INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.853.6

(03/99)

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

Digital transmission systems – Digital networks – Management of transport network

Information viewpoint for trail management

ITU-T Recommendation G.853.6

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ITU-T RECOMMENDATION G.853.6

INFORMATION VIEWPOINT FOR TRAIL MANAGEMENT

Summary

The trail management service provides functionality for:

- creation/deletion of trail termination points;

- association/disassociation of trail termination points with/from subnetworks or access groups;

- set-up/release and modification of trails between a specified set of endpoints and/or access groups at the boundary of a layer network.

FOREWORD

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NOTE

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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.853.6

INFORMATION VIEWPOINT FOR TRAIL MANAGEMENT

(Geneva, 1999)

1 Scope

This information viewpoint specification is related to the trail management enterprise specification defined in Recommendation G.852.6.

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.853.2 (1996), *Subnetwork connection management information viewpoint.*

[4]   ITU-T Recommendation G.852.6 (1999), *Enterprise viewpoint for trail management.*

[5]   ITU-T Recommendation G.854.6 (1999), *Computational viewpoint for trail management.*

3 Definitions

None.

4 Abbreviations

This Recommendation uses the following abbreviations:

Id   Identifier

imp   imported

inh   inherited

RM-ODP   Reference Model for Open Distributed Processing

tm   Trail Management

TTP   Trail Termination Point

UML   Unified Modelling Language

5 Conventions

For further study.

