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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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Enterprise viewpoint for pre-provisioned link management

ITU-T Recommendation G.852.12

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION G.852.12

ENTERPRISE VIEWPOINT FOR PRE-PROVISIONED LINK MANAGEMENT

Summary

The pre-provisioned link management service provides functionality to add/remove transport entities (link connections or connection termination points) to/from client linking entities (links/link ends). The client linking entities have to be created using the topology management community (see G.85x.3 series of Recommendations). The transport entities that could be potentially added to the client linking entity have to be provided using either the pre-provisioned adaptation management (see G.85x.8 series of Recommendations) within topological linking entities or the link management within client linking entities.

Source

ITU-T Recommendation G.852.12 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

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The 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 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

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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.

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Recommendation G.852.12

ENTERPRISE VIEWPOINT FOR PRE-PROVISIONED LINK MANAGEMENT

(Geneva, 1999)

1 Scope

This Recommendation specifies the enterprise viewpoint for the pre-provisioned link management of a transport network.

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.852.2 (1999), *Enterprise viewpoint description of transport network resource model.*

3 Definitions

None.

4 Abbreviations

This Recommendation uses the following abbreviations:

CTP Connection Termination Point

Id Identifier

plm pre-provisioned link management

SDH Synchronous Digital Hierarchy

WDM Wavelength Division Multiplexing

5 Conventions

None.

6 Community pre-provisioned link management

6.1 Purpose

The purpose of this community is to allow a caller:

- to add link connections to a link or remove link connections from a link and to update the capacity of the link in the arc view (see Figure 1); or
- to add CTPs to a link end or remove CTPs from a link end and to update the capacity of the link end in the point view.

This community should be used in the case where capacity has already been provisioned using the trail management and adaptation management communities. This capability of having pre-provisioned link connections is available in technologies such as SDH or WDM.

