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

Digital transmission systems – Digital networks – SDH network characteristics

Management of the transport network – Enterprise viewpoint for simple subnetwork connection management

ITU-T Recommendation G.852.1

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TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

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ITU-T RECOMMENDATION G.852.1

MANAGEMENT OF THE TRANSPORT NETWORK – ENTERPRISE VIEWPOINT FOR SIMPLE SUBNETWORK CONNECTION MANAGEMENT

Summary

This Recommendation contains the enterprise viewpoint specification for managing a transport network from a network viewpoint. In particular this Recommendation details the enterprise viewpoint for Subnetwork Connection Management. The specification was written in accordance with G.851.1 Management of the Transport Network – Application of the RM-ODP Framework.

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

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, the ITU had/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.852.1

**MANAGEMENT OF THE TRANSPORT NETWORK – ENTERPRISE VIEWPOINT
FOR SIMPLE SUBNETWORK CONNECTION MANAGEMENT**

(Geneva, 1996)

1   Scope

This Recommendation describes the enterprise viewpoint specification for Simple Subnetwork Connection 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.

–   ITU-T Recommendation G.805 (1995), *Generic functional architecture of transport networks*.

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

3   Definitions

None.

4   Abbreviations

This Recommendation uses the following abbreviations:

ITU-T   International Telecommunication Union – Telecommunication Standardization Sector

RM-ODP   Reference Model for Open Distributed Processing

5   Enterprise viewpoint

The enterprise specifications contained in the annexes were written in accordance with Recommendation G.851.1 that defines the RM-ODP methodology employed to generate enterprise specifications in regard to the management of transport networks.

The enterprise specifications assume the existence of G.805 network resources and are thus written from a Network View of managing a transport network, as opposed to network management based upon a Network Element View.

ANNEX A

COMMUNITY sscc "Simple Subnetwork Connection Configuration"

A.1 PURPOSE

"The objective of the community is to configure point-to-point subnetwork connections between pairs of ports, which have been previously populated on the boundary of a subnetwork."

A.2 ROLE (See Figure A.1)

caller "This role reflects the client of the actions defined in this community.

One and only one caller role occurrences may exist in the community."

provider "This role reflects the server of the actions defined in this community.

One and only one provider role occurrence must exist in the community."

port "This role reflects the G.805 port resource used in the actions defined in this community.

Zero or more port role occurrences may exist in the community."

sn "This role reflects the G.805 subnetwork resource used in the actions defined in this community.

One and only one sn role occurrence must exist in the community."

snc "This role reflects the G.805 subnetwork connection resource used in the actions defined in this community.

Zero or more snc role occurrences may exist in the community."
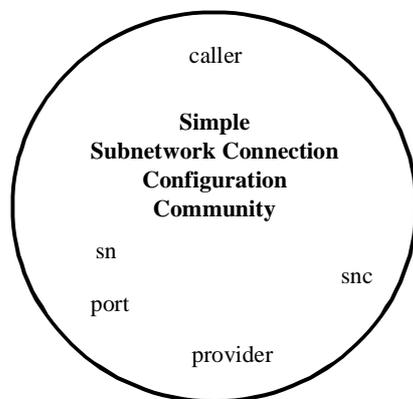
Figure A.1/G.852.1 – ROLE in the Simple Subnetwork Connection Community

A.3 POLICY

OBLIGATION OBLG_1

"The provider shall support such viewing of the resource properties and relationships which have been identified and allowed in the service contract with the caller."

A.4 ACTION

A.4.1 sscc1 "Setup Point-to-Point SNC"

"This action sets up a point-to-point subnetwork connection between two ports on the same subnetwork."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify two ports which must be part of the community."

OBLIGATION OBLG_3

"In case of service establishment, the provider shall inform the caller of the subnetwork connection identifier that is unique in the community for the duration of the subnetwork connection."

PERMISSION PERM_1

"The caller may provide a user identifier for the requested subnetwork connection."

