

Open Networking Foundation

TAPI UML Model

Version 2.4.1

ONF Document Type: Technical Recommendation

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Document History

Version	Date	Description of Change
2.3	May 27, 2021	<p>Model Dump</p> <p><i>Gendoc generates documentation from Eclipse Modeling Framework (EMF) models using document templates in formats such as OpenOffice Writer (.odt), Microsoft Word (.docx), Microsoft Excel (.xlsx) and Microsoft Powerpoint (.pptx).</i></p>
2.4.0	December 2022	See high level diff document in Github
2.4.1	March 2023	See high level diff document in Github

1 Common Model

TapiCommon: This module contains TAPI Common Model definitions. Source: TapiCommon.uml
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1.1 Diagrams

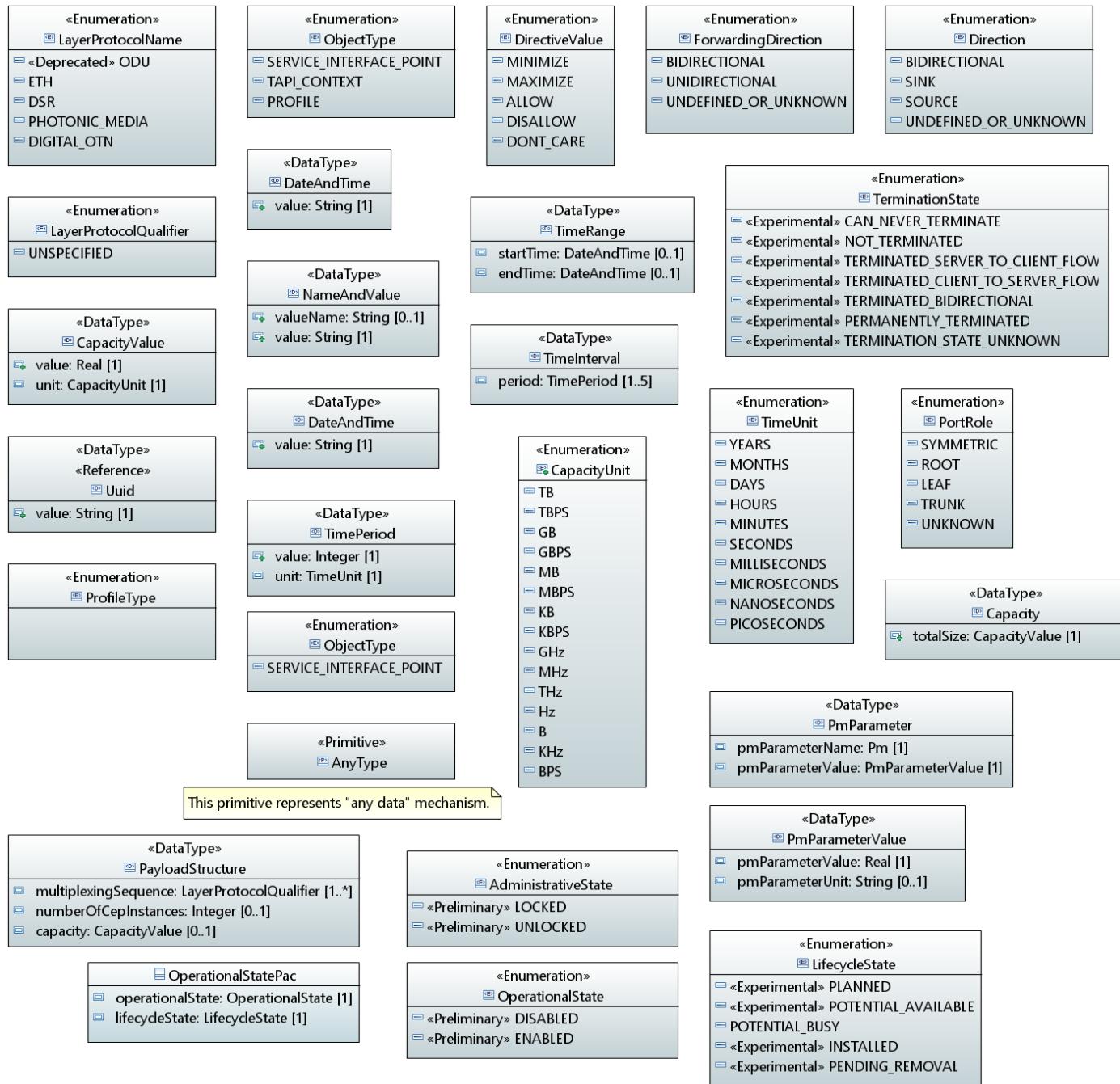
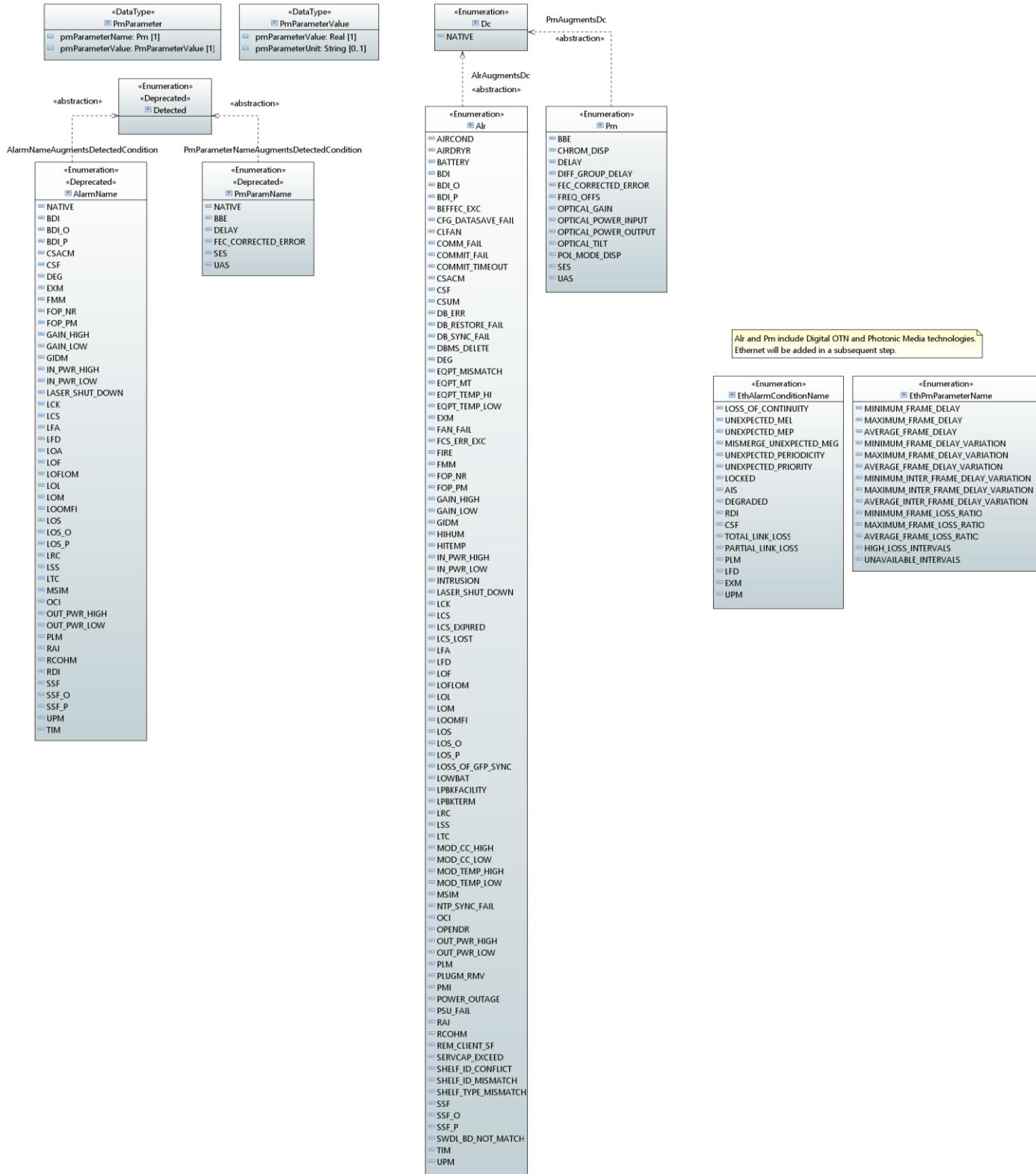
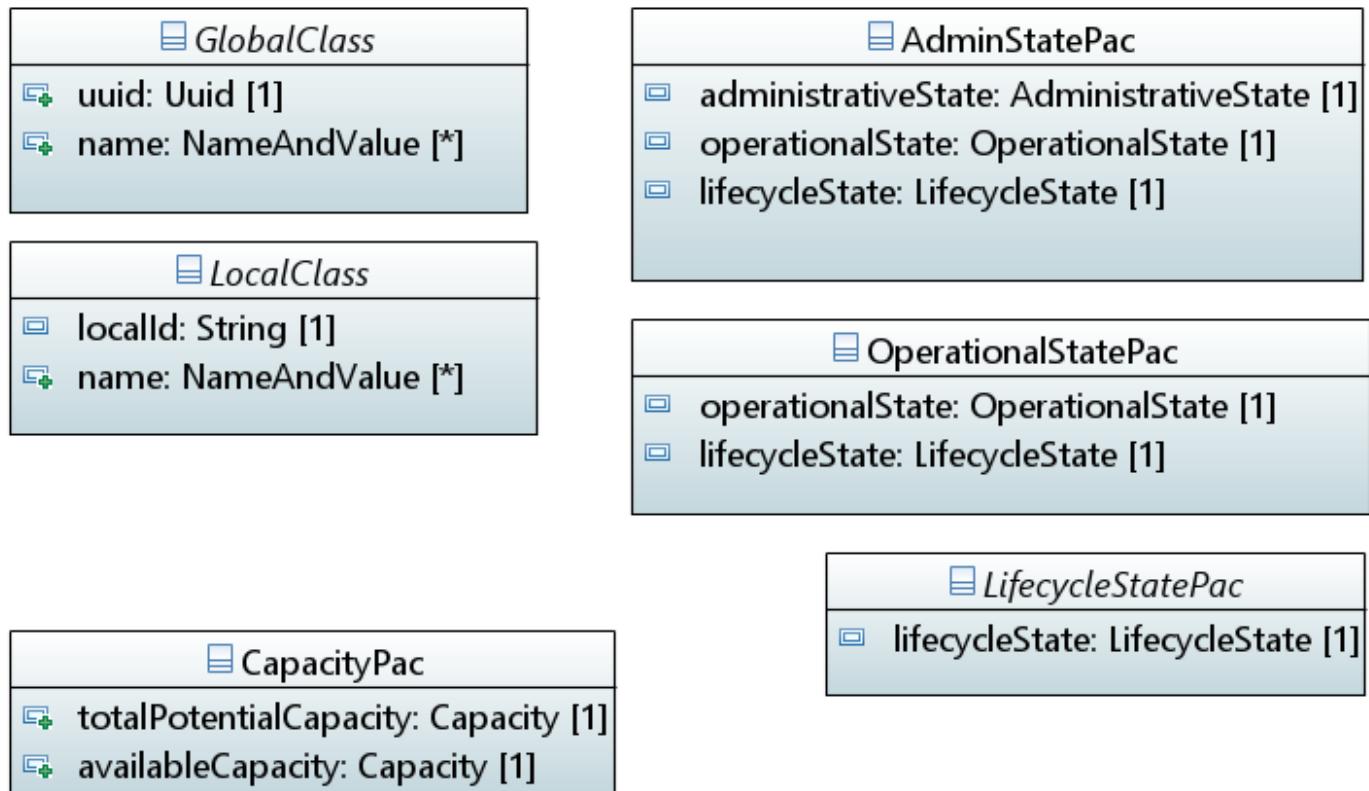
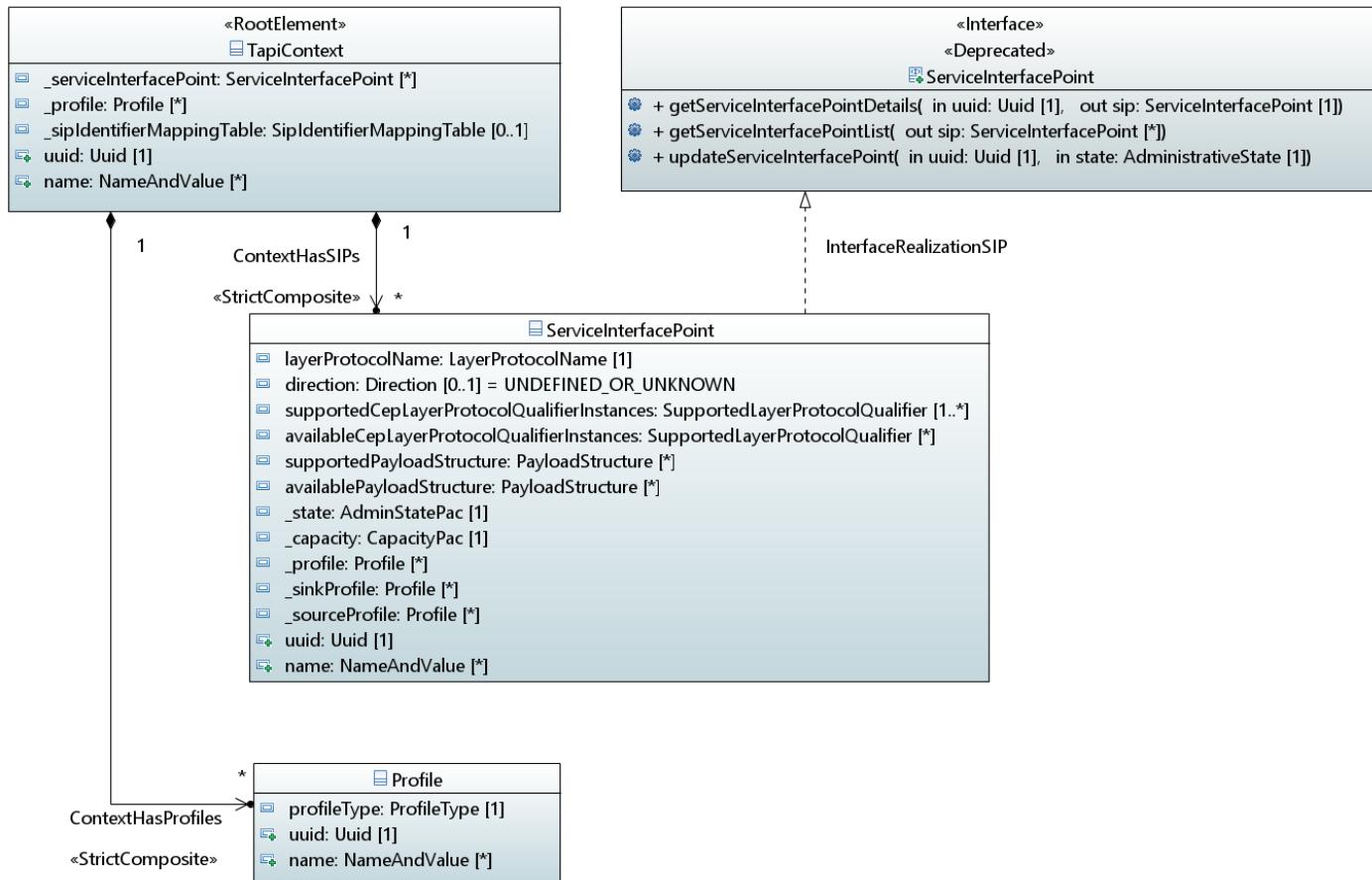
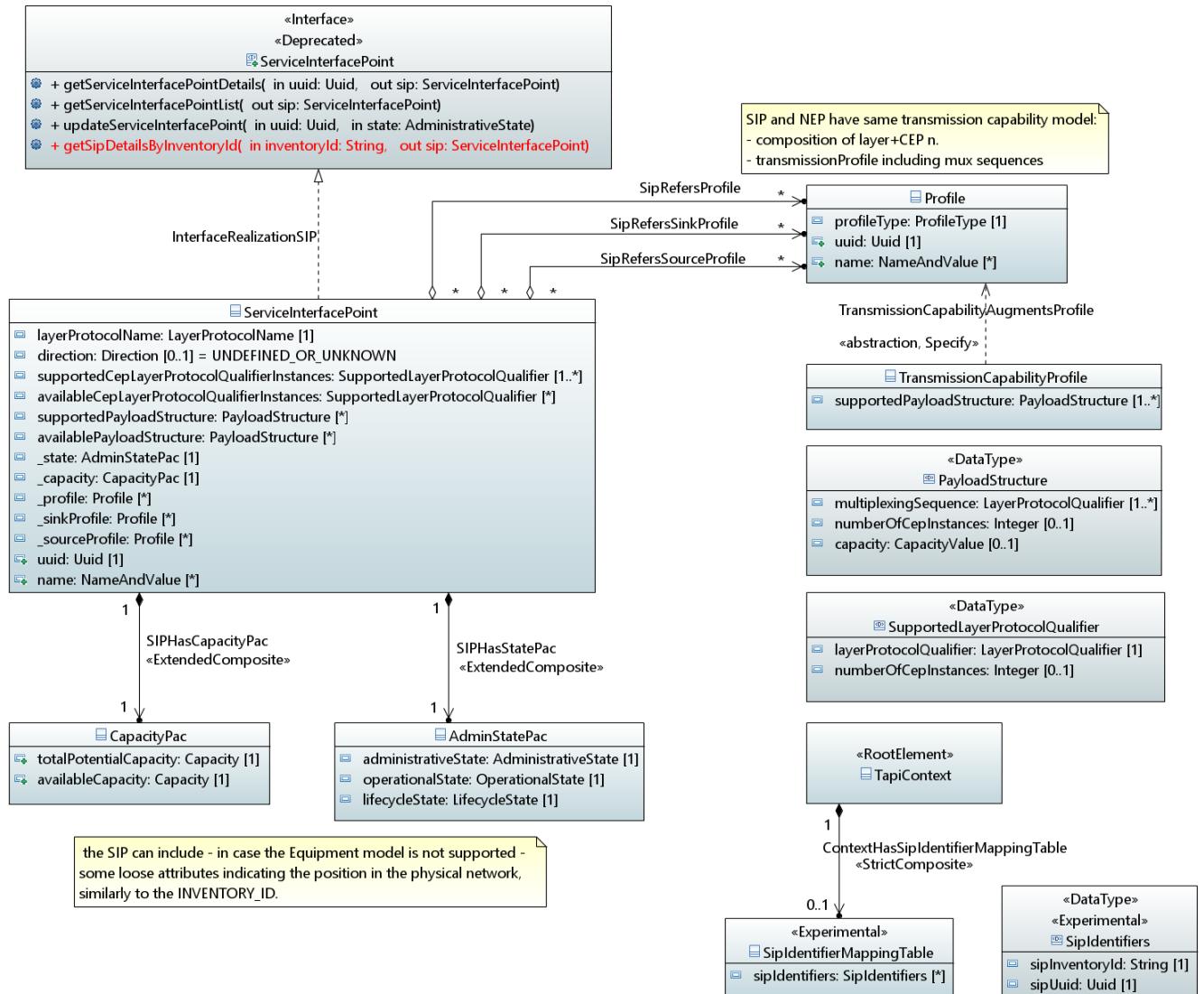