6 Class diagrams

6.1 UML class diagram representing relationships between classes
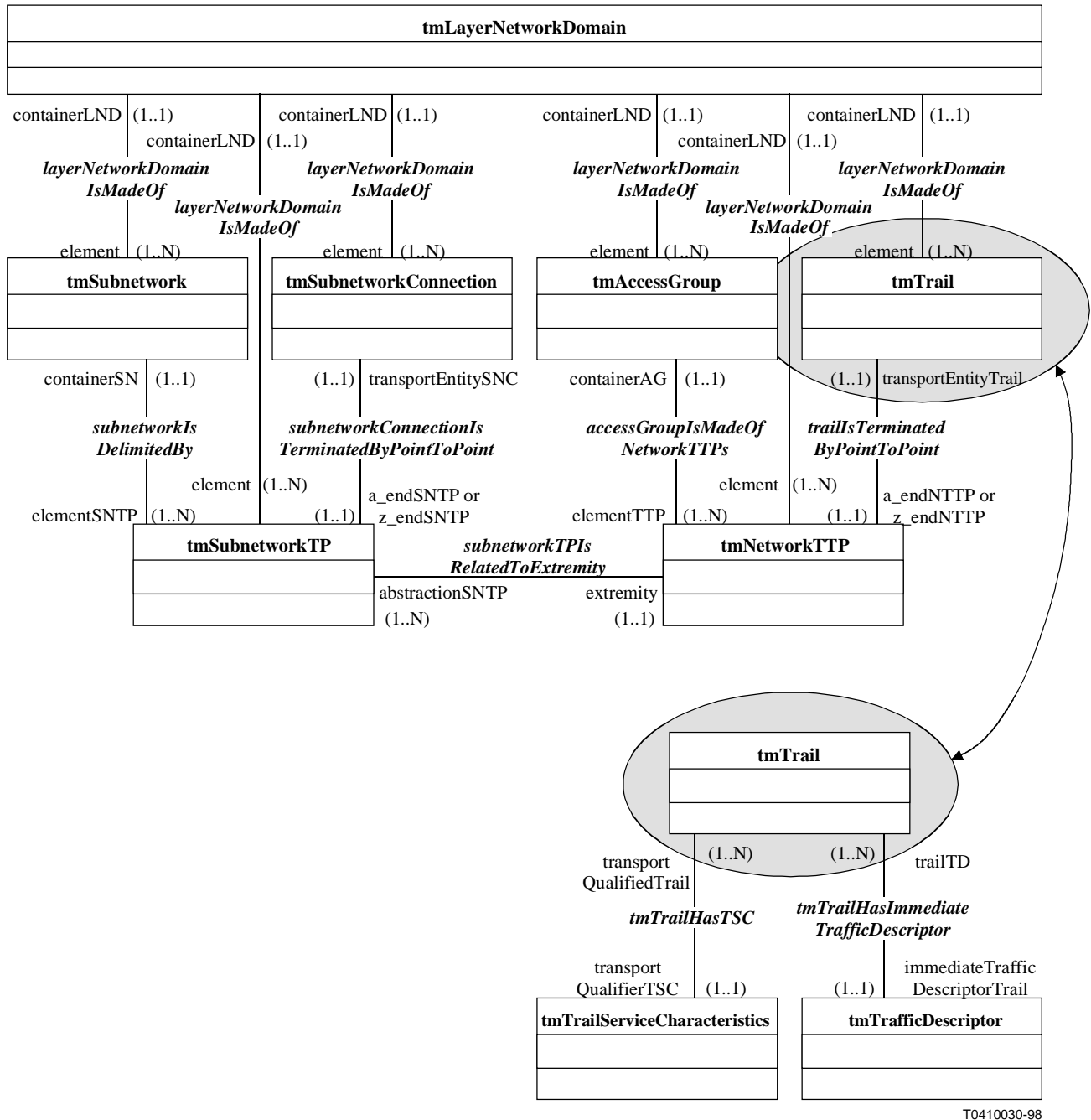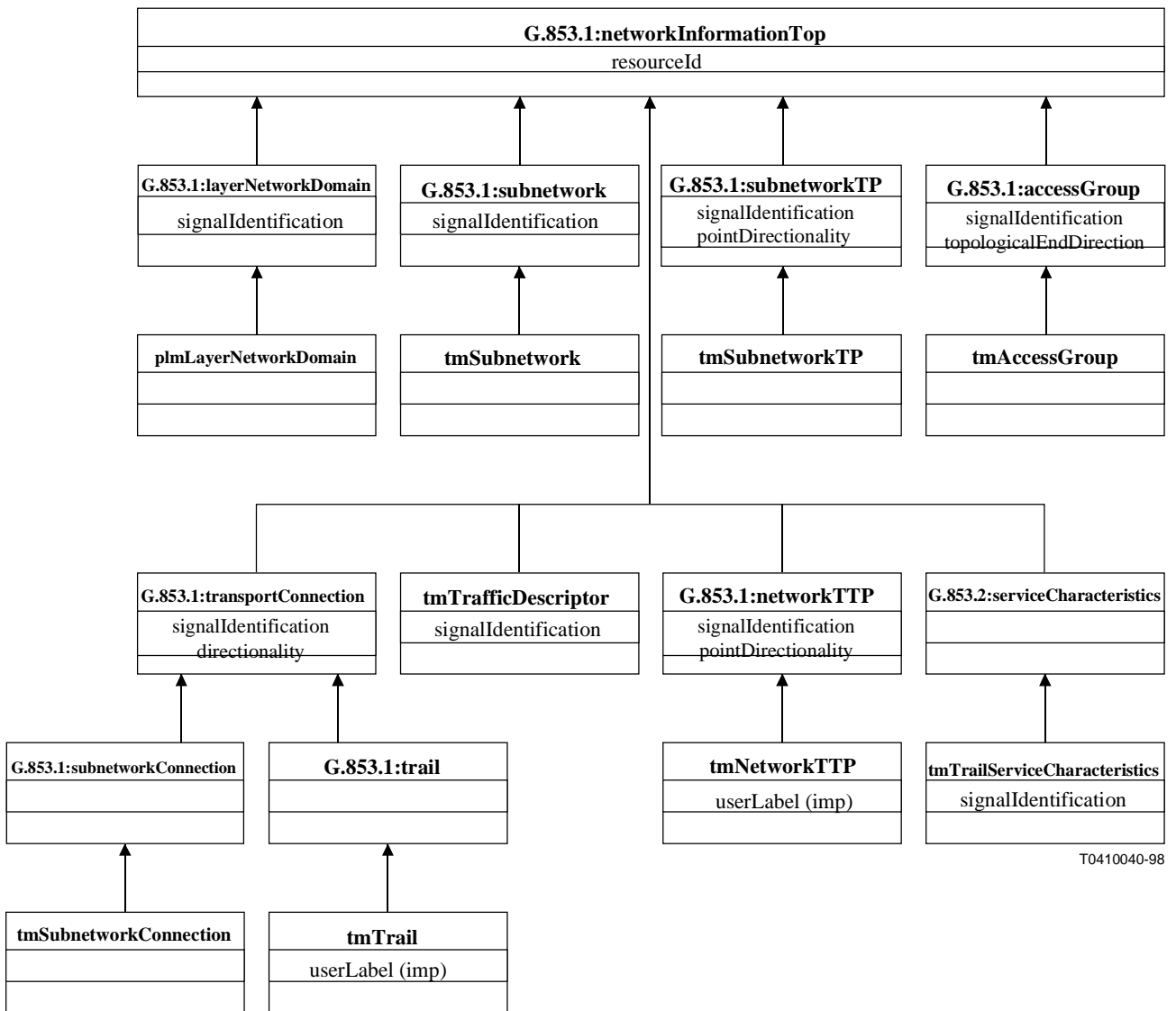