OBLIGATION OBLG_4

"If PERM_1 is part of the contracted service, then the provider shall use the user identifier, if provided, as the unique subnetwork connection identifier when communicating with the caller."

OBLIGATION OBLG_5

"If PERM_1 is part of the contracted service and if the user identifier is not unique in the provider context, then the provider shall reject the user identifier and inform the caller of the rejection."

PERMISSION PERM_3

"The caller may specify the characteristics of the requested transport service (e.g. bandwidth, directionality, route selection criteria, availability, etc.). These are contract and technology specific."

PROHIBITION PROH_1

"The provider shall not satisfy the request if one or both of the ports are already used in a subnetwork connection."

A.4.2 sscc2 "Release Point-to-Point SNC"

"This action is used to release a simple point-to-point subnetwork connection."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall uniquely identify an existing subnetwork connection via its subnetwork connection identifier."

OBLIGATION OBLG_3

"The provider shall inform the caller of the subnetwork connection identifier of the subnetwork connection which has been released."

A.5   ACTIVITY

"None".

A.6   CONTRACT

"Service features subject to negotiation as part of a service contract shall include:

–   degree of visibility of resource (their properties and relationships); and

–   other features which are for future study."

ANNEX B

COMMUNITY sfm "Simple Failure Monitoring"

B.1   PURPOSE

"The objective of the community is to allow monitoring for a failure condition in a managed resource that makes it incapable of performing its normal function."

B.2   ROLE (See Figure B.1)

caller "This role reflects the client of the actions defined in this community.

One or more caller role occurrences can exist in the community."

provider "This role reflects the server of the actions defined in this community.

One and only one provider role occurrence must exist in the community."

monitored_entity "This role reflects the resource in the actions defined in this community subject to simple failure monitoring.

Zero or more monitored_entity role occurrences can exist in the community."
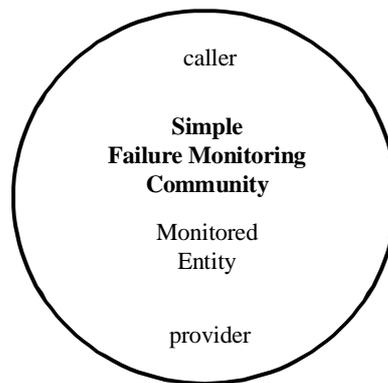
T1527730-97

**Figure B.1/G.852.1 – ROLE in the Failure Monitoring Community**

B.3   POLICY

OBLIGATION OBLG_1

"The provider shall support such viewing of the resource properties and relationships which have been identified and allowed the service contract with the caller."

OBLIGATION OBLG_2

"The provider shall have a unique identity for each Monitored_entity in the community."

B.4   ACTION

B.4.1   sfm1 "Report Failure"

"This action is used by the provider to report on the failure of the monitored_entity to perform its function."

ACTION_POLICY

OBLIGATION OBLG_1

"The caller will be informed by the provider of the identity of a monitored_entity if a failure condition in a resource supporting that monitored_entity results in the inability of the monitored_entity to provide its function."

B.4.2   sfm2 "Report Recovery"

"This action is used by the provider to report on the recovery of the monitored_entity to perform its function."

ACTION_POLICY

OBLIGATION OBLG_1

"The caller will be informed by the provider of the identity of a monitored_entity if a failure condition in a resource supporting that monitored_entity disappears and its function is re-established."

B.4.3   sfm3 "Suspend Monitor Reporting"

"This action is used to suspend failure and recovery reporting of the monitored_entity."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify the monitored_entity for which monitor reporting is requested to be suspended."

OBLIGATION OBLG_3

"If OBLG_2, then the provider shall suspend monitor reporting."

B.4.4   sfm4 "Resume Monitor Reporting"

"This action is used to resume failure and recovery reporting of the Monitored_entity."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify the monitored_entity for which monitor reporting is requested to be resumed."

OBLIGATION OBLG_3

"If OBLG_2 then the provider shall resume monitor reporting."