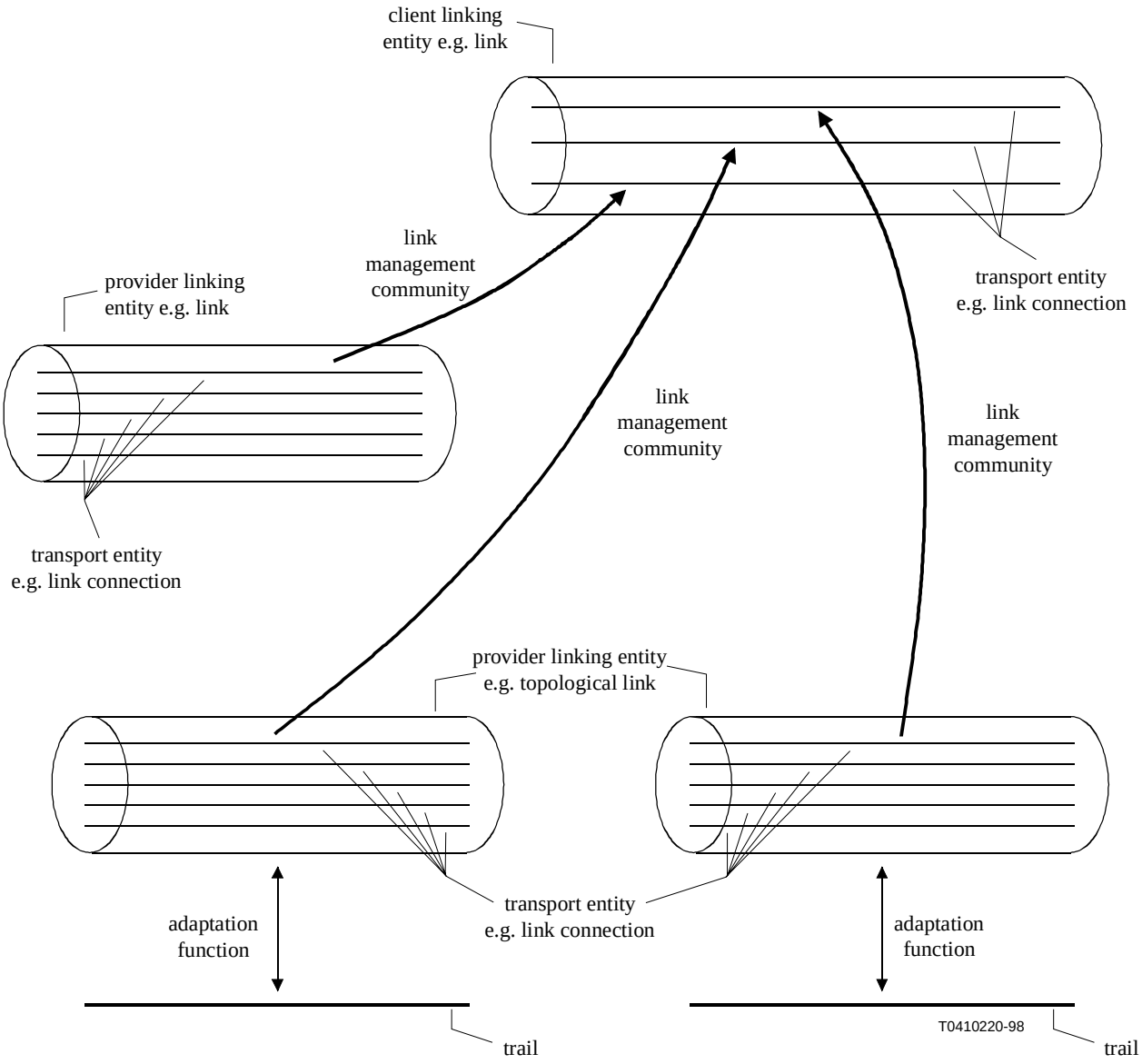

Figure 1/G.852.12 – Possible functionalities of the link management community (arc view)

6.2 Role

plm_caller

This role reflects the client of the actions defined within this community. One and only one caller role occurrence must exist in the community.

plm_provider

This role reflects the server of the actions defined within this community. One and only one provider role occurrence must exist in the community.

notification receiver

This role represents a receiver of the reporting actions defined within this community. Zero or more notification receiver role occurrence may exist in the community.

layer network domain

This role represents the layer network domain resource defined in Recommendation G.852.2. One and only one role occurrences must exist in the community.

client linking entity

This role reflects the link resource or the link end resource as defined in Recommendation G.852.2 to/from which the transport entities could be added/removed. One or more linking entity role occurrences may exist in the community.

provider linking entity

This role reflects the topological link or link resource, or the topological link end or link end resource as defined in Recommendation G.852.2. Zero or more topological linking entity or linking entity role occurrences may exist in the community.

transport entity

This role reflects the link connection resource or the connection termination point resource as defined in Recommendation G.852.2 which could be added/removed to/from the client linking entity. One or more transport entity role occurrences may exist in the community.

6.3 Community policy

OBLIGATION resourceConsistency

This community applies for both arc-oriented view and point-oriented view. The roles linking entity and transport entity can be played by either arc-oriented resources or point-oriented resources, but consistently: those two roles can be played either by arc-oriented resources or by point-oriented resources, but not by a mixture of arc-oriented and point-oriented resources. In an arc-oriented view the point oriented resources may only exist at the boundary of a subnetwork.

OBLIGATION scope

Only properties that are explicitly stated in this community are valid and can be accessed by both caller and provider of this community. Conformance to this service depends only on the explicit specification of this service. Any other modifications outside of this community are not relevant for conformance.

OBLIGATION serviceRejection

In case of service rejection, the provider shall identify the obligation or prohibition which is not fulfilled either by the caller or the provider. The provider shall give an indication about any

execution infrastructure problem. In this case, the level of detail indicated by the provider shall be dependent on the shared knowledge of the infrastructure on which the community is running. For the case where any wrong parameters have been passed to the provider, the return exception shall indicate these parameters.

OBLIGATION signalId

Each resource in the community shall have the same signal identification. The community constitutes a layer network domain.

OBLIGATION viewingCapabilities

The provider shall support a view of the resource properties and relationships that have been identified or permitted in the service contract with the caller.

OBLIGATION belongingConstraints

All resources managed in the community actions shall belong to the community.

OBLIGATION architecturalConstraints

All the modifications performed on the resources in the community shall respect the architectural constraints expressed in Recommendation G.852.2.