Figure 1/G.853.6 – UML class diagram representing relationships between classes

6.2   UML class diagram representing the inheritance hierarchy

Figure 2/G.853.6 – Information object class inheritance diagram

7 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: networkTTP>	networkTTP
<"Rec. G.853.2", INFORMATION_OBJECT: serviceCharacteristics>	serviceCharacteristics
<"Rec. G.853.1", INFORMATION_OBJECT: subnetwork>	subnetwork
<"Rec. G.853.1", INFORMATION_OBJECT: subnetworkConnection>	subnetworkConnection
<"Rec. G.853.1", INFORMATION_OBJECT: subnetworkTP>	subnetworkTP
<"Rec. G.853.1", INFORMATION_OBJECT: trail>	trail
<"Rec.G.853.1", INFORMATION_RELATIONSHIP: accessGroupIsMadeOfNetworkTTPs>	accessGroupIsMadeOfNetworkTTPs
<"Rec. G.853.1", INFORMATION_RELATIONSHIP: layerNetworkDomainIsMadeOf>	layerNetworkDomainIsMadeOf
<"Rec.G.853.1", INFORMATION_RELATIONSHIP: subnetworkIsDelimitedBy>	subnetworkIsDelimitedBy
<"Rec.G.853.1", INFORMATION_RELATIONSHIP: subnetworkConnectionIsTerminatedByPointToPoint>	subnetworkConnectionIsTerminatedBy PointToPoint
<"Rec.G.853.1", INFORMATION_RELATIONSHIP: subnetworkTPIsRelatedToExtremity>	subnetworkTPIsRelatedToExtremity
<"Rec.G.853.1", INFORMATION_RELATIONSHIP: trailIsTerminatedByPointToPoint>	trailIsTerminatedByPointToPoint
<"Rec.G.853.1", INFORMATION_ATTRIBUTE: signalIdentification>	signalIdentification
<"Rec.G.853.1", INFORMATION_ATTRIBUTE: userLabel>	userLabel

8 Information object class definitions

8.1 tmAccessGroup

<COMMUNITY: trail management, ROLE: access group>

DEFINITION
      "This object class is derived from <accessGroup>."

ATTRIBUTE
      -- none additional

RELATIONSHIP
      <layerNetworkDomainIsMadeOf>
      <accessGroupIsMadeOfNetworkTTPs>

8.2 tmLayerNetworkDomain

<COMMUNITY: trail management, COMMUNITY_POLICY: signalId>

DEFINITION
      "This object class is derived from <layerNetworkDomain>."

ATTRIBUTE
    -- none additional

RELATIONSHIP
    <layerNetworkDomainIsMadeOf>

8.3   tmNetworkTTP

<COMMUNITY: trail management, ROLE: trail termination point>

DEFINITION
    "This object class is derived from <networkTTP>."

ATTRIBUTE
    <userLabel>
        "<COMMUNITY: trail management, ACTION: create trail termination point, ACTION_POLICY:
        inputUserLabel>
        This attribute is imported from G.853.1 and is used as a user friendly label for the networkTTP."

RELATIONSHIP
    <accessGroupIsMadeOfNetworkTTPs>
    <trailIsTerminatedByPointToPoint>
    <subnetworkTPIsRelatedToExtremity>
    <layerNetworkDomainIsMadeOf>

8.4   tmSubnetwork

<COMMUNITY: trail management, ROLE: subnetwork>

DEFINITION
    "This object class is derived from <subnetwork>."

ATTRIBUTE
    -- none additional

RELATIONSHIP
    <subnetworkIsDelimitedBy>
    <layerNetworkDomainIsMadeOf>

8.5   tmSubnetworkConnection

<COMMUNITY: trail management, ROLE: subnetwork connection>

DEFINITION
    "This object class is derived from <subnetwork connection>."

ATTRIBUTE
    -- none additional

RELATIONSHIP
    <subnetworkConnectionIsTerminatedByPointToPoint>
    <layerNetworkDomainIsMadeOf>

8.6   tmSubnetworkTP

<COMMUNITY: trail management, ACTION: delete trail termination point, ACTION_POLICY notAssociatedWithSubnetwork>

<COMMUNITY: trail management, ACTION: associate trail termination point with subnetwork, ACTION_POLICY tTPNotAlreadyAssociated>

<COMMUNITY: trail management, ACTION: disassociate trail termination point from subnetwork, ACTION_POLICY tTPNotDisassociated>

DEFINITION
       "This object class is derived from <subnetworkTP>."

ATTRIBUTE
       -- none additional

RELATIONSHIP
       <subnetworkTPIsRelatedToExtremity>
       <subnetworkIsDelimitedBy>
       <subnetworkConnectionIsTerminatedByPointToPoint>
       <layerNetworkDomainIsMadeOf>

8.7   tmTrail

<COMMUNITY: trail management, ROLE: trail>

DEFINITION
       "This object class is derived from <trail>."

ATTRIBUTE
       <userLabel>
              "<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY:
              inputUserLabel>
              This attribute is imported from G.853.1 and is used as a user-friendly name for the trail."

RELATIONSHIP
       <trailIsTerminatedByPointToPoint>
       <tmTrailHasTSC>
       <tmTrailHasImmediateTrafficDescriptor>
       <layerNetworkDomainIsMadeOf>

8.8   tmTrafficDescriptor

<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY: trafficCharacteristics>

DEFINITION
       "This object class reflects all the characteristics associated with the requested transport service. This class   will
       be refined based on technology-dependent characteristics."

ATTRIBUTE
       <signalIdentification>
              "This attribute is imported from G.853.1 and it specifies the signal format of the resources whose
              traffic descriptors are determined by the <tmTrafficDescriptor> information object. The specific
              format values will be defined in technology-specific extensions."

RELATIONSHIP
       <tmTrailHasImmediateTrafficDescriptor>

8.9 tmTrailServiceCharacteristics

<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY: trafficCharacteristics>

<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY: routingConstraints>

DEFINITION
"This object class is derived from <serviceCharacteristics>.
This object class will be refined due to the technological-dependent characteristics."

ATTRIBUTE
<signalIdentification>
"This attribute is imported from G.853.1 and it specifies the signal format of the resources whose service characteristics are determined by the tmTrailServiceCharacteristics information object. The specific format values will be defined in technology-specific extensions."

RELATIONSHIP
<tmTrailHasTSC>

9 Information relationship definitions

9.1 tmTrailHasImmediateTrafficDescriptor

<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY: trafficCharacteristics>

DEFINITION
"This information relationship represents the relationship which exists between a trail and a traffic   descriptor."

ROLE
trailTD
"Played by instances of the <tmTrail> information object class and subclasses."
immediateTrafficDescriptorTrail
"Played by an instance of the <tmTrafficDescriptor> object class."

INVARIANT
inv_1
"Several objects playing the trailTD role may be involved in the relationship."
inv_2
"Only one object playing the immediateTrafficDescriptorTrail role may be involved in the relationship."

9.2 tmTrailHasTSC

<COMMUNITY: trail management, ACTION: set up point-to-point trail, ACTION_POLICY: routingConstraints>

DEFINITION
"The tmTrailHasTSC relationship describes the association between a trail and the related quality of transport service characteristics."

ROLE
transportQualifiedTrail
"Played by instances of the <tmTrail> information object class and subclasses."
transportQualifierTSC
"Played by an instance of the <tmTrailServiceCharacteristics> object class."

INVARIANT
    inv_1
        "Several objects playing the transportQualifiedTrail role may be involved in the relationship."
    inv_2
        "Only one object playing the transportQualifierTSC role may be involved in the relationship."

10   Static schemas

None.

11   Dynamic schemas

None.

12   Attributes

None additional.

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