B.5   ACTIVITY

"None."

B.6   CONTRACT

"Service features subject to negotiation as part of a service contract shall include:
–   degree of visibility of resource (their properties and relationships); and
–   other features which are for future study."

ANNEX C

COMMUNITY smscc "Simple Monitored Subnetwork Connection Configuration"[1]

C.1   PURPOSE

"The objective of the community is to configure point-to-point subnetwork connections and to monitor them for failure.

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[1] This annex presents a combination of communities. While the objective for the combined community is agreed, the general method of combining and representation of combination is for further study.

The following communities are used by this community:

–   <sscc> Simple Subnetwork Connection Configuration Community; and

–   <sfm> Simple Failure Monitoring Community.

Rules concerning the use of these communities are detailed in the community policies and action policies of this community."

C.2   ROLE (see Figure C.1)

caller "This role reflects the client of the actions defined in this community and assumes the role of the caller in other communities used by this community.

One and only one caller role occurrences may exist in the community."

provider "This role reflects the server of the actions defined in this community and assumes the role of the provider in other communities used by this community.

One and only one provider role occurrence must exist in the community."

monitored_snc "This is a role that assumes the role of the G.805 subnetwork connection resource and the monitored_entity resource roles that are used in the actions called by this community.

Zero or more monitored_snc role occurrences can exist in the community."
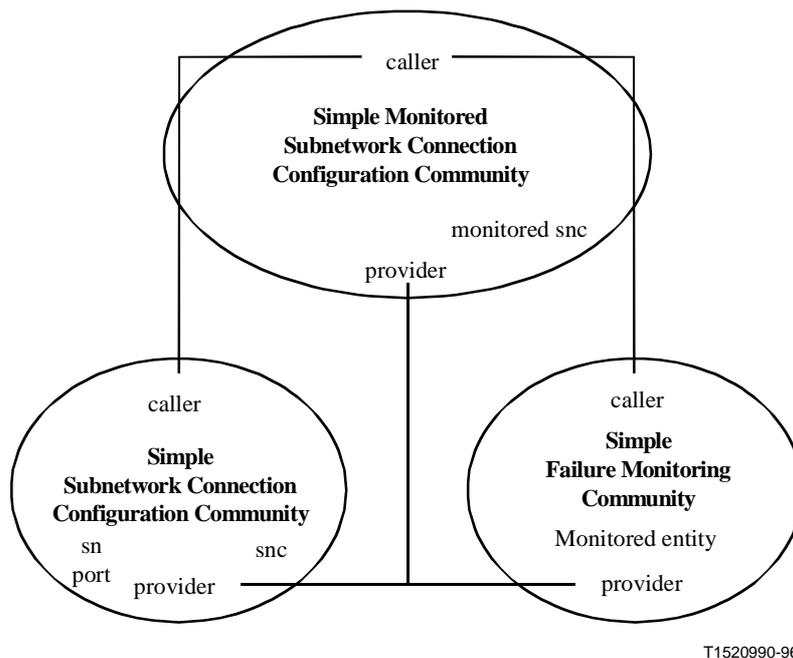

Figure C.1/G.852.1 – ROLE in Simple Monitored Subnetwork Configuration Community and Intercommunity Relationships

C.3   POLICY

OBLIGATION OBLG_1

"The caller of this community shall be PERMISSION PERMitted to assume the role of the caller in the following communities:

–   <sscc> Simple Subnetwork Connection Configuration Community; and

–   <sfm>   Simple Failure Monitoring Community."

OBLIGATION OBLG_2

"The provider of this community shall be permitted to assume the role of the provider in the following communities:

–   <sscc>   Simple Subnetwork Connection Configuration Community; and

–   <sfm>   Simple Failure Monitoring Community."

OBLIGATION OBLG_3

"The monitored subnetwork connection resource shall be recognized by the providers in the called communities as either the subnetwork connection or monitored_entity."