OBLIGATION topologicalLinkingEntity

The actions of this community shall not modify a topological linking entity.

6.4 Action

6.4.1 Add transport entities to client linking entity

This action is used to add one or more transport entities to a client linking entity.

ACTION_POLICY

OBLIGATION supplyClientLinkingEntityId

The caller shall uniquely identify a client linking entity which will contain the added transport entities.

OBLIGATION noExistingClientLinkingEntity

This action will fail if the supplied client linking entity does not exist within the layer network domain. In the case of failure, the provider shall return the identifier in error.

OBLIGATION supplyProviderLinkingEntityId

The caller shall uniquely identify a provider linking entity which has to contain the transport entities that shall be added.

OBLIGATION noExistingProviderLinkingEntity

This action will fail if the supplied provider linking entity does not exist within the layer network domain. In the case of failure, the provider shall return the identifier in error.

PERMISSION identifyTransportEntities

The caller may uniquely identify one or more transport entities (within the provider linking entity) that shall be added to the client linking entity.

OBLIGATION failIfSelectedTransportEntitiesNotAvailable

If PERMISSION identifyTransportEntities is part of the service contract the action will fail if at least one of the selected transport entities is not available within the provider linking entity. In this case the identification of this transport entity shall be given back to the caller.

PERMISSION supplyNumberOfTransportEntities

The caller may identify the number of transport entities (within the provider linking entity) that shall be added to the client linking entity.

OBLIGATION failIfNotEnoughTransportEntitiesAvailable

If PERMISSION supplyNumberOfTransportEntities is part of the service contract, the action will fail if there are not enough transport entities available within the provider linking entity. The number of requested transport entities shall be returned to the caller.

PERMISSION requestAllTransportEntities

The caller may request all available transport entities (within the provider linking entity) to be added to the client linking entity.

OBLIGATION failIfProviderLinkingEntityHasNoAvailableTransportEntities

If PERMISSION requestAllTransportEntities is part of the service contract, the action will fail if the provider linking entity does not have any available transport entities. In the case of failure, the provider shall return the identifier of the provider linking entity.

OBLIGATION usePermission

The action will fail if the caller does not use "one and only one" of the permissions identifyTransportEntities, supplyNumberOfTransportEntities or requestAllTransportEntities.

OBLIGATION addTransportEntitiesToLinkingEntity

The provider shall add the requested transport entities to the provider linking entity.

OBLIGATION increaseCapacity

In case of a successful action, the provider shall increase the capacity of the client linking entity by the number of transport entities added to this linking entity.

OBLIGATION success

In case of a successful action, the provider shall return to the caller the unique transport entity identifiers that have been added to the client linking entity.

6.4.2 Remove transport entities from client linking entity

This action is used to remove one or more transport entities from a client linking entity.

ACTION_POLICY

OBLIGATION supplyClientLinkingEntityId

The caller shall uniquely identify a client linking entity from which the transport entities shall be removed.

OBLIGATION noExistingClientLinkingEntity

This action will fail if the supplied client linking entity does not exist within the layer network domain. In the case of failure, the provider shall return the identifier in error.

OBLIGATION identifyTransportEntities

The caller shall identify one or more transport entities that shall be removed.

OBLIGATION failIfSelectedTransportEntitiesNotAvailable

The action will fail if at least one of the identified transport entities is not available. In this case, the identification of this transport entity shall be given back to the caller.

OBLIGATION removeTransportEntitiesFromClientLinkingEntity

The provider shall remove the identified transport entities from the client linking entity.

OBLIGATION decreaseCapacity

In case of a successful action, the provider shall decrease the capacity of the client linking entity by the number of transport entities removed from the client linking entity.

OBLIGATION success

In case of a successful action, the provider shall inform the caller that the action was successful.

6.4.3 Report client linking entity capacity change

This action is used by the provider to report to the notification receiver the change of the number of transport entities in a client linking entity.

ACTION_POLICY

OBLIGATION supplyClientLinkingEntityId

When the capacity of the client linking entity has been changed, the notification receiver shall be informed by the provider of the identifier of this client linking entity.

OBLIGATION informTransportEntityIdentifiers

The notification receiver shall be informed by the provider of the identifiers of the transport entities that have been added to or removed from the client linking entity.

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