Figure 1 – Diagram *CommonDataTypes*

Figure 2 – Diagram *CommonOamFmTypes*

Figure 3 – Diagram *CommonPacs*Figure 4 – Diagram *Context*

Figure 5 – Diagram `ServicePointDetails`

1.2 Classes

1.2.1 AdminStatePac

Description:

- Provides state attributes that are applicable to an entity that can be administered. Such an entity also has operational and lifecycle aspects.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
administrativeState	AdministrativeState	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The administration of managed objects operates independently of the operability and usage of managed objects and is described by the administrative state attribute. The administrative state is used by the operator to make a resource available for service, or to remove a resource from service.
operationalState	OperationalState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The operational state gives the information about the real capability of a resource to provide or not provide service.
lifecycleState	LifecycleState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				Used to track the planned deployment, allocation to clients and withdrawal of resources.

Table 1 – Attributes for class *AdminStatePac*

1.2.2 CapacityPac

Description:

- Provides capacity related attributes.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
totalPotentialCapacity	Capacity	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				An optimistic view of the capacity of the entity assuming that any shared capacity is available to be taken.
availableCapacity	Capacity	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				Capacity available to be assigned.

Table 2 – Attributes for class *CapacityPac*

1.2.3 GlobalClass

Description:

- This class serves as the super class for all TAPI entities that can be directly retrieved by their ID. As such, these are first class entities and their ID is expected to be globally unique.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
uuid	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6

Attribute Name	Type	Mult.	Access	Stereotypes
name	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 3 – Attributes for class *GlobalClass***1.2.4 LifecycleStatePac****Description:**

- Provides state attributes for an entity that has lifecycle aspects only.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
lifecycleState	LifecycleState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Used to track the planned deployment, allocation to clients and withdrawal of resources.

Table 4 – Attributes for class *LifecycleStatePac***1.2.5 LocalClass****Description:**

- This class serves as the super class for all TAPI entities that are ancillary of first class entities, i.e. their ID is not expected to be globally unique.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
localId	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 5 – Attributes for class LocalClass

1.2.6 OperationalStatePac

Description:

- Provides state attributes that are applicable to an entity that reflects operational aspects. Such an entity is expected to also have lifecycle aspects.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
operationalState	OperationalState	1	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The operational state gives the information about the real capability of a resource to provide or not provide service.				

Attribute Name	Type	Mult.	Access	Stereotypes
lifecycleState	LifecycleState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Used to track the planned deployment, allocation to clients and withdrawal of resources.

Table 6 – Attributes for class *OperationalStatePac*

1.2.7 Profile

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
profileType	ProfileType	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 7 – Attributes for class *Profile*

1.2.8 ServiceInterfacePoint

Description:

- A Service Interface Point represents the network-interface-facing aspects of the edge-port functions that access the forwarding capabilities provided by the Node. Hence it provides a limited, simplified view of interest to external clients (e.g. shared addressing, capacity, resource availability, etc.), that enable the clients to request connectivity without the need to understand the provider network internals.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
direction	Direction Default value: <i>UNDEFINED_OR_UNKNOWN</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
supportedCepLayerProtocolQualifierInstances	SupportedLayerProtocolQualifier	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			The supported sub-layer(s) or rate(s) of Layer Protocol.
availableCepLayerProtocolQualifierInstances	SupportedLayerProtocolQualifier	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
supportedPayloadStructure	PayloadStructure	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
availablePayloadStructure	PayloadStructure	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			The ServiceInterfacePoint (SIP) status information.

Attribute Name	Type	Mult.	Access	Stereotypes
_capacity	CapacityPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
The ServiceInterfacePoint (SIP) capacity information.				
_profile	Profile	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_sinkProfile	Profile	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_sourceProfile	Profile	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}.' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 8 – Attributes for class *ServiceInterfacePoint***1.2.9 SipIdentifierMappingTable****Description:**

- Table for the mapping between UUID and Inventory Id of SIPs.

Applied stereotypes:

- Experimental
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
sipIdentifiers	SipIdentifiers	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 9 – Attributes for class *SipIdentifierMappingTable***1.2.10 TapiContext****Description:**

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, (i.e., encompassing a designated set of interconnected (virtual) network elements). This class includes the list of Service Interface Points. This class can be augmented by specific contexts, e.g. topology context.

Applied stereotypes:

- RootElement
 - name: invalid
 - multiplicity: invalid

- description: invalid
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_serviceInterfacePoint	ServiceInterfacePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
	Description:			
	The ServiceInterfacePoint (SIP) instances belonging to this context.			
_profile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
	Description:			
_sipIdentifierMappingTable	SipIdentifierMappingTable	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
	Description:			
	Table for the mapping between UUID and Inventory Id of SIPs.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey: yes – part: 1 ● isInvariant: true ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
	Description:			
	UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 10 – Attributes for class *TapiContext*

1.2.11 TransmissionCapabilityProfile

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
supportedPayloadStructure	PayloadStructure	1..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 11 – Attributes for class *TransmissionCapabilityProfile*

1.3 Signals

1.4 Associations

1.4.1 ContextHasProfiles

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
profile	composite	Yes	Profile	0..*
tapicontext	none	No	TapiContext	1

Table 12 – Member ends for association *ContextHasProfiles*

1.4.2 ContextHasSIPs

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serviceInterfacePoint	composite	Yes	ServiceInterfacePoint	0..*
context	none	No	TapiContext	1

Table 13 – Member ends for association *ContextHasSIPs*

1.4.3 ContextHasSipIdentifierMappingTable

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sipIdentifierMappingTable	composite	Yes	SipIdentifierMappingTable	0..1
tapicontext	none	No	TapiContext	1

Table 14 – Member ends for association *ContextHasSipIdentifierMappingTable*

1.4.4 SIPHasCapacityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_capacity	composite	Yes	CapacityPac	1
serviceinterfacepoint	none	No	ServiceInterfacePoint	1

Table 15 – Member ends for association *SIPHasCapacityPac*

1.4.5 SIPHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
_serviceEndPoint	none	No	ServiceInterfacePoint	1

Table 16 – Member ends for association *SIPHasStatePac*

1.4.6 SipRefersProfile

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
serviceinterfacepoint	none	No	ServiceInterfacePoint	0..*

Table 17 – Member ends for association *SipRefersProfile***1.4.7 SipRefersSinkProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkProfile	shared	Yes	Profile	0..*
serviceinterfacepoint	none	No	ServiceInterfacePoint	0..*

Table 18 – Member ends for association *SipRefersSinkProfile***1.4.8 SipRefersSourceProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sourceProfile	shared	Yes	Profile	0..*
serviceinterfacepoint	none	No	ServiceInterfacePoint	0..*

Table 19 – Member ends for association *SipRefersSourceProfile***1.5 Abstractions****1.5.1 AlarmNameAugmentsDetectedCondition**

Augmenting Enumeration	Augmented Enumeration
<p>AlarmName</p> <ul style="list-style-type: none"> • BDI • BDI_O • BDI_P • CSACM • CSF • DEG • EXM • FMM • FOP_NR • FOP_PM • GAIN_HIGH • GAIN_LOW • GIDM • IN_PWR_HIGH • IN_PWR_LOW • LASER_SHUT_DOWN • LCK • LCS • LFA • LFD • LOA • LOF • LOFLOM • LOL • LOM • LOOMFI • LOS • LOS_O • LOS_P • LRC • LSS • LTC • MSIM • NATIVE • OCI • OUT_PWR_HIGH • OUT_PWR_LOW • PLM • RAI • RCOHM • RDI • SSF • SSF_O • SSF_P • TIM • UPM 	Detected
<p>Comment</p> <p>Enumeration Augment.</p>	

Table 20 – Member ends for enum abstraction *AlarmNameAugmentsDetectedCondition***1.5.2 AlrAugmentsDc**

Augmenting Enumeration	Augmented Enumeration
------------------------	-----------------------

<p>Alr</p> <ul style="list-style-type: none"> • AIRCOND • AIRDYR • BATTERY • BDI • BDI_O • BDI_P • BEFFEC_EXC • CFG_DATASAVE_FAIL • CLFAN • COMMIT_FAIL • COMMIT_TIMEOUT • COMM FAIL • CSACM • CSF • CSUM • DBMS_DELETE • DB_ERR • DB_RESTORE_FAIL • DB_SYNC_FAIL • DEG • EQPT_MISMATCH • EQPT_MT • EQPT_TEMP_HI • EQPT TEMP LOW • EXM • FAN_FAIL • FCS_ERR_EXC • FIRE • FMM • FOP_NR • FOP_PM • GAIN_HIGH • GAIN_LOW • GIDM • HIHUM • HITEMP • INTRUSION • IN_PWR_HIGH • IN_PWR_LOW • LASER_SHUT_DOWN • LCK • LCS • LCS_EXPIRED • LCS_LOST • LFA • LFD • LOF • LOFLOM • LOL • LOM • LOOMFI • LOS • LOSS_OF_GFP_SYNC • LOS_O • LOS_P • LOWBAT • LPBKFACTILITY • LPBKTERM • LRC • LSS • LTC • MOD_CC_HIGH 	<p>Dc</p> <ul style="list-style-type: none"> • NATIVE
--	--

<ul style="list-style-type: none"> • MOD_CC_LOW • MOD_TEMP_HIGH • MOD_TEMP_LOW • MSIM • NTP SYNC FAIL • OCI • OPENDR • OUT_PWR_HIGH • OUT_PWR_LOW • PLM • PLUGM_RMV • PMI • POWER_OUTAGE • PSU_FAIL • RAI • RCOHM • REM_CLIENT_SF • SERVCAP_EXCEED • SHELF_ID_CONFLICT • SHELF_ID_MISMATCH • SHELF_TYPE_MISMATCH • SSF • SSF_O • SSF_P • SWDL_BD_NOT_MATCH • TIM • UPM 	
Comment Enumeration Augment.	

Table 21 – Member ends for enum abstraction *AlrAugmentsDc***1.5.3 InterfaceRealizationSIP**

Augmenting Enumeration	Augmented Enumeration
ServiceInterfacePoint	ServiceInterfacePoint
Comment The SIP Interface Realization.	

Table 22 – Member ends for enum abstraction *InterfaceRealizationSIP***1.5.4 PmAugmentsDc**

Augmenting Enumeration	Augmented Enumeration
Pm <ul style="list-style-type: none"> • BBE • CHROM_DISP • DELAY • DIFF_GROUP_DELAY • FEC CORRECTED ERROR • FREQ_OFFSETS • OPTICAL_GAIN • OPTICAL_POWER_INPUT • OPTICAL_POWER_OUTPUT • OPTICAL_TILT • POL_MODE_DISP • SES • UAS 	Dc <ul style="list-style-type: none"> • NATIVE
Comment Enumeration Augment.	

Table 23 – Member ends for enum abstraction *PmAugmentsDc***1.5.5 PmParameterNameAugmentsDetectedCondition**

Augmenting Enumeration	Augmented Enumeration
PmParamName <ul style="list-style-type: none"> • BBE • DELAY • FEC_CORRECTED_ERROR • NATIVE • SES • UAS 	Detected
Comment Enumeration Augment.	

Table 24 – Member ends for enum abstraction *PmParameterNameAugmentsDetectedCondition***1.5.6 TransmissionCapabilityAugmentsProfile**

Augmenting Class	Augmented Class	Comment
TransmissionCapabilityProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 25 – Member ends for class abstraction *TransmissionCapabilityAugmentsProfile***1.6 Data Types****1.6.1 Capacity****Description:**

- Information on capacity of a particular entity.

Attribute Name	Type	Mult.	Access	Stereotypes
totalSize	CapacityValue	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Total capacity of the entity. In case of bandwidthProfile, this is expected to be the same as the committedInformationRate.

Table 26 – Attributes for data type *Capacity*

1.6.2 CapacityValue

Description:

- The Capacity (Bandwidth) values that are applicable for digital layers.

Attribute Name	Type	Mult.	Access	Stereotypes
value	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The specific value of the capacity.
unit	CapacityUnit	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The specific unit of measurement of the capacity.

Table 27 – Attributes for data type *CapacityValue*

1.6.3 DateAndTime

Description:

- This primitive type defines the date and time according to ISO 8601 with the following structure: yyyyMMddhhmmss.s[Z|{+|-}HHMm] where: yyyy 0000..9999 year MM 01..12 month dd 01..31 day hh 00..23 hour mm 00..59 minute ss 00..60 second (60 for leap seconds) s .0...9 tenth of second (set to .0 if EMS or NE cannot support this granularity) Z Z indicates UTC (rather than local time) {+|-} + or - delta from UTC HH 00..23 time zone difference in hours Mm 00..59 time zone difference in minutes.

Attribute Name	Type	Mult.	Access	Stereotypes
value	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The specific value of the date and time.

Table 28 – Attributes for data type *DateAndTime*

1.6.4 NameAndValue

Description:

- A scoped name-value pair.

Attribute Name	Type	Mult.	Access	Stereotypes
valueName	String	0..1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The name of the value. Optional, the value need not to have a name.
value	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The specific value.

Table 29 – Attributes for data type *NameAndValue*

1.6.5 PayloadStructure

Description:

- The supported multiplexing sequences, e.g. - ODU0; ODU1; ODU2; ODU4 : 80 - ODU0; ODU1; ODU2; ODU3; ODU4 : 64 - ODUflex; ODU2; ODU3; ODU4 : 64 [64/ts] : 10G - ODUflex; ODU2; ODU4: 80 [80/ts] : 10G - ODU1; ODU2; ODU3; ODUCn : 40 [mult. for n] - ODU2; ODU4; ODUCn: 10 [mult. for n] - ODU2; ODU3: ODU4; ODUCn: 8 [mult. for n] - ODU3; ODU4; ODUCn: 2 [mult. for n] - OTSiMC; MC; OMS; OTS : 80 : 50G - ODUCn; OTSiMC : 2 : 200G - ODUCn; OTSiMC : 1 : 400G In each sequence, the first entry indicates the upper most client (non-terminated) CEP, the rest of entries indicate the server terminated CEPs (forming the mux path).

Attribute Name	Type	Mult.	Access	Stereotypes
multiplexingSequence	LayerProtocolQualifier	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	List of layer protocol qualifiers composing the multiplexing sequence.			
numberOfCepInstances	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The maximum number of uppermost client CEPs (non-terminated). This relates to the first entry of the mux sequence.			
capacity	CapacityValue	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The maximum capacity of the multiplexing sequence. E.g. in case of ODUFlex.			

Table 30 – Attributes for data type *PayloadStructure*

1.6.6 PmParameter

Description:

- PM metric name and value.

Attribute Name	Type	Mult.	Access	Stereotypes
pmParameterName	Pm	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The name of the PM metric. Technology specific modules may define specific PM metrics.			

Attribute Name	Type	Mult.	Access	Stereotypes
pmParameterValue	PmParameterValue	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 31 – Attributes for data type *PmParameter***1.6.7 PmParameterValue****Description:**

- PM metric value.

Attribute Name	Type	Mult.	Access	Stereotypes
pmParameterValue	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 32 – Attributes for data type *PmParameterValue***Table 33 – Attributes for data type *Range*****1.6.8 SipIdentifiers****Description:**

- Each entry provides the mapping between the UUID and the Inventory Id of a SIP instance.

Applied stereotype:

- Experimental

Attribute Name	Type	Mult.	Access	Stereotypes
sipInventoryId	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Inventory ID of the SIP.			
sipUuid	Uuid	1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	UUID of the SIP.			

Table 34 – Attributes for data type *SipIdentifiers*

1.6.9 SupportedLayerProtocolQualifier

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolQualifier	LayerProtocolQualifier	1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
numberOfCepInstances	Integer	0..1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Number of CEP instances at the layer protocol qualifier.			

Table 35 – Attributes for data type *SupportedLayerProtocolQualifier*

1.6.10 TimeInterval

Description:

- Interval of time, duration. Q.821: The Interval attribute type indicates the time between occurrences of a given activity described by an instance of the Management Operations Schedule object class. The interval can be specified in seconds, minutes, hours, or days.

Attribute Name	Type	Mult.	Access	Stereotypes
period	TimePeriod	1..5	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 36 – Attributes for data type *TimeInterval*

1.6.11 TimePeriod

Description:

- Period of time.

Attribute Name	Type	Mult.	Access	Stereotypes
value	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Description:
The specific value of the time period.

unit	TimeUnit	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
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Description:
The unit of measurement of the time period.

Table 37 – Attributes for data type *TimePeriod*

1.6.12 TimeRange

Description:

- Range of time.

Attribute Name	Type	Mult.	Access	Stereotypes
startTime	DateAndTime	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Date and time of the range start.
endTime	DateAndTime	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Date and time of the range end.

Table 38 – Attributes for data type *TimeRange*

1.6.13 Uuid

Description:

- The universal ID value where the mechanism for generation is defined by some authority not directly referenced in the structure. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}' + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6

Applied stereotype:

- Reference
 - reference: {"source": "rfc6991", "yang-import": "ietf-yang-types/uuid"}

Attribute Name	Type	Mult.	Access	Stereotypes
value	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The specific value of the universal id.

Table 39 – Attributes for data type *Uuid*

1.7 Enumerations

1.7.1 AdministrativeState

Description:

- The possible values of the administrativeState.

Contains Enumeration Literals:

- LOCKED:
 - Users are administratively prohibited from making use of the resource.
 - Applied stereotype:
 - Preliminary
- UNLOCKED:
 - Users are allowed to use the resource.
 - Applied stereotype:
 - Preliminary

1.7.2 AlarmName

Description:

- The alarm condition name, or alarm probable cause.

Applied stereotype:

- Deprecated

Contains Enumeration Literals:

- NATIVE:
 - This value indicates an Alarm Condition not standardized by this model and specified only in native info attribute.
- BDI:
 - G.798: Backward defect indication.
- BDI_O:
 - G.798: Backward defect indication overhead.
- BDI_P:
 - G.798: Backward defect indication payload.
- CSACM:
 - G.798: Calendar Slot Availability Count Mismatch.
- CSF:
 - G.798: Client signal fail.
- DEG:
 - G.798, G.806: Signal degrade.
- EXM:
 - GFP extension header mismatch. G.806 - Common GFP sink processes: GFP extension header mismatch (dEXM) is raised when the accepted EXI (AcEXI) is different from the expected EXI. dEXM is cleared when AcEXI matches the expected EXI or GFP_SF is active.
- FMM:
 - G.798: FlexO/FlexE Map Mismatch.
- FOP_NR:

- G.798: ODU linear protection failure of protocol no response.
- FOP_PM:
 - G.798: ODU linear protection failure of protocol provisioning mismatch.
- GAIN_HIGH:
- GAIN_LOW:
- GIDM:
 - G.798: Group ID Mismatch.
- IN_PWR_HIGH:
- IN_PWR_LOW:
- LASER_SHUT_DOWN:
- LCK:
 - G.798: Locked.
- LCS:
 - G.798, IEEE 802.3, G.709: Loss of character synchronization.
- LFA:
 - G.798: Loss of FEC word alignment.
- LFD:
 - GFP loss of frame delineation. G.806 - Server layer-specific GFP sink processes: GFP loss of frame delineation (dLFD) is raised when the frame delineation process (clause 6.3.1 of [ITU-T G.7041]) is not in the "SYNC" state. dLFD is cleared when the frame delineation process is in the "SYNC" state.
- LOA:
 - G.798: Loss of alignment.
- LOF:
 - G.798, G.783: Loss Of Frame.
- LOFLOM:
 - G.798: Loss of frame and multiframe - tributary port #p
- LOL:
 - G.798: Loss of lane alignment.
- LOM:
 - G.798: Loss of multiframe. Loss of the interleaved FlexESG multi-frame.
- LOOMFI:
 - G.798: OPU multiframe (OMFI) reception for OPUk with k = 4
- LOS:
 - G.783: Loss Of Signal.
- LOS_O:
 - G.798: Loss of signal overhead.
- LOS_P:
 - G.798: Loss of signal information from the media element. Loss of optical signal.
- LRC:
 - G.798: Loss of Rate Compensation blocks.
- LSS:
 - G.798, O.151: Loss of PRBS lock.
- LTC:
 - G.798: Loss of tandem connection.
- MSIM:
 - G.798: Multiplex structure identifier mismatch supervision - tributary port #p
- OCI:
 - G.798: Open connection indication.

- OUT_PWR_HIGH:
- OUT_PWR_LOW:
- PLM:
 - Payload mismatch supervision. G.806: The payload label mismatch defect (dPLM) shall be detected if the "accepted TSL" code does not match the "expected TSL" code. If the "accepted TSL" is "equipped non-specific", the mismatch is not detected (TSL: Trail Signal Label). Payload type supervision checks that compatible adaptation functions are used at the source and the sink. This is normally done by adding a signal type identifier at the source adaptation function and comparing it with the expected identifier at the sink. If they do not match, a payload mismatch is detected. G.798 - dPLM at the ODUP layer: dPLM shall be declared if the accepted payload type (AcPT) is not equal to the expected payload type(s) as defined by the specific adaptation function.
- RAI:
- RCOHM:
 - G.798: Resize Control Overhead Mismatch.
- RDI:
 - G.798: Remote Defect Indication.
- SSF:
 - Server Signal Fail.
- SSF_O:
 - Server Signal Fail Overhead.
- SSF_P:
 - Server Signal Fail Payload.
- UPM:
 - GFP user payload mismatch. G.806 - Client-specific GFP-F (Frame) and GFP-T (Transparent) sink processes: GFP user payload mismatch (dUPM) is raised when the accepted UPI (AcUPI) is different from the expected UPI. dUPM is cleared when AcUPI matches the expected UPI or GFP_SF is active.
- TIM:
 - G.798: Connectivity supervision/trail trace identifier mismatch.

1.7.3 Alr

Contains Enumeration Literals:

- AIRCOND:
- AIRDRYR:
- BATTERY:
- BDI:
 - G.798: Backward defect indication.
- BDI_O:
 - G.798: Backward defect indication overhead.
- BDI_P:
 - G.798: Backward defect indication payload.
- BEFFEC_EXC:
- CFG_DATASAVE_FAIL:
- CLFAN:
- COMM_FAIL:
- COMMIT_FAIL:
- COMMIT_TIMEOUT:

- CSACM:
 - G.798: Calendar Slot Availability Count Mismatch.
- CSF:
 - G.798: Client signal fail.
- CSUM:
- DB_ERR:
- DB_RESTORE_FAIL:
- DB_SYNC_FAIL:
- DBMS_DELETE:
- DEG:
 - G.798, G.806: Signal degrade.
- EQPT_MISMATCH:
- EQPT_MT:
- EQPT_TEMP_HI:
- EQPT_TEMP_LOW:
- EXM:
 - GFP extension header mismatch. G.806 - Common GFP sink processes: GFP extension header mismatch (dEXM) is raised when the accepted EXI (AcEXI) is different from the expected EXI. dEXM is cleared when AcEXI matches the expected EXI or GFP_SF is active.
- FAN_FAIL:
- FCS_ERR_EXC:
- FIRE:
- FMM:
 - G.798: FlexO/FlexE Map Mismatch.
- FOP_NR:
 - G.798: ODU linear protection failure of protocol no response.
- FOP_PM:
 - G.798: ODU linear protection failure of protocol provisioning mismatch.
- GAIN_HIGH:
- GAIN_LOW:
- GIDM:
 - G.798: Group ID Mismatch.
- HIHUM:
- HITEMP:
- IN_PWR_HIGH:
- IN_PWR_LOW:
- INTRUSION:
- LASER_SHUT_DOWN:
- LCK:
 - G.798: Locked.
- LCS:
 - G.798, IEEE 802.3, G.709: Loss of character synchronization.
- LCS_EXPIRED:
- LCS_LOST:
- LFA:
 - G.798: Loss of FEC word alignment.
- LFD:
 - GFP loss of frame delineation. G.806 - Server layer-specific GFP sink processes: GFP loss of frame delineation (dLFD) is raised when the frame delineation process (clause 6.3.1 of [ITU-T Recommendation G.806]) fails to correctly delineate frames.

T G.7041]) is not in the "SYNC" state. dLFD is cleared when the frame delineation process is in the "SYNC" state.

- LOF:
 - G.798, G.783: Loss Of Frame.
- LOFLOM:
 - G.798: Loss of frame and multiframe - tributary port #p
- LOL:
 - G.798: Loss of lane alignment.
- LOM:
 - G.798: Loss of multiframe. Loss of the interleaved FlexESG multi-frame.
- LOOMFI:
 - G.798: OPU multiframe (OMFI) reception for OPUk with k = 4
- LOS:
 - G.783: Loss Of Signal.
- LOS_O:
 - G.798: Loss of signal overhead.
- LOS_P:
 - G.798: Loss of signal information from the media element. Loss of optical signal.
- LOSS_OF_GFP_SYNC:
- LOWBAT:
- LPBKFACTORY:
- LPBKTERM:
- LRC:
 - G.798: Loss of Rate Compensation blocks.
- LSS:
 - G.798, O.151: Loss of PRBS lock.
- LTC:
 - G.798: Loss of tandem connection.
- MOD_CC_HIGH:
- MOD_CC_LOW:
- MOD_TEMP_HIGH:
- MOD_TEMP_LOW:
- MSIM:
 - G.798: Multiplex structure identifier mismatch supervision - tributary port #p
- NTP_SYNC_FAIL:
- OCI:
 - G.798: Open connection indication.
- OPENDR:
- OUT_PWR_HIGH:
- OUT_PWR_LOW:
- PLM:
 - Payload mismatch supervision. G.806: The payload label mismatch defect (dPLM) shall be detected if the "accepted TSL" code does not match the "expected TSL" code. If the "accepted TSL" is "equipped non-specific", the mismatch is not detected (TSL: Trail Signal Label). Payload type supervision checks that compatible adaptation functions are used at the source and the sink. This is normally done by adding a signal type identifier at the source adaptation function and comparing it with the expected identifier at the sink. If they do not match, a payload mismatch is detected. G.798 - dPLM at the ODUP layer: dPLM shall be

declared if the accepted payload type (AcPT) is not equal to the expected payload type(s) as defined by the specific adaptation function.

- PLUGM_RMV:
- PMI:
- POWER_OUTAGE:
- PSU_FAIL:
- RAI:
- RCOHM:
 - G.798: Resize Control Overhead Mismatch.
- REM_CLIENT_SF:
- SERVCAP_EXCEED:
- SHELF_ID_CONFLICT:
- SHELF_ID_MISMATCH:
- SHELF_TYPE_MISMATCH:
- SSF:
 - Server Signal Fail.
- SSF_O:
 - Server Signal Fail Overhead.
- SSF_P:
 - Server Signal Fail Payload.
- SWDL_BD_NOT_MATCH:
- TIM:
 - G.798: Connectivity supervision/trail trace identifier mismatch.
- UPM:
 - GFP user payload mismatch. G.806 - Client-specific GFP-F (Frame) and GFP-T (Transparent) sink processes: GFP user payload mismatch (dUPM) is raised when the accepted UPI (AcUPI) is different from the expected UPI. dUPM is cleared when AcUPI matches the expected UPI or GFP_SF is active.

1.7.4 CapacityUnit

Description:

- Units of measurement of the capacity.

Contains Enumeration Literals:

- TB:
 - Indicates that the integer CapacityValue is in TeraBytes
- TBPS:
 - Indicates that the integer CapacityValue is in Terabit-per-second
- GB:
 - Indicates that the integer CapacityValue is in GigaBytes
- GBPS:
 - Indicates that the integer CapacityValue is in Gigabit-per-second
- MB:
 - Indicates that the integer CapacityValue is in MegaBytes
- MBPS:
 - Indicates that the integer CapacityValue is in Megabit-per-second
- KB:
 - Indicates that the integer CapacityValue is in KiloBytes

- KBPS:
 - Indicates that the integer CapacityValue is in Kilobit-per-second
- GHz:
 - Indicates that the integer CapacityValue is in gigahertz (spectrum)
- MHz:
 - Indicates that the integer CapacityValue is in megahertz (spectrum)
- THz:
 - Indicates that the integer CapacityValue is in terahertz (spectrum)
- Hz:
 - Indicates that the integer CapacityValue is in Hertz (spectrum)
- B:
 - Indicates that the integer CapacityValue is in bits
- KHz:
 - Indicates that the integer CapacityValue is in kilohertz (spectrum)
- BPS:
 - Indicates that the integer CapacityValue is in bit-per-second

1.7.5 Dc

Contains Enumeration Literals:

- NATIVE:
 - This value indicates an Alarm Condition not standardized by this model and specified only in native info attribute.

1.7.6 Detected

Description:

- The detected condition, name is shortened to simplify the concatenated identity.

Applied stereotype:

- Deprecated

Contains Enumeration Literals:

1.7.7 Direction

Description:

- The directionality of an entity, e.g. CSEP, CEP, NEP.

Contains Enumeration Literals:

- BIDIRECTIONAL:
 - A termination entity with both SINK and SOURCE flows.
- SINK:
 - The flow is up the layer stack from the server side to the client side.
- SOURCE:
 - The flow is down the layer stack from the client side to the server side.
- UNDEFINED_OR_UNKNOWN:
 - Not a normal state. The system is unable to determine the correct value.

1.7.8 DirectiveValue

Description:

- Types of directives.

Contains Enumeration Literals:

- MINIMIZE:
 - Directive to minimize.
- MAXIMIZE:
 - Directive to maximize.
- ALLOW:
 - Directive to allow.
- DISALLOW:
 - Directive to disallow
- DONT_CARE:
 - Directive is do not care.

1.7.9 EthAlarmConditionName

Applied stereotype:

- LikelyToChange

Contains Enumeration Literals:

- LOSS_OF_CONTINUITY:
 - G.8021: The loss of continuity defect is calculated at the ETH layer. It monitors the presence of continuity in ETH trails.
- UNEXPECTED_MEL:
 - G.8021: Reception of a CCM frame with an invalid MEL value. Monitoring of the connectivity in a maintenance entity group.
- UNEXPECTED_MEPE:
 - G.8021: Reception of a CCM frame with an invalid MEP value, but with valid MEL and MEG values. Monitoring of the connectivity in a maintenance entity group.
- MISMERGE_UNEXPECTED_MEG:
 - G.8021: Reception of a CCM frame with an invalid MEG value, but with a valid MEL value. Monitoring of the connectivity in a maintenance entity group.
- UNEXPECTED_PERIODICITY:
 - G.8021: Reception of a CCM frame with an invalid periodicity value, but with valid MEL, MEG and MEP values. It detects the configuration of different periodicities at different MEPs belonging to the same MEG.
- UNEXPECTED_PRIORITY:
 - G.8021: Reception of a CCM frame with an invalid priority value, but with valid MEL, MEG, MEP and periodicity values. It detects the configuration of different priorities for CCM at different MEPs belonging to the same MEG.
- LOCKED:
 - G.8021: Reception of a LCK frame.
- AIS:
 - G.8021: Reception of an AIS frame.

- DEGRADED:
 - G.8021: The defect is detected if there are MI_LM_DEGM (lmDegm of EthMepSink) consecutive bad seconds and cleared if there are MI_LM_M (lmM of EthMepSink) consecutive good seconds. In order to declare a bad second the number of transmitted frames must exceed a threshold (MI_LM_TFMIN, lmTfMin of EthMepSink). Furthermore, if the frame loss ratio (lost frames/transmitted frames) is greater than MI_LM_DEGTHR (lmDegThr of EthMepSink), a bad second is declared. This defect is only defined for point-to-point ETH connections. It monitors the connectivity of an ETH trail.
- RDI:
 - G.8021: Remote defect indicator defect, reception by an MEP (indexed by "i", this index not included in the "cause" cRDI) of a CCM frame with valid MEL, MEG, MEP and periodicity values and the RDI flag set to x; where x=0 (remote defect clear) and x=1 (remote defect set).
- CSF:
 - G.8021 - ETH layer: Reception of a CSF frame that indicates a client loss of signal (dCSF-LOS) or a client forward defect indication (dCSF-FDI) or a client reverse defect indication (dCSF-RDI). The CSF (CSF-LOS, CSF-FDI, and CSF-RDI) defect is calculated at the ETH layer. It monitors the presence of a CSF maintenance signal. G.8021 - GFP: dCSF is Client-specific GFP-F and GFP-T (resp. Frame and Transparent) sink processes. dCSF-RDI: GFP client signal fail-remote defect indication is raised when a GFP client management frame with the RDI UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-RDI is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received. dCSF-FDI: GFP client signal fail-forward defect indication is raised when a GFP client management frame with the FDI UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-FDI is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received. dCSF-LOS: GFP client signal fail-loss of signal is raised when a GFP client management frame with the LOS UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-LOS is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received.
- TOTAL_LINK_LOSS:
 - G.8021: LAG - fault cause will be raised if no ports are active for an aggregator.
- PARTIAL_LINK_LOSS:
 - G.8021: LAG - fault cause shall be raised if the number of active ports is less than the provisioned threshold.
- PLM:
 - G.806: The payload label mismatch defect (dPLM) shall be detected if the "accepted TSL" code does not match the "expected TSL" code. If the "accepted TSL" is "equipped non-specific", the mismatch is not detected (TSL: Trail Signal Label). Payload type supervision checks that compatible adaptation functions are used at the source and the sink. This is normally done by adding a signal type identifier at the source adaptation function and comparing it with the expected identifier at the sink. If they do not match, a payload mismatch is detected.
- LFD:
 - G.806 - Server layer-specific GFP sink processes: GFP loss of frame delineation (dLFD) is raised when the frame delineation process (clause 6.3.1 of [ITU-T G.7041]) is not in the "SYNC" state. dLFD is cleared when the frame delineation process is in the "SYNC" state.
- EXM:

- G.806 - Common GFP sink processes: GFP extension header mismatch (dEXM) is raised when the accepted EXI (AcEXI) is different from the expected EXI. dEXM is cleared when AcEXI matches the expected EXI or GFP_SF is active.
- UPM:
 - G.806 - Client-specific GFP-F (Frame) and GFP-T (Transparent) sink processes: GFP user payload mismatch (dUPM) is raised when the accepted UPI (AcUPI) is different from the expected UPI. dUPM is cleared when AcUPI matches the expected UPI or GFP_SF is active.

1.7.10 EthPmParameterName

Applied stereotype:

- LikelyToChange

Contains Enumeration Literals:

- MINIMUM_FRAME_DELAY:
- MAXIMUM_FRAME_DELAY:
- AVERAGE_FRAME_DELAY:
- MINIMUM_FRAME_DELAY_VARIATION:
 - This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- MAXIMUM_FRAME_DELAY_VARIATION:
 - This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- AVERAGE_FRAME_DELAY_VARIATION:
 - This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- MINIMUM_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- MAXIMUM_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- AVERAGE_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- MINIMUM_FRAME_LOSS_RATIO:
- MAXIMUM_FRAME_LOSS_RATIO:

- AVERAGE_FRAME_LOSS_RATIO:
- HIGH_LOSS_INTERVALS:
- UNAVAILABLE_INTERVALS:

1.7.11 ForwardingDirection

Description:

- The directionality of a forwarding entity, e.g. Link, ConnectivityService, Connection, PathComputationService, Path.

Contains Enumeration Literals:

- BIDIRECTIONAL:
 - The fowarding entity supports BIDIRECTIONAL flows at all its (conceptual) ports (i.e. all ports have both an INPUT flow and an OUTPUT flow defined).
- UNIDIRECTIONAL:
 - The forwarding entity has (conceptual) ports that are either INPUT or OUTPUT. It has no BIDIRECTIONAL (conceptual) ports.
- UNDEFINED_OR_UNKNOWN:
 - Not a normal state. The system is unable to determine the correct value.

1.7.12 LayerProtocolName

Description:

- Provides a controlled list of layer protocol names and indicates the naming authority. Note that it is expected that attributes will be added to this structure to convey the naming authority name, the name of the layer protocol using a human readable string and any particular standard reference.

Contains Enumeration Literals:

- ODU:
 - Models the ODU layer as per ITU-T G.872
 - Applied stereotype:
 - Deprecated
- ETH:
 - Models the ETH layer as per ITU-T G.8010
- DSR:
 - Models a Digital Signal of an unspecified rate (Layer 1 coding functions). This value can be used when the intent is to represent a generic digital layer signal without making any statement on its format or overhead (processing) capabilities.
- PHOTONIC_MEDIA:
 - Models the optical signal and media channel layer as per ITU-T G.807
- DIGITAL_OTN:
 - Models the OTU/ODU OTN digital layers as per ITU-T G.872

1.7.13 LayerProtocolQualifier

Description:

- This enumeration is used to qualify the sub-layers (if applicable) for a specific LayerProtocol. This extensible enumeration can be augmented with layer-specific values in the respective technology-specific modules.

Contains Enumeration Literals:

- UNSPECIFIED:
 - No sub-layer is specified.

1.7.14 LifecycleState

Description:

- The possible values of the lifecycleState.

Contains Enumeration Literals:

- PLANNED:
 - The resource is planned but is not present in the network.
 - Applied stereotype:
 - Experimental
- POTENTIAL_AVAILABLE:
 - The supporting resources are present in the network but are shared with other clients; or require further configuration before they can be used; or both. When a potential resource is configured and allocated to a client it is moved to the INSTALLED state for that client. If the potential resource has been consumed (e.g. allocated to another client) it is moved to the POTENTIAL_BUSY state for all other clients.
 - Applied stereotype:
 - Experimental
- POTENTIAL_BUSY:
 - The supporting resources are present in the network but have been allocated to other clients.
- INSTALLED:
 - The resource is present in the network and is capable of providing the service expected.
 - Applied stereotype:
 - Experimental
- PENDING_REMOVAL:
 - The resource has been marked for removal.
 - Applied stereotype:
 - Experimental

1.7.15 ObjectType

Description:

- The list of TAPI Global Object Class types on which Notification signals can be raised. This extensible enumeration can be augmented with specific object types/classes in the other modules.

Contains Enumeration Literals:

- SERVICE_INTERFACE_POINT:

- The ServiceInterfacePoint (SIP) class.
- TAPI_CONTEXT:
 - The TapiContext class.
- PROFILE:

1.7.16 OperationalState

Description:

- The possible values of the operationalState.

Contains Enumeration Literals:

- DISABLED:
 - The resource is unable to meet the SLA of the user of the resource. If no (explicit) SLA is defined the resource is disabled if it is totally inoperable and unable to provide service to the user.
 - Applied stereotype:
 - Preliminary
- ENABLED:
 - The resource is partially or fully operable and available for use.
 - Applied stereotype:
 - Preliminary

1.7.17 Pm

Contains Enumeration Literals:

- BBE:
- CHROM_DISP:
 - Chromatic Dispersion
- DELAY:
- DIFF_GROUP_DELAY:
 - Differential Group Delay
- FEC_CORRECTED_ERROR:
- FREQ_OFFSET:
 - Frequency Offset
- OPTICAL_GAIN:
- OPTICAL_POWER_INPUT:
- OPTICAL_POWER_OUTPUT:
- OPTICAL_TILT:
- POL_MODE_DISP:
 - Polarization Mode Dispersion
- SES:
- UAS:

1.7.18 PmParamName

Description:

- The PM metric names.

Applied stereotype:

- Deprecated

Contains Enumeration Literals:

- NATIVE:
 - This value indicates a PM Parameter not standardized by this model and specified only in native info attribute.
- BBE:
- DELAY:
- FEC_CORRECTED_ERROR:
- SES:
- UAS:

1.7.19 PortRole

Description:

- The role of a (conceptual) port of a forwarding entity, e.g. Link, ConnectivityService, Connection, PathComputationService, Path, VirtualNetworkService.

Contains Enumeration Literals:

- SYMMETRIC:
 - A port that can exchange flows (e.g. distinct packet flows) with any other port(s) in a forwarding entity. The SYMMETRIC role applies to point to point and multipoint to multipoint connection schemes.
- ROOT:
 - A port that can exchange flows (e.g. distinct packet flows) with any other port(s) in a forwarding entity. The ROOT role is unique to the Rooted Multipoint connection scheme.
- LEAF:
 - A port that can only exchange flows (e.g. distinct packet flows) with any other ROOT or TRUNK port(s) in a forwarding entity. The LEAF role is unique to the Rooted Multipoint connection scheme.
- TRUNK:
 - The TRUNK role is unique to the ENNI involved in a Rooted Multipoint connection scheme. It provides a way to extend the concept of ROOT and LEAF bidirectionally across the ENNI without having to create multiple ports (Leaves and Roots) and hairpinning from one to the other.
- UNKNOWN:
 - Not a normal state. The system is unable to determine the correct value.

1.7.20 ProfileType

Contains Enumeration Literals:

1.7.21 TerminationState

Description:

- Provides support for the range of behaviours and specific states that the termination function of a termination entity can take with respect to the termination of the signal.

Contains Enumeration Literals:

- CAN_NEVER_TERMINATE:
 - A non-flexible case that can never be terminated.
 - Applied stereotype:
 - Experimental
- NOT_TERMINATED:
 - A flexible termination that can terminate but is currently not terminated.
 - Applied stereotype:
 - Experimental
- TERMINATED_SERVER_TO_CLIENT_FLOW:
 - A flexible termination that is currently terminated for server to client flow only.
 - Applied stereotype:
 - Experimental
- TERMINATED_CLIENT_TO_SERVER_FLOW:
 - A flexible termination that is currently terminated for client to server flow only.
 - Applied stereotype:
 - Experimental
- TERMINATED_BIDIRECTIONAL:
 - A flexible termination that is currently terminated in both directions of flow.
 - Applied stereotype:
 - Experimental
- PERMANENTLY_TERMINATED:
 - A non-flexible termination that is always terminated (in both directions of flow for a bidirectional case and in the one direction of flow for both unidirectional cases).
 - Applied stereotype:
 - Experimental
- TERMINATION_STATE_UNKNOWN:
 - Not a normal state. The system is unable to determine the correct value.
 - Applied stereotype:
 - Experimental

1.7.22 TimeUnit

Description:

- Units of measurement of the time.

Contains Enumeration Literals:

- YEARS:
- MONTHS:
- DAYS:

- HOURS:
- MINUTES:
- SECONDS:
- MILLISECONDS:
- MICROSECONDS:
- NANOSECONDS:
- PICOSECONDS:

1.8 Primitives

1.8.1 AnyType

Description:

- This primitive represents the "any data" mechanism.

1.8.2 BinaryType

Description:

- Represents any binary data, i.e., a sequence of octets. A binary type can be restricted by a length which defines the number of octets it contains.

1.8.3 MacAddress

Description:

- Pattern: "[0-9a-fA-F]{2}(-[0-9a-fA-F]{2}){5}" Description: "The mac-address type represents a MAC address in the canonical format and hexadecimal format specified by IEEE Std 802. The canonical representation uses lowercase characters. The hexadecimal representation uses uppercase characters."

1.8.4 Timeticks

Description:

- Type uint32. This type represents a non-negative integer that represents the time, modulo 2^{32} (4294967296 decimal), in hundredths of a second between two epochs.

2 Topology Model

TapiTopology: This module contains TAPI Topology Model definitions. Source: TapiTopology.uml
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2.1 Diagrams

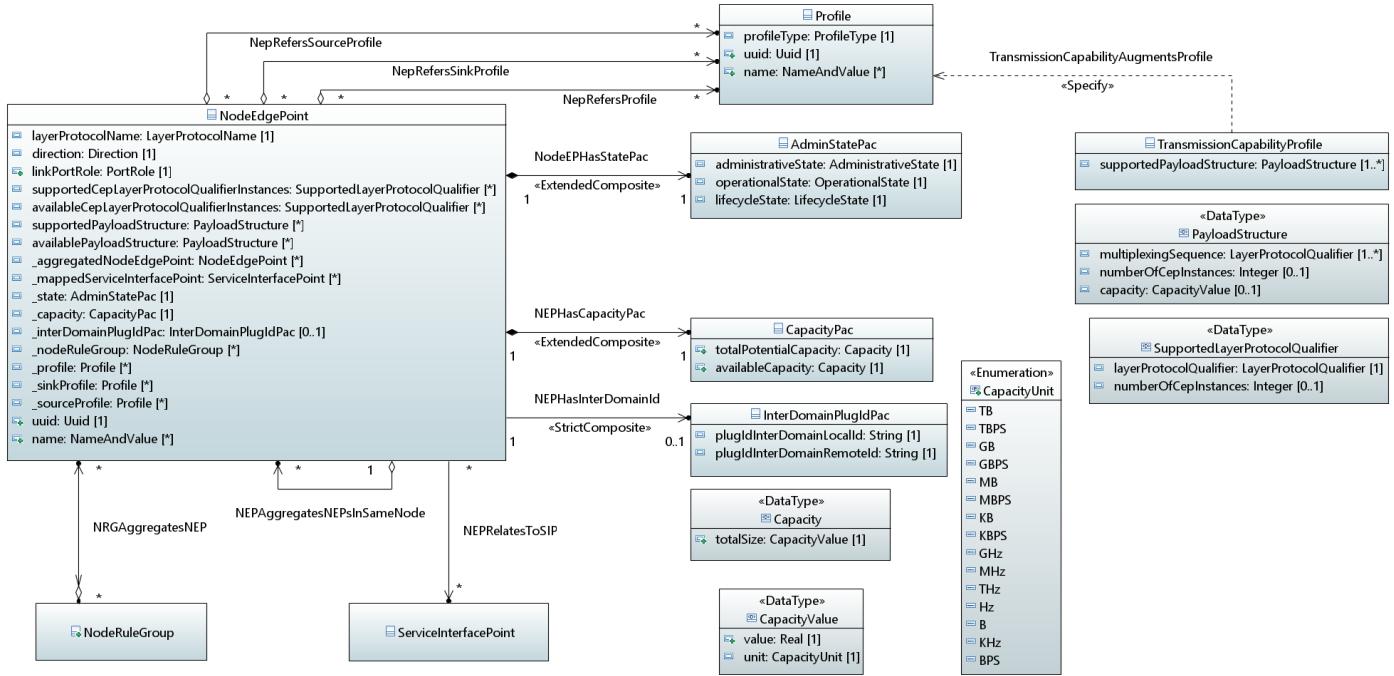
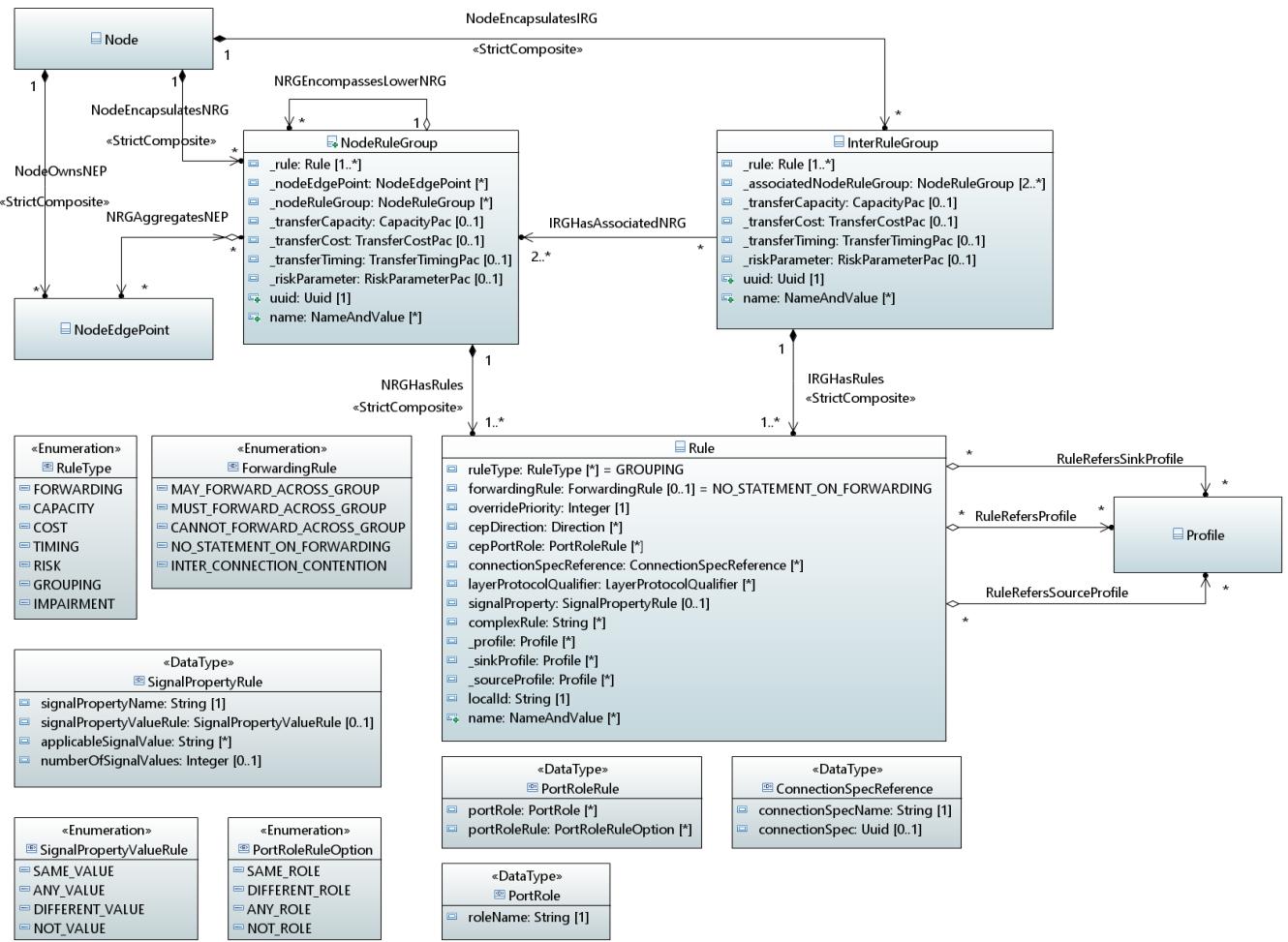
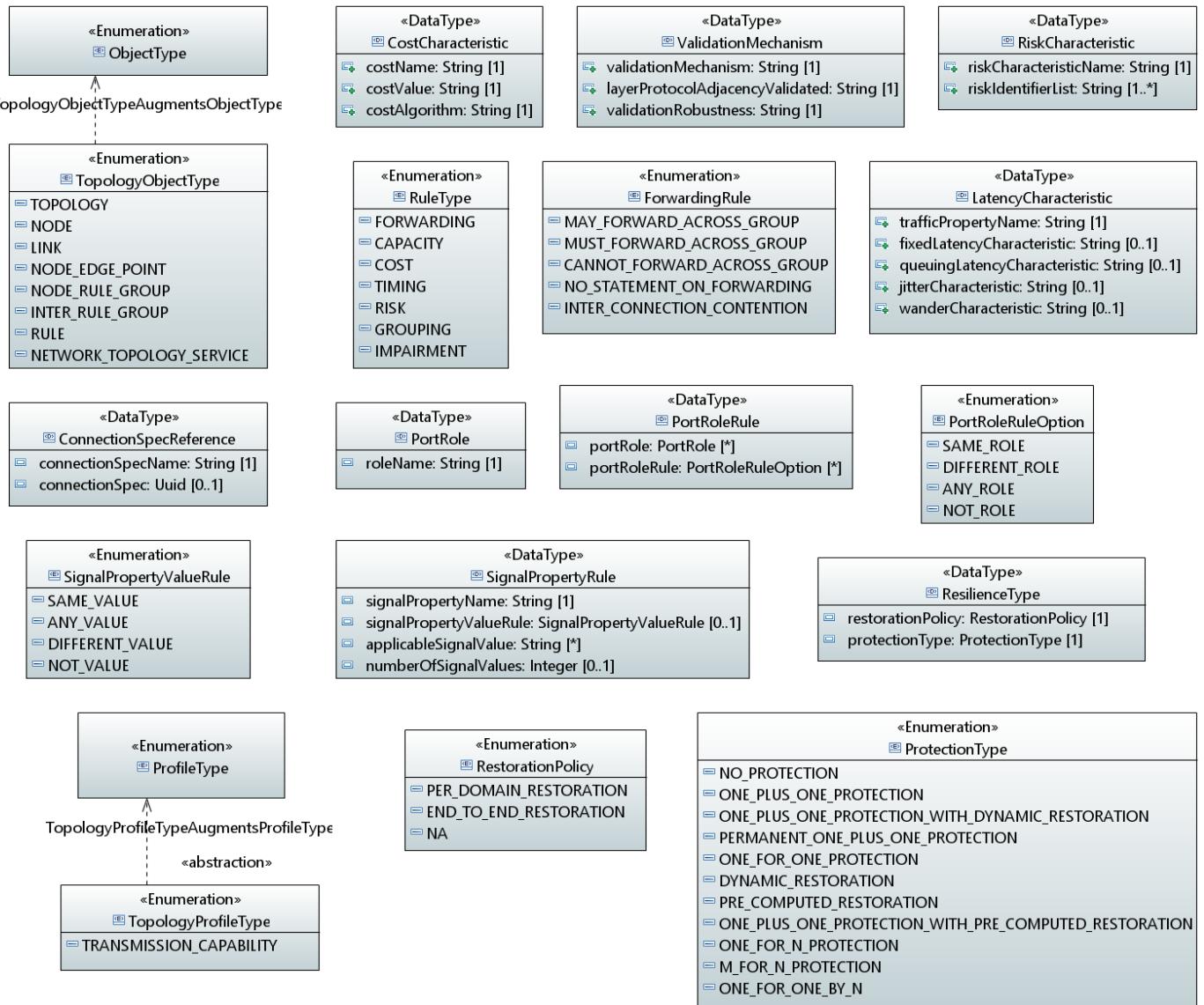
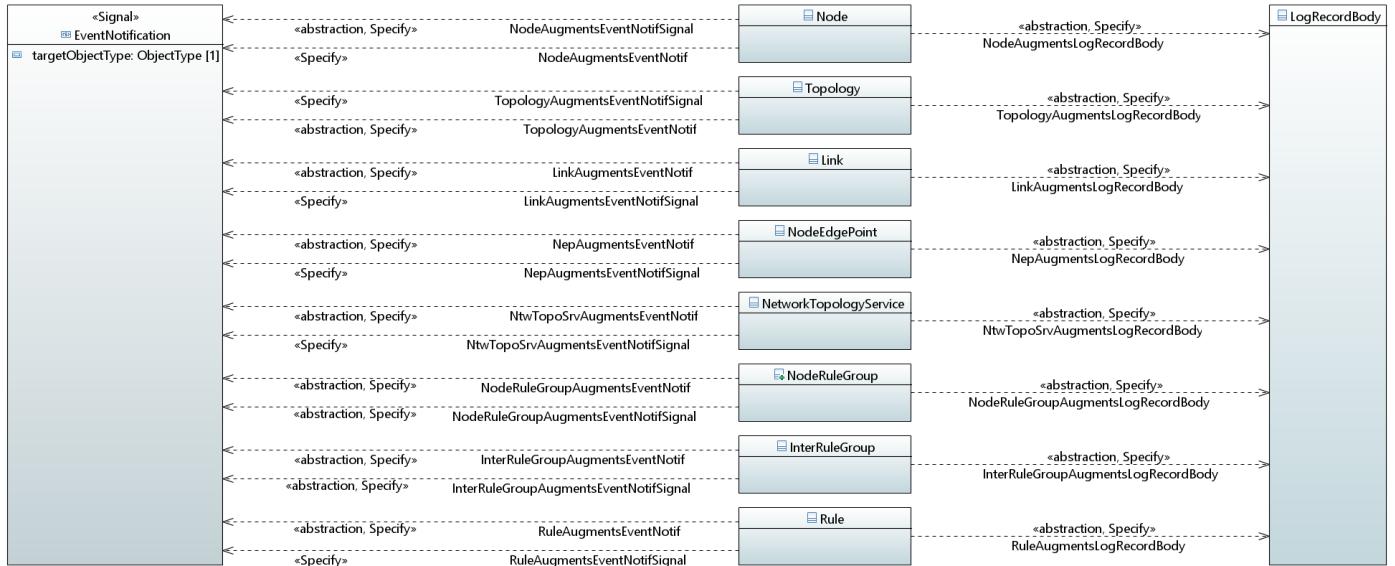
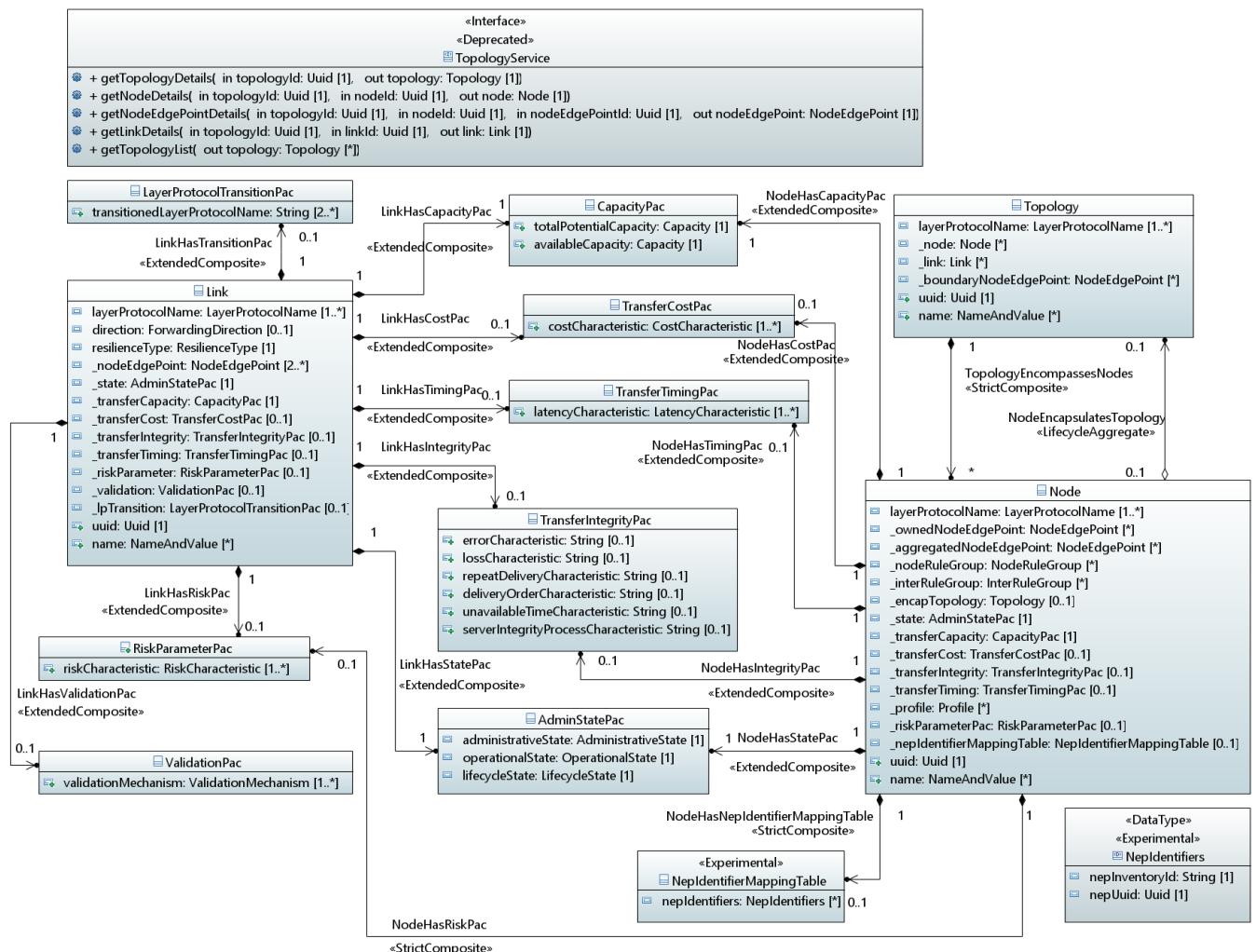


Figure 6 – Diagram *EdgePointDetails*

Figure 7 – Diagram *NodeConstraints*

Figure 8 – Diagram *TopologyDataTypes*

Figure 9 – Diagram *TopologyNotifAndStream*Figure 10 – Diagram *TopologyServiceDetails*

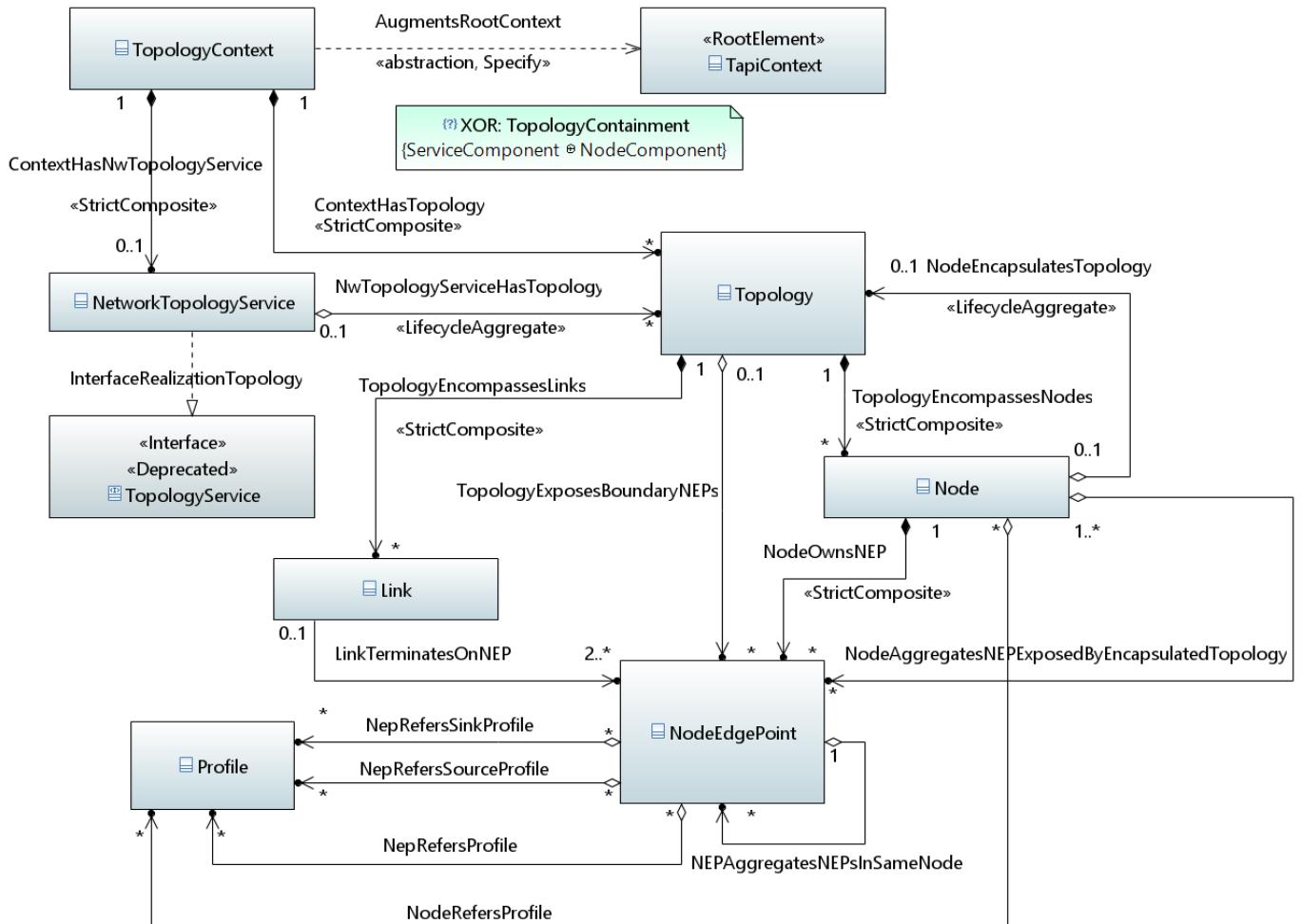


Figure 11 – Diagram **TopologyServiceSkeleton**

2.2 Classes

2.2.1 InterDomainPlugIdPac

Description:

- NEP at ENNI shall include an ENNI identifier (inter domain plug id) which must be unique in both the connected managed domains, to support the automatic discovery of interdomain links between E-NNI interfaces of e.g. different network providers. The inter domain plug id can be based on OTN technology (OTU or ODU Trail Trace Identifier, SAPI). ITU-T G.709: The access point identifier shall consist of a three-character international segment and a twelve-character national segment coded according to [ITU-T T.50]. The international segment field provides a three-character ISO 3166 geographic/political country code (G/PCC). The country code shall be based on the three-character uppercase alphabetic ISO 3166 country code. The national segment field consists of two subfields: the ITU carrier code (ICC) followed by a unique access point code (UAPC). The ITU carrier code is assigned to a network operator/service provider and shall consist of 1-6 left-justified characters, alphabetic, or leading alphabetic with trailing numeric [e.g., "USATELCORuapc"].

Applied stereotypes:

- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
plugIdInterDomainLocalId	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
				Description: Source Access Point Identifier (SAPI) in TxTI. G.709 TxTI: string[64 bytes]: The Trail Trace Identifier (TTI) information, provisioned by the managing system at the termination source, to be placed in the TTI overhead position of the source of a trail for transmission.
plugIdInterDomainRemoteId	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
				Description: Expected Source Access Point Identifier (ExSAPI). G.709 ExSAPI: Provisioned by the managing system, to be compared with the TTI accepted (AcTI) at the overhead position of the sink for the purpose of checking the integrity of connectivity. AcTI: string [64 bytes] The Trail Trace Identifier (TTI) information recovered (Accepted) from the TTI overhead position at the sink of a trail.

Table 40 – Attributes for class *InterDomainPlugIdPac*

2.2.2 InterRuleGroup

Description:

- Rules that apply between groups of NodeEdgePoint (NEP) instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_rule	Rule	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The list of rules of the InterRuleGroup.			
_associatedNodeRuleGroup	NodeRuleGroup	2..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The NodeRuleGroups that the InterRuleGroup constrains interconnection between. The CEPs of the NEPs of a referenced NodeRuleGroup can interconnect to the CEPs of the NEPs of another referenced NodeRuleGroup constrained by the rules of the InterRuleGroup.			
_transferCapacity	CapacityPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The rule relates to transfer capacity constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, must abide by the transfer capacity statement. The capacity is assumed to be maximum allowed.			
_transferCost	TransferCostPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The rule relates to transfer cost constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the cost stated. Several rules may state different costs for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.			
_transferTiming	TransferTimingPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The rule relates to transfer timing constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the timing penalty stated. Several rules may state different timing penalties for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.			

Attribute Name	Type	Mult.	Access	Stereotypes
_riskParameter	RiskParameterPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The rule relates to risk constraints. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the risk penalty stated. Several rules may state different risk penalties for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 41 – Attributes for class *InterRuleGroup*

2.2.3 LayerProtocolTransitionPac

Description:

- Relevant for a Link that is formed by abstracting one or more termination entities (in a stack) to focus on the flow and deemphasize the protocol transformation. This abstraction is relevant when considering multi-layer routing and the protocol transformation is not too complex, e.g. there is not multiplexing. This Pac provides the relevant abstractions of the embedded termination entities: The layer protocols of the embedded termination entities and the order of their application to the signal is still relevant and need to be accounted for. Links that included details in this Pac are often referred to as Transitional Links.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
transitionedLayerProtocolName	String	2..*	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA <p>Description:</p> <p>Provides the ordered structure of layer protocol transitions encapsulated in the Link. The list starts with the client side as the first entry and includes all layer-protocol names (hence the smallest number is 2 as otherwise the Link is not transitional). The ordering relates also to the (conceptual) port role (which emphasizes the orientation).</p>

Table 42 – Attributes for class *LayerProtocolTransitionPac*

2.2.4 Link

Description:

- A Link is a topological entity which is an abstract representation of the effective adjacency between two or more Node instances (specifically NodeEdgePoint instances) in a Topology.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA <p>Description:</p> <p>The layer protocol(s) of the Link.</p>
direction	ForwardingDirection	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA <p>Description:</p> <p>The directionality of the Link.</p>

Attribute Name	Type	Mult.	Access	Stereotypes
resilienceType	ResilienceType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The underlying resilience type of the Link.			
_nodeEdgePoint	NodeEdgePoint	2..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The NEPs connected by the Link.			
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The Link status information.			
_transferCapacity	CapacityPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The Link capacity.			
_transferCost	TransferCostPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The transfer cost of the Link.			

Attribute Name	Type	Mult.	Access	Stereotypes
_transferIntegrity	TransferIntegrityPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The transfer integrity of the Link.			
_transferTiming	TransferTimingPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The transfer timing of the Link.			
_riskParameter	RiskParameterPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The risk parameters of the Link.			
_validation	ValidationPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The validation mechanisms of the Link.			
_lpTransition	LayerProtocolTransitionPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The information on encapsulated termination functions, applicable in case of Transitional Link.			

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 43 – Attributes for class *Link*

2.2.5 NepIdentifierMappingTable

Description:

- Table for the mapping between UUID and Inventory Id of NEPs.

Applied stereotypes:

- Experimental
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
nepIdentifiers	NepIdentifiers	0..*	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Table for the mapping between UUID and Inventory Id of NEPs.

Table 44 – Attributes for class *NepIdentifierMappingTable*

2.2.6 NetworkTopologyService

Description:

- A NetworkTopologyService represents an "intent-like" request for topology related provisioning, for future developments. The NetworkTopologyService is a container for topology request details and is distinct from the Topology that realize the request.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_topology	Topology	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The Topology instance(s) tracking the state of the allocated resources for the support of the NetworkTopologyService.				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 45 – Attributes for class *NetworkTopologyService*

2.2.7 Node

Description:

- The Node is a topological entity which is an abstract representation of the forwarding capabilities (of transport characteristic information) of a particular set of network resources. It is described in terms of the aggregation of set of ports (NodeEdgePoint) belonging to those network resources and the potential to enable forwarding of information between those edge ports. At the lowest level of recursion, a Node may represent a switch matrix (i.e., a fabric) in an equipment.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA <p>Description: The layer protocol(s) of the (multi-layer) Node.</p>
_ownedNodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA <p>Description: The NEPs belonging to / owned by this Node. By convention, only the Node instances at the lowest partitioning level "own" the NEPs. In other words, each and every NEP instance is owned by a Node at the lowest partitioning level.</p>
_aggregatedNodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA <p>Description: The NEPs aggregated by this Node. By convention, only the Node instances which are not at the lowest partitioning level "aggregate" the NEPs. In other words, each and every NEP instance is owned by a Node at the lowest partitioning level. A subset of NEP instances may be aggregated by Nodes at higher partitioning levels.</p>

Attribute Name	Type	Mult.	Access	Stereotypes
_nodeRuleGroup	NodeRuleGroup	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Node rules applicable to this Node.				
_interRuleGroup	InterRuleGroup	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_encapTopology	Topology	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A Node may encapsulate one Topology instance, which in turn encompasses Nodes at lower partitioning level.				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Node status information.				
_transferCapacity	CapacityPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The transfer capacity of the Node.				

Attribute Name	Type	Mult.	Access	Stereotypes
_transferCost	TransferCostPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The transfer cost of the Node.			
_transferIntegrity	TransferIntegrityPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The transfer integrity of the Node.			
_transferTiming	TransferTimingPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The transfer timing of the Node.			
_profile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_riskParameterPac	RiskParameterPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
_nepIdentifierMappingTable	NepIdentifierMappingTable	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Table for the mapping between UUID and Inventory Id of NEPs.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 46 – Attributes for class Node

2.2.8 NodeEdgePoint

Description:

- The NodeEdgePoint (NEP) is a topological entity which represents the ingress-egress edge-port functions that access the forwarding capabilities provided by the Node. Hence it provides an encapsulation of addressing, mapping, termination, adaptation and OAM functions of one or more transport layers (including circuit and packet forms) performed at the entry and exit points of the Node.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The layer protocol of the NodeEdgePoint (NEP).			
direction	Direction	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The NEP direction.			
linkPortRole	PortRole	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The role of the (conceptual) port of the associated Link.			
supportedCepLayerProtocolQualifierInstances	SupportedLayerProtocolQualifier	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The potentially supported protocols and flows. In ITU-T terms, the potentially supported adaptation and termination functions.			
availableCepLayerProtocolQualifierInstances	SupportedLayerProtocolQualifier	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
supportedPayloadStructure	PayloadStructure	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
availablePayloadStructure	PayloadStructure	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
More detailed description of available capability than "supportedCepLayerProtocol".				
_aggregatedNodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A NodeEdgePoint (NEP) instance may aggregate one or more other NEP instances for e.g. pooling purposes, when a set of NEP instances are equivalent for usage.				
_mappedServiceInterfacePoint	ServiceInterfacePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A NodeEdgePoint (NEP) may be associated to a ServiceInterfacePoint (SIP), i.e. when the NEP is the resource oriented view of a SIP. NEP mapped to more than one SIP (slicing/virtualizing) or a SIP mapped to more than one NEP (load balancing/resilience) should be considered experimental.				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The NodeEdgePoint (NEP) status information.				

Attribute Name	Type	Mult.	Access	Stereotypes
_capacity	CapacityPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The NodeEdgePoint (NEP) capacity information.				
_interDomainPlugIdPac	InterDomainPlugIdPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
ENNI Identifier.				
_nodeRuleGroup	NodeRuleGroup	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_profile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_sinkProfile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_sourceProfile	Profile	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 47 – Attributes for class *NodeEdgePoint*

2.2.9 NodeRuleGroup

Description:

- Rules that apply to a group of NodeEdgePoint (NEP) instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelAttribute
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_rule	Rule	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The list of rules of the NodeRuleGroup.				
_nodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
NEPs and their client CEPs that the rules apply to. This reference is optional, while the reverse reference is mandatory (NEP refers to NRGs).				
_nodeRuleGroup	NodeRuleGroup	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
NodeRuleGroups may be nested such that finer grained rules may be applied. A nested rule group should have a subset of the NEPs of the superior rule group.				
_transferCapacity	CapacityPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The rule relates to transfer capacity constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, must abide by the transfer capacity statement. The capacity is assumed to be maximum allowed.				
_transferCost	TransferCostPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The rule relates to transfer cost constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the cost stated. Several rules may state different costs for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.			
_transferTiming	TransferTimingPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The rule relates to transfer timing constraint. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the timing penalty stated. Several rules may state different timing penalties for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.			
_riskParameter	RiskParameterPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The rule relates to risk constraints. The connections, matching the properties of the rule, formed between the NEPs, governed by the group, will acquire the risk penalty stated. Several rules may state different risk penalties for the same configuration. This indicated that there is underlying complexity that is not being fully expressed at the level of abstraction of the rules.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	<p>Description:</p> <p>List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.</p>				

Table 48 – Attributes for class *NodeRuleGroup***2.2.10 RiskParameterPac****Description:**

- The risk characteristics of a topological entity (e.g. the Link) come directly from the underlying physical realization. The risk characteristics propagate from the physical realization to the client and from the server layer to the client layer, this propagation may be modified by protection. A topological entity may suffer degradation or failure as a result of a problem in a part of the underlying realization. The realization can be partitioned into segments which have some relevant common failure modes. There is a risk of failure/degradation of each segment of the underlying realization. Each segment is a part of a larger physical/geographical unit that behaves as one with respect to failure (i.e. a failure will have a high probability of impacting the whole unit (e.g. all cables in the same duct). Disruptions to that larger physical/geographical unit will impact (cause failure/errors to) all topological entities that use any part of that larger physical/geographical entity. Any topological entity that uses any part of that larger physical/geographical unit will suffer impact and hence each topological entity shares risk. The identifier of each physical/geographical unit that is involved in the realization of each segment of a topological entity can be listed in the RiskParameter_Pac of that topological entity. A segment has one or more risk characteristic. Shared risk between two topological entities compromises the integrity of any solution that use one of those topological entity as a backup for the other. Where two topological entities have a common risk characteristic they have an elevated probability of failing simultaneously compared to two topological entities that do not share risk characteristics.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
riskCharacteristic	RiskCharacteristic	1..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA <p>Description:</p> <p>A list of risk characteristics for consideration in an analysis of shared risk. Each element of the list represents a specific risk consideration.</p>

Table 49 – Attributes for class *RiskParameterPac*

2.2.11 Rule

Description:

- Single complex rule statement. A Node with no rule group has no restrictions and is essentially May/Any. A NodeRuleGroup constrains the CEP connectability in the Node. A Connection from a CEP/NEP must abide by all rules that relate to that CEP/NEP. Rules that are for a particular layerProtocolQualifier, connectionSpecReference, cepPortRole and cepDirection combination must be abided by in combination as dictated by overridePriority. If a particular connectionSpecReference does not have any rule statements then it is not supported and connections of that type are not possible within the rule group. If a particular cepPortRole of a particular connectionSpecReference does not have any rule statements then it is not supported and connections of that connectionSpecReference (type) cannot have that cepPortRole for CEPs from NEPs in that rule group. If a particular cepDirection for a particular connectionSpecReference does not have any rule statements then it is not supported and connections of that connectionSpecReference (type) cannot have that cepPortDirection for CEPs from NEPs in that rule group. Rules that are for different layerProtocolQualifiers or connectionSpecReferences are independent and provide options for Connection in the NodeRuleGroup. Some rules may apply to multiple connectionSpecReferences and all cepPortRoles and all cepDirections.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
ruleType	RuleType Default value: <i>GROUPING</i>	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
	Description: The focus of the rule.			
forwardingRule	ForwardingRule Default value: <i>NO_STATEMENT_ON_FORWARDING</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
	Description: Rule that restricts the creation/deletion of a Connection between points in the NodeRuleGroup or related by the InterRuleGroup between NodeRuleGroups.			

Attribute Name	Type	Mult.	Access	Stereotypes
overridePriority	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>The overridePriority allows for one rule in a rule group to override another. Priority n rules override priority n+1 rules. Rules of the same priority override as follows (n overrides n+1): 1 - MustNot, 2 - Must, 3 - May, 4 - Null. Within a rule the flexibility rules (signal, port role...) override as follows (n overrides n+1): 1 - Any, 2 - Same, 3 - Different. Where there are two or more "Same" rules, they will form an intersection where all must be met.</p>				
cepDirection	Direction	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>The list of CEP directions that the rule applies to. No entry means all CEP directions.</p>				
cepPortRole	PortRoleRule	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>Indicates the port role to which the rule applies. The port role is interpreted in the context of the connection type which is identified by the connection spec, if any. The port role is not meaningful in the absence of a connection spec reference. If a NodeRuleGroup carries a port role, that role applies also to the associated InterRuleGroup where the combination of the roles in the NodeRuleGroups at the ends of the InterGroupRule define the Connection orientation. For example a root-and-leaf Connection may be used in a Node where a NodeRuleGroup collects one set of NEPs has the port role "root" and another NodeRuleGroup collects another set of NEPs has the port role "leaf" where these are joined by an InterRuleGroup. This combination specifies an allowed orientation of the root-and-leaf Connection. No port role statement means all port roles are allowed.</p>				
connectionSpecReference	ConnectionSpecReference	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>Identifies the type of Connection that the rule applies to. If the attribute is not present then the rule applies to all types of Connection supported by the device.</p>				

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolQualifier	LayerProtocolQualifier	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			Qualifies a rule for a particular layer protocol identifying the qualifiers that the rule applies to. If the attribute is not present then the rule applies to all relevant qualifiers of the layer protocol of the parent entity.
signalProperty	SignalPropertyRule	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			The rule only applies to signals with the properties listed. If the attribute is not present then the rule applies to all signals.
complexRule	String	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			Allows for more complex rules where the basic rule system is not sufficient.
_profile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_sinkProfile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
_sourceProfile	Profile	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 50 – Attributes for class Rule

2.2.12 Topology

Description:

- The Topology is an abstract representation of the topological aspects of a particular set of network resources. It is described in terms of the underlying topological network of Node and Link instances that enable the forwarding capabilities of that particular set of network resources.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The layer protocol(s) of the (multi-layer) Topology.				
_node	Node	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The list of Nodes which the Topology encompass.				
_link	Link	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The list of Links which the Topology encompass.				
_boundaryNodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This list is applicable only in case of a "top" Topology (i.e. a Topology which is not encapsulated in a Node) which does not encompass a single Node. In this case, the list identifies the NEPs which are at the boundary of the Topology, which can be a subset of all the NEPs belonging to encompassed Nodes. It is expected that these boundary NEPs have an associated SIP to allow the provisioning of ConnectivityServices spanning the whole Topology.				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 51 – Attributes for class *Topology*

2.2.13 TopologyContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the topology description. An instance of this class includes its Topology object instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_nwTopologyService	NetworkTopologyService	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The defined operations.			
_topology	Topology	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: The included Topology instances.				

Table 52 – Attributes for class *TopologyContext***2.2.14 TransferCostPac****Description:**

- The cost characteristics of a topological entity (e.g. a Link or a Node) not necessarily correlated to the cost of the underlying physical realization. They may be quite specific to the individual topological entity e.g. opportunity cost. Relates to layer capacity. There may be many perspectives from which cost may be considered for a particular topological entity and hence many specific costs and potentially cost algorithms. Using an entity will incur a cost.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
costCharacteristic	CostCharacteristic	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA Description: The list of costs where each cost relates to some aspect of the topological entity.

Table 53 – Attributes for class *TransferCostPac***2.2.15 TransferIntegrityPac****Description:**

- Transfer integrity characteristic covers expected/specified/acceptable characteristic of degradation of the transferred signal. It includes all aspects of possible degradation of signal content as well as any damage of any form to the total topological entity and to the carried signals. Note that the statement is of total impact to the topological entity so any partial usage of the topological entity (e.g. a signal that does not use full capacity) will only suffer its portion of the impact.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
errorCharacteristic	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Describes the degree to which the signal propagated can be errored. Applies to TDM systems as the errored signal will be propagated and not to packet as errored packets will be discarded.			
lossCharacteristic	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Describes the acceptable characteristic of lost packets where loss may result from discard due to errors or overflow. Applies to packet systems and not to TDM (as for TDM errored signals are propagated unless grossly errored and overflow/underflow turns into timing slips).			
repeatDeliveryCharacteristic	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Primarily applies to packet systems where a packet may be delivered more than once (in fault recovery for example). It can also apply to TDM where several frames may be received twice due to switching in a system with a large differential propagation delay.			
deliveryOrderCharacteristic	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Describes the degree to which packets will be delivered out of sequence. Does not apply to TDM as the TDM protocols maintain strict order.			
unavailableTimeCharacteristic	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Describes the duration for which there may be no valid signal propagated.			

Attribute Name	Type	Mult.	Access	Stereotypes
serverIntegrityProcessCharacteristic	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Describes the effect of any server integrity enhancement process on the characteristics of the topological entity.

Table 54 – Attributes for class *TransferIntegrityPac***2.2.16 TransferTimingPac****Description:**

- A topological entity (e.g. a Link or a Node) will suffer effects from the underlying physical realization related to the timing of the information passed by the topological entity.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
latencyCharacteristic	LatencyCharacteristic	1..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The effect on the latency of a queuing process. This only has significant effect for packet based systems and has a complex characteristic.

Table 55 – Attributes for class *TransferTimingPac***2.2.17 ValidationPac****Description:**

- Validation covers the various adjacency discovery and reachability verification protocols. Also may cover information source and degree of integrity.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass

- support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
validationMechanism	ValidationMechanism	1..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Provides details of the specific validation mechanism(s) used to confirm the presence of an intended topological entity.

Table 56 – Attributes for class *ValidationPac*

2.3 Signals

2.4 Associations

2.4.1 ContextHasNwTopologyService

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
nwTopologyService	composite	Yes	NetworkTopologyService	0..1
context	none	No	TopologyContext	1

Table 57 – Member ends for association *ContextHasNwTopologyService*

2.4.2 ContextHasTopology

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topology	composite	Yes	Topology	0..*
context	none	No	TopologyContext	1

Table 58 – Member ends for association *ContextHasTopology*

2.4.3 IRGHasAssociatedNRG

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_associatedNodeRuleGroup	none	Yes	NodeRuleGroup	2..*
interrulegroup	none	No	InterRuleGroup	0..*

Table 59 – Member ends for association *IRGHasAssociatedNRG***2.4.4 IRGHasCapacityPac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCapacity	composite	Yes	CapacityPac	0..1
interrulegroup	none	No	InterRuleGroup	1

Table 60 – Member ends for association *IRGHasCapacityPac***2.4.5 IRGHasCostPac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCost	composite	Yes	TransferCostPac	0..1
interrulegroup	none	No	InterRuleGroup	1

Table 61 – Member ends for association *IRGHasCostPac***2.4.6 IRGHasRiskPac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_riskParameter	composite	Yes	RiskParameterPac	0..1
interrulegroup	none	No	InterRuleGroup	1

Table 62 – Member ends for association *IRGHasRiskPac***2.4.7 IRGHasRules**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_rule	composite	Yes	Rule	1..*
interrulegroup	none	No	InterRuleGroup	1

Table 63 – Member ends for association *IRGHasRules*

2.4.8 IRGHasTimingPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferTiming	composite	Yes	TransferTimingPac	0..1
interrulegroup	none	No	InterRuleGroup	1

Table 64 – Member ends for association *IRGHasTimingPac*

2.4.9 LinkHasCapacityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCapacity	composite	Yes	CapacityPac	1
_link	none	No	Link	1

Table 65 – Member ends for association *LinkHasCapacityPac*

2.4.10 LinkHasCostPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCost	composite	Yes	TransferCostPac	0..1
_link	none	No	Link	1

Table 66 – Member ends for association *LinkHasCostPac*

2.4.11 LinkHasIntegrityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferIntegrity	composite	Yes	TransferIntegrityPac	0..1
_link	none	No	Link	1

Table 67 – Member ends for association *LinkHasIntegrityPac*

2.4.12 LinkHasRiskPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_riskParameter	composite	Yes	RiskParameterPac	0..1
_link	none	No	Link	1

Table 68 – Member ends for association *LinkHasRiskPac*

2.4.13 LinkHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
_link	none	No	Link	1

Table 69 – Member ends for association *LinkHasStatePac*

2.4.14 LinkHasTimingPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferTiming	composite	Yes	TransferTimingPac	0..1
_link	none	No	Link	1

Table 70 – Member ends for association *LinkHasTimingPac*

2.4.15 LinkHasTransitionPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_lpTransition	composite	Yes	LayerProtocolTransitionPac	0..1
_link	none	No	Link	1

Table 71 – Member ends for association *LinkHasTransitionPac*

2.4.16 LinkHasValidationPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_validation	composite	Yes	ValidationPac	0..1
_link	none	No	Link	1

Table 72 – Member ends for association *LinkHasValidationPac***2.4.17 LinkTerminatesOnNEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	none	Yes	NodeEdgePoint	2..*
_linkPort	none	No	Link	0..1

Table 73 – Member ends for association *LinkTerminatesOnNEP***2.4.18 NEPAggregatesNEPsInSameNode**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_aggregatedNodeEdgePoint	shared	Yes	NodeEdgePoint	0..*
_nodeEdgePoint	none	No	NodeEdgePoint	1

Table 74 – Member ends for association *NEPAggregatesNEPsInSameNode***2.4.19 NEPHasCapacityPac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_capacity	composite	Yes	CapacityPac	1
nodeedgepoint	none	No	NodeEdgePoint	1

Table 75 – Member ends for association *NEPHasCapacityPac***2.4.20 NEPHasInterDomainId**

Description:

- ENNI NEP may have Inter Domain Plug Id.

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_interDomainPlugIdPac	none	Yes	InterDomainPlugIdPac	0..1
nodeedgepoint	none	No	NodeEdgePoint	1

Table 76 – Member ends for association *NEPHasInterDomainId*

2.4.21 NEPRelatesToSIP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mappedServiceInterfacePoint	none	Yes	ServiceInterfacePoint	0..*
_mappedNodeEdgePoint	none	No	NodeEdgePoint	0..*

Table 77 – Member ends for association *NEPRelatesToSIP*

2.4.22 NRGAggregatesNEP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	shared	Yes	NodeEdgePoint	0..*
_nodeRuleGroup	none	Yes	NodeRuleGroup	0..*

Table 78 – Member ends for association *NRGAggregatesNEP*

2.4.23 NRGEencompassesLowerNRG

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeRuleGroup	shared	Yes	NodeRuleGroup	0..*
noderulegroup	none	No	NodeRuleGroup	1

Table 79 – Member ends for association *NRGEencompassesLowerNRG*

2.4.24 NRGHasCapacityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCapacity	composite	Yes	CapacityPac	0..1
noderulegroup	none	No	NodeRuleGroup	1

Table 80 – Member ends for association *NRGHasCapacityPac*

2.4.25 NRGHasCostPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCost	composite	Yes	TransferCostPac	0..1
noderulegroup	none	No	NodeRuleGroup	1

Table 81 – Member ends for association *NRGHasCostPac*

2.4.26 NRGHasRiskPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_riskParameter	composite	Yes	RiskParameterPac	0..1
noderulegroup	none	No	NodeRuleGroup	1

Table 82 – Member ends for association *NRGHasRiskPac*

2.4.27 NRGHasRules

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_rule	composite	Yes	Rule	1..*
noderulegroup	none	No	NodeRuleGroup	1

Table 83 – Member ends for association *NRGHasRules*

2.4.28 NRGHasTimingPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferTiming	composite	Yes	TransferTimingPac	0..1
noderulegroup	none	No	NodeRuleGroup	1

Table 84 – Member ends for association *NRGHasTimingPac*

2.4.29 NepRefersProfile

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
nodeedgepoint	none	No	NodeEdgePoint	0..*

Table 85 – Member ends for association *NepRefersProfile*

2.4.30 NepRefersSinkProfile

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkProfile	shared	Yes	Profile	0..*
nodeedgepoint	none	No	NodeEdgePoint	0..*

Table 86 – Member ends for association *NepRefersSinkProfile***2.4.31 NepRefersSourceProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sourceProfile	shared	Yes	Profile	0..*
nodeedgepoint	none	No	NodeEdgePoint	0..*

Table 87 – Member ends for association *NepRefersSourceProfile***2.4.32 NodeAggregatesNEPExposedByEncapsulatedTopology**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_aggregatedNodeEdgePoint	shared	Yes	NodeEdgePoint	0..*
_node	none	No	Node	1..*

Table 88 – Member ends for association *NodeAggregatesNEPExposedByEncapsulatedTopology***2.4.33 NodeEPHasStatePac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
_nodeEdgePoint	none	No	NodeEdgePoint	1

Table 89 – Member ends for association *NodeEPHasStatePac***2.4.34 NodeEncapsulatesIRG**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_interRuleGroup	composite	Yes	InterRuleGroup	0..*
node	none	No	Node	1

Table 90 – Member ends for association *NodeEncapsulatesIRG***2.4.35 NodeEncapsulatesNRG**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeRuleGroup	composite	Yes	NodeRuleGroup	0..*
node	none	No	Node	1

Table 91 – Member ends for association *NodeEncapsulatesNRG*

2.4.36 NodeEncapsulatesTopology

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_encapTopology	shared	Yes	Topology	0..1
_forwardingDomain	none	No	Node	0..1

Table 92 – Member ends for association *NodeEncapsulatesTopology*

2.4.37 NodeHasCapacityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCapacity	composite	Yes	CapacityPac	1
_node	none	No	Node	1

Table 93 – Member ends for association *NodeHasCapacityPac*

2.4.38 NodeHasCostPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferCost	composite	Yes	TransferCostPac	0..1
_node	none	No	Node	1

Table 94 – Member ends for association *NodeHasCostPac*

2.4.39 NodeHasIntegrityPac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferIntegrity	composite	Yes	TransferIntegrityPac	0..1
_node	none	No	Node	1

Table 95 – Member ends for association *NodeHasIntegrityPac***2.4.40 NodeHasNepIdentifierMappingTable**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nepIdentifierMappingTable	composite	Yes	NepIdentifierMappingTable	0..1
node	none	No	Node	1

Table 96 – Member ends for association *NodeHasNepIdentifierMappingTable***2.4.41 NodeHasRiskPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_riskParameterPac	composite	Yes	RiskParameterPac	0..1
node	none	No	Node	1

Table 97 – Member ends for association *NodeHasRiskPac***2.4.42 NodeHasStatePac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
_node	none	No	Node	1

Table 98 – Member ends for association *NodeHasStatePac***2.4.43 NodeHasTimingPac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transferTiming	composite	Yes	TransferTimingPac	0..1
_node	none	No	Node	1

Table 99 – Member ends for association *NodeHasTimingPac***2.4.44 NodeOwnsNEP**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ownedNodeEdgePoint	composite	Yes	NodeEdgePoint	0..*
_node	none	No	Node	1

Table 100 – Member ends for association *NodeOwnsNEP***2.4.45 NodeRefersProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
node	none	No	Node	0..*

Table 101 – Member ends for association *NodeRefersProfile***2.4.46 NwTopologyServiceHasTopology**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topology	shared	Yes	Topology	0..*
_nwTopologyService	none	No	NetworkTopologyService	0..1

Table 102 – Member ends for association *NwTopologyServiceHasTopology***2.4.47 RuleRefersProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
rule	none	No	Rule	0..*

Table 103 – Member ends for association *RuleRefersProfile***2.4.48 RuleRefersSinkProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkProfile	shared	Yes	Profile	0..*
rule	none	No	Rule	0..*

Table 104 – Member ends for association *RuleRefersSinkProfile***2.4.49 RuleRefersSourceProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sourceProfile	shared	Yes	Profile	0..*
rule	none	No	Rule	0..*

Table 105 – Member ends for association *RuleRefersSourceProfile***2.4.50 TopologyEncompassesLinks**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_link	composite	Yes	Link	0..*
_forwardingDomain	none	No	Topology	1

Table 106 – Member ends for association *TopologyEncompassesLinks***2.4.51 TopologyEncompassesNodes**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_node	composite	Yes	Node	0..*
_upperLevelFd	none	No	Topology	1

Table 107 – Member ends for association *TopologyEncompassesNodes***2.4.52 TopologyExposesBoundaryNEPs**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_boundaryNodeEdgePoint	shared	Yes	NodeEdgePoint	0..*
topology	none	No	Topology	0..1

Table 108 – Member ends for association *TopologyExposesBoundaryNEPs*

2.5 Abstractions

2.5.1 AugmentsRootContext

Augmenting Class	Augmented Class	Comment
TopologyContext	TapiContext	Augments the base TAPI Context with TopologyContext model.
target: "/TapiCommon:Context:_context"		

Table 109 – Member ends for class abstraction *AugmentsRootContext*

2.5.2 InterRuleGroupAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
InterRuleGroup	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 110 – Member ends for class abstraction *InterRuleGroupAugmentsEventNotif*

2.5.3 InterRuleGroupAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
InterRuleGroup	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 111 – Member ends for class abstraction *InterRuleGroupAugmentsEventNotifSignal*

2.5.4 InterRuleGroupAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
InterRuleGroup	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 112 – Member ends for class abstraction *InterRuleGroupAugmentsLogRecordBody*

2.5.5 InterfaceRealizationTopology

Augmenting Enumeration	Augmented Enumeration
NetworkTopologyService	TopologyService
Comment	
The Topology Interface Realization.	

Table 113 – Member ends for enum abstraction *InterfaceRealizationTopology*

2.5.6 LinkAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
Link	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 114 – Member ends for class abstraction *LinkAugmentsEventNotif*

2.5.7 LinkAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
Link	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 115 – Member ends for class abstraction *LinkAugmentsEventNotifSignal*

2.5.8 LinkAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
Link	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 116 – Member ends for class abstraction *LinkAugmentsLogRecordBody*

2.5.9 NepAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
NodeEdgePoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 117 – Member ends for class abstraction *NepAugmentsEventNotif*

2.5.10 NepAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
NodeEdgePoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 118 – Member ends for class abstraction *NepAugmentsEventNotifSignal*

2.5.11 NepAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
NodeEdgePoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 119 – Member ends for class abstraction *NepAugmentsLogRecordBody***2.5.12 NodeAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Node	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 120 – Member ends for class abstraction *NodeAugmentsEventNotif***2.5.13 NodeAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Node	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 121 – Member ends for class abstraction *NodeAugmentsEventNotifSignal***2.5.14 NodeAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Node	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 122 – Member ends for class abstraction *NodeAugmentsLogRecordBody***2.5.15 NodeRuleGroupAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
NodeRuleGroup	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 123 – Member ends for class abstraction *NodeRuleGroupAugmentsEventNotif***2.5.16 NodeRuleGroupAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
NodeRuleGroup	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 124 – Member ends for class abstraction *NodeRuleGroupAugmentsEventNotifSignal***2.5.17 NodeRuleGroupAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
NodeRuleGroup	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 125 – Member ends for class abstraction *NodeRuleGroupAugmentsLogRecordBody***2.5.18 NtwTopoSrvAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
NetworkTopologyService	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 126 – Member ends for class abstraction *NtwTopoSrvAugmentsEventNotif***2.5.19 NtwTopoSrvAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
NetworkTopologyService	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 127 – Member ends for class abstraction *NtwTopoSrvAugmentsEventNotifSignal***2.5.20 NtwTopoSrvAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
NetworkTopologyService	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 128 – Member ends for class abstraction *NtwTopoSrvAugmentsLogRecordBody***2.5.21 RuleAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Rule	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 129 – Member ends for class abstraction *RuleAugmentsEventNotif***2.5.22 RuleAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Rule	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 130 – Member ends for class abstraction *RuleAugmentsEventNotifSignal***2.5.23 RuleAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Rule	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 131 – Member ends for class abstraction *RuleAugmentsLogRecordBody***2.5.24 TopologyAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Topology	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 132 – Member ends for class abstraction *TopologyAugmentsEventNotif***2.5.25 TopologyAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Topology	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 133 – Member ends for class abstraction *TopologyAugmentsEventNotifSignal***2.5.26 TopologyAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Topology	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 134 – Member ends for class abstraction *TopologyAugmentsLogRecordBody***2.5.27 TopologyObjectTypeAugmentsObjectType**

Augmenting Enumeration	Augmented Enumeration
TopologyObjectType	ObjectType
<ul style="list-style-type: none"> • LINK • RULE • NODE_EDGE_POINT • NODE_RULE_GROUP • TOPOLOGY • INTER_RULE_GROUP • NETWORK_TOPOLOGY_SERVICE • NODE 	
Comment	
Enumeration Augment.	

Table 135 – Member ends for enum abstraction *TopologyObjectTypeAugmentsObjectType***2.5.28 TopologyProfileTypeAugmentsProfileType**

Augmenting Enumeration	Augmented Enumeration
TopologyProfileType	ProfileType
<ul style="list-style-type: none"> • TRANSMISSION_CAPABILITY 	
Comment	
Enumeration Augment.	

Table 136 – Member ends for enum abstraction *TopologyProfileTypeAugmentsProfileType***2.6 Data Types****2.6.1 ConnectionSpecReference****Description:**

- The definition of the type of Connection. This definition will explain the flows in the Connection and how they relate to the roles of (conceptual) ports.

Attribute Name	Type	Mult.	Access	Stereotypes
connectionSpecName	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The name of the Connection type spec. This can be used as a reference to a paper document where full formal machine interpretable specs are not supported.			
connectionSpec	Uuid	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The reference to the formal Connection type spec.			

Table 137 – Attributes for data type *ConnectionSpecReference*

2.6.2 CostCharacteristic

Description:

- The cost characteristic related to some aspect of a topological entity.

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The cost characteristic will be related to some aspect of the topological entity (e.g. \$ cost, routing weight). This aspect will be conveyed by the costName.			
costName	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The specific cost.			
costValue	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The cost may vary based upon some properties of the topological entity. The rules for the variation are conveyed by the costAlgorithm.			
costAlgorithm	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The cost may vary based upon some properties of the topological entity. The rules for the variation are conveyed by the costAlgorithm.			

Table 138 – Attributes for data type *CostCharacteristic***2.6.3 LatencyCharacteristic****Description:**

- Provides information on latency characteristic for a particular stated trafficProperty.

Attribute Name	Type	Mult.	Access	Stereotypes
trafficPropertyName	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The identifier of the specific traffic property to which the queuing latency applies.			
fixedLatencyCharacteristic	String	0..1	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	A topological entity suffers delay caused by the realization of the servers (e.g. distance related; FEC encoding etc.) along with some client specific processing. This is the total average latency effect of the topological entity.			
queuingLatencyCharacteristic	String	0..1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The specific queuing latency for the traffic property.			
jitterCharacteristic	String	0..1	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	High frequency deviation from true periodicity of a signal and therefore a small high rate of change of transfer latency. Applies to TDM systems (and not packet).			

Attribute Name	Type	Mult.	Access	Stereotypes
wanderCharacteristic	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Low frequency deviation from true periodicity of a signal and therefore a small low rate of change of transfer latency. Applies to TDM systems (and not packet).

Table 139 – Attributes for data type *LatencyCharacteristic***2.6.4 NepIdentifiers****Description:**

- Each entry provides the mapping between the UUID and the Inventory Id of a NEP instance.

Applied stereotype:

- Experimental

Attribute Name	Type	Mult.	Access	Stereotypes
nepInventoryId	String	1	R	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Inventory ID of the NEP.
nepUuid	Uuid	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID of the NEP.

Table 140 – Attributes for data type *NepIdentifiers***2.6.5 PortRole****Description:**

- The role of a (conceptual) port in the context of the Connection spec referenced in the rule.

Attribute Name	Type	Mult.	Access	Stereotypes
roleName	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The name of the role of the CEP (associated to the conceptual port) of the Connection.

Table 141 – Attributes for data type *PortRole*

2.6.6 PortRoleRule

Description:

- Constrains which (conceptual) port roles the rule applies to.

Attribute Name	Type	Mult.	Access	Stereotypes
portRole	PortRole	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The role(s) of the port(s) considered in the rule.
portRoleRule	PortRoleRuleOption	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Where the rule references more than one (conceptual) port role or where there are rule intersections either as a result of overlay of rules or InterRuleGroup usage indicates role matching criteria for a Connection following the rules. For example if two port roles, "a" and "b", are listed and the port role rule is "different", this means that a Connection connecting CEPs in that group must have port roles that are different for each CEP in that group. In the example if a Connection can have n ports of role "a" and m ports of role "b" then a maximum of two ports can be drawn from the NEPs of the group and where there are two, one must be role "a" and one must be role "b".

Table 142 – Attributes for data type *PortRoleRule*

2.6.7 ResilienceType

Description:

- The type of resiliency (protection/restoration).

Attribute Name	Type	Mult.	Access	Stereotypes
restorationPolicy	RestorationPolicy	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The restoration policy.			
protectionType	ProtectionType	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The protection type.			

Table 143 – Attributes for data type *ResilienceType*

2.6.8 RiskCharacteristic

Description:

- The information for a particular risk characteristic where there is a list of risk identifiers related to that characteristic.

Attribute Name	Type	Mult.	Access	Stereotypes
riskCharacteristicName	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The name of the risk characteristic. The characteristic may be related to a specific degree of closeness. For example a particular characteristic may apply to failures that are localized (e.g. to one side of a road) where as another characteristic may relate to failures that have a broader impact (e.g. both sides of a road that crosses a bridge). Depending upon the importance of the traffic being routed different risk characteristics will be evaluated.			
riskIdentifierList	String	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	A list of the identifiers of each physical/geographic unit (with the specific risk characteristic) that is related to a segment of the topological entity.			

Table 144 – Attributes for data type *RiskCharacteristic***2.6.9 SignalPropertyRule****Description:**

- Rule related to an identified signal property.

Attribute Name