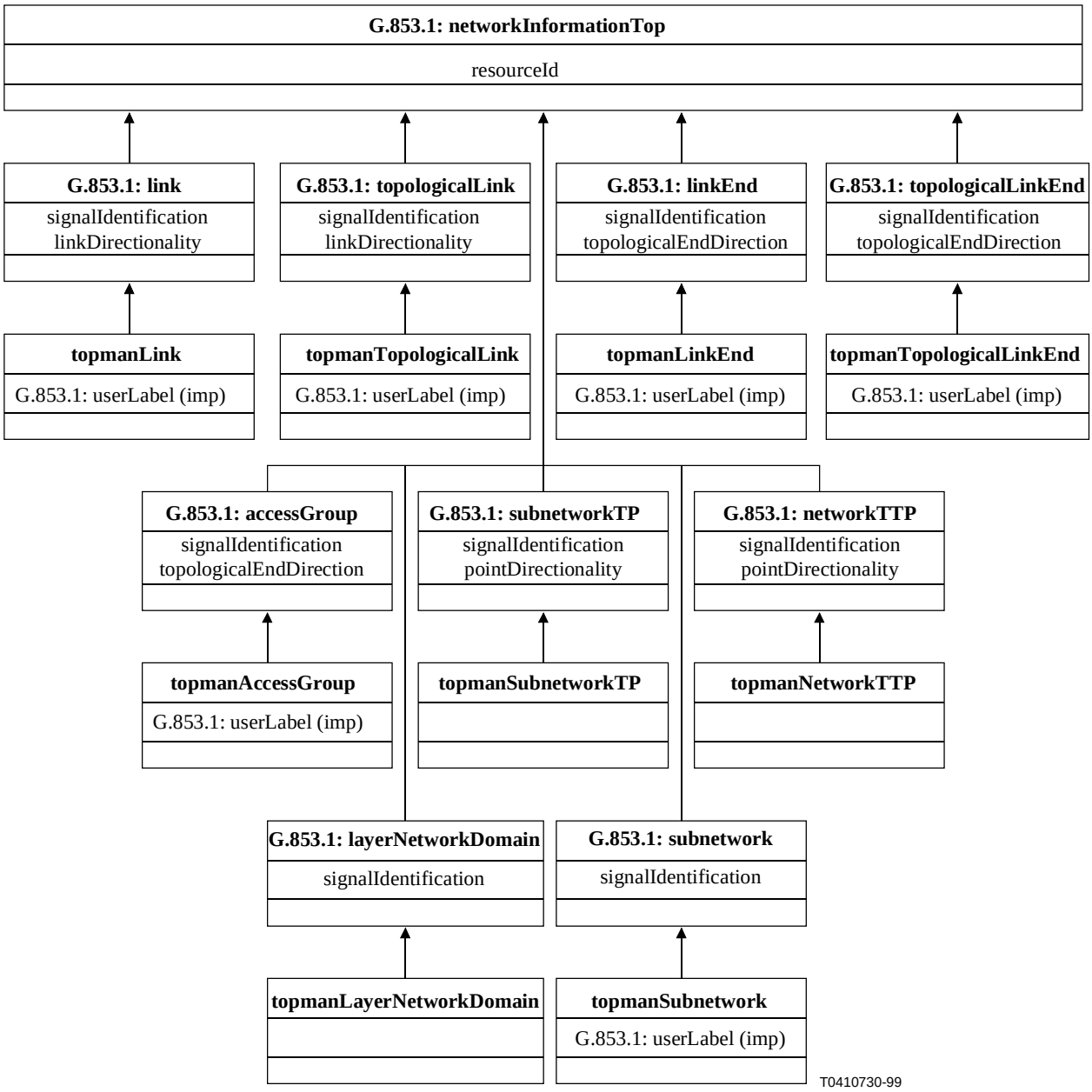

Figure 5/G.853.3 – UML class diagram representing the inheritance hierarchy

7 Label references

See Table 1.

Table 1/G.853.3 – Label references

Full label reference	Local label reference
<"Rec. G.853.1", INFORMATION_OBJECT:accessGroup>	accessGroup
<"Rec. G.853.1", INFORMATION_OBJECT:layerNetworkDomain>	layerNetworkDomain
<"Rec. G.853.1", INFORMATION_OBJECT:link>	link
<"Rec. G.853.1", INFORMATION_OBJECT:linkEnd>	linkEnd
<"Rec. G.853.1", INFORMATION_OBJECT:networkTTP>	networkTTP
<"Rec. G.853.1", INFORMATION_OBJECT:subnetwork>	subnetwork
<"Rec. G.853.1", INFORMATION_OBJECT:subnetworkTP>	subnetworkTP
<"Rec. G.853.1", INFORMATION_OBJECT: topologicalLink>	topologicalLink
<"Rec. G.853.1", INFORMATION_OBJECT: topologicalLinkEnd>	topologicalLinkEnd
<"Rec. G.853.1", ATTRIBUTE:userLabel>	userLabel
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: accessGroupIsMadeOfNetworkTTPs>	accessGroupIsMadeOfNetworkTTPs
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: layerNetworkDomainIsMadeOf>	layerNetworkDomainIsMadeOf
<"Rec. G.853.1", INFORMATION_RELATIONSHIP:linkBinds>	linkBinds
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: linkConnectionIsTerminatedByTopologicalEntities>	linkConnectionIsTerminatedByTopological Entities
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: linkEndHasNetworkCTPs>	linkEndHasNetworkCTPs
<"Rec. G.853.1", INFORMATION_RELATIONSHIP:linkEndIsBoundTo>	linkEndIsBoundTo
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: linkHasLinkConnections>	linkHasLinkConnections
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: subnetworkHasSubnetworkConnections>	subnetworkHasSubnetworkConnections
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: subnetworkIsDelimitedBy>	subnetworkIsDelimitedBy
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: subnetworkTPIsRelatedToExtremity>	subnetworkTPIsRrelatedToExtremity
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: topologicalLinkEndIsSupportedByNetworkTTP>	topologicalLinkEndIsSupportedByNetworkTTP
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: topologicalLinkIsSupportedByTrail>	topologicalLinkIsSupportedByTrail

8 Information object class definitions

8.1 topmanAccessGroup

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: access group>
DEFINITION
"This object class is derived from <*accessGroup*>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<accessGroupIsMadeOfNetworkTTPs>
<linkBinds>
<layerNetworkDomainIsMadeOf>

8.2 topmanLayerNetworkDomain

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: layer network domain>
DEFINITION
"This object class is derived from <*layerNetworkDomain*>."
ATTRIBUTE
-- none additional
RELATIONSHIP
<layerNetworkDomainIsMadeOf>

8.3 topmanLink

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: link>
DEFINITION
"This object class is derived from <*link*>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<linkBinds>
<layerNetworkDomainIsMadeOf>
<linkHasLinkConnections>

8.4 topmanLinkEnd

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: link end>
DEFINITION
"This object class represents the extremity of a link and a capacity at the boundary of a subnetwork. It also may represent a grouping of networkCTPs. The object class is derived from <*linkEnd*>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<linkEndHasNetworkCTPs>
<layerNetworkDomainIsMadeOf>
<linkEndIsBoundTo>

8.5 topmanNetworkTTP

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: trail termination point>
DEFINITION
"This object class is derived from <*networkTTP*>."
ATTRIBUTE
-- none additional
RELATIONSHIP
<subnetworkTPIsRelatedToExtremity>
<layerNetworkDomainIsMadeOf>
<accessGroupIsMadeOfNetworkTTPs>

8.6 topmanSubnetwork

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: subnetwork>
DEFINITION
"This object class is derived from <*subnetwork*>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<linkBinds>
<subnetworkIsDelimitedBy>
<subnetworkHasSubnetworkConnections>
<linkConnectionIsTerminatedByTopologicalEntities>
<linkEndIsBoundTo>
<layerNetworkDomainIsMadeOf>

8.7 topmanSubnetworkTP

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ACTION: AssociateTrailTerminationPointWithSubnetwork>
DEFINITION
"This object class is derived from <*subnetworkTP*>."
ATTRIBUTE
-- none additional
RELATIONSHIP
<subnetworkIsDelimitedBy>
<subnetworkTPIsRelatedToExtremity>
<layerNetworkDomainIsMadeOf>

8.8 topmanTopologicalLink

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: topological link>
DEFINITION
"This object class is derived from <topologicalLink>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<linkBinds>
<layerNetworkDomainIsMadeOf>
<topologicalLinkIsSupportedByTrail>

8.9 topmanTopologicalLinkEnd

This information concept is related to the following enterprise entities:

<COMMUNITY: Topology Management, ROLE: topological link end>
DEFINITION
"This object class represents the extremity of a topological link and a capacity at the boundary of a subnetwork. It also may represent a grouping of networkCTPs. The object class is derived from <topologicalLinkEnd>."
ATTRIBUTE
<userLabel>
RELATIONSHIP
<linkEndHasNetworkCTPs>
<layerNetworkDomainIsMadeOf>
<topologicalLinkEndIsSupportedByNetworkTTP>

9 Information relationship definitions

None additional.

10 Static schemas

None.

11 Dynamic schemas

None.

12 Attributes

None additional.

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