OBLIGATION OBLG_4

"The Setup Point-to-Point Subnetwork Connection action shall be the first action executed from the supporting communities by this community."

OBLIGATION OBLG_5

"The subnetwork connection shall be subject to immediate monitoring as part of the action in OBLG_4."

OBLIGATION OBLG_6

"The provider shall support such viewing of the resource properties and relationships which have been identified and allowed in the service contract with the caller."

C.4   ACTION

"NOTE – There are no actions defined which are unique to this community. All actions are used from other communities.

All reference to providers in the below actions will have their provider role assumed by the provider of this community.

All reference to callers in the below actions will have their caller role assumed by the caller of this community.

Any reference to subnetwork connection in the below actions will have that role assumed by the monitored subnetwork connection of this community.

Any reference to monitored_entity in the below actions will have that role assumed by the monitored subnetwork connection of this community."

C.4.1   sscc1 "Setup Point-to-Point SNC"

"This action sets up a point-to-point subnetwork connection between two ports on the same subnetwork."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify two ports which must be part of the community."

OBLIGATION OBLG_3

"In case of service establishment, the provider shall inform the caller of the Subnetwork Connection identifier that is unique in the community for the duration of the subnetwork connection."

PERMISSION PERM_1

"The caller may provide a user identifier for the requested subnetwork connection."

OBLIGATION OBLG_4

"If PERM_1 is part of the contracted service then the provider shall use the user identifier as the unique subnetwork connection identifier when communicating with the caller."

OBLIGATION OBLG_5

"If PERM_1 is part of the contracted service and if the user identifier is not unique in the provider context, then the provider shall reject the user identifier and inform the caller of the rejection."

PERMISSION PERM_3

"The caller may specify the characteristics of the requested Transport Service (e.g. bandwidth, directionality, route selection criteria, availability, etc.). These are contract and technology specific."

PROHIBITION PROH_1

"The provider shall not satisfy the request if one or both of the ports are already used in a subnetwork connection."

C.4.2 sfm1 "Report Failure"

"This action is used by the provider to report on the failure of the monitored_entity to perform its function."

ACTION_POLICY

OBLIGATION OBLG_1

"The caller will be informed by the provider of the identity of a monitored_entity if a failure condition in a resource supporting that monitored_entity results in the inability of the monitored_entity to provide its function."

C.4.3 sfm2 "Report Recovery"

"This action is used by the provider to report on the recovery of the monitored_entity to perform its function."

ACTION_POLICY

OBLIGATION OBLG_1

"The caller will be informed by the provider of the identity of a monitored_entity if a failure condition in a resource supporting that monitored_entity disappears and its function is re-established."

C.4.4   sfm3 "Suspend Monitor Reporting"

"This action is used to suspend failure and recovery reporting of the monitored_entity."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify the monitored_entity for which monitor reporting is requested to be suspended."

OBLIGATION OBLG_3

"If OBLG_2 then the provider shall suspend monitor reporting."

C.4.5   sfm4 "Resume Monitor Reporting"

"This action is used to resume failure and recovery reporting of the monitored_entity."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall identify the monitored_entity for which monitor reporting is requested to be resumed."

OBLIGATION OBLG_3

"If OBLG_2, then the provider shall resume monitor reporting."

C.4.6   sscc2 "Release Point-to-Point SNC"

"This action is used to release a simple point-to-point subnetwork connection."

ACTION_POLICY

OBLIGATION OBLG_1

"This action must be provided in respect to all the action policies or it fails. In the event the action fails, the provider shall report to the caller which action policy has been violated."

OBLIGATION OBLG_2

"The caller shall uniquely identify an existing subnetwork connection via its subnetwork connection identifier."

OBLIGATION OBLG_3

"The provider shall inform the caller of the subnetwork connection identifier of the subnetwork connection which has been released."

C.5   ACTIVITY

"None."

C.6   CONTRACT

"Service features subject to negotiation as part of a service contract shall include:

–   degree of visibility of resource (their properties and relationships); and

–   other features which are for future study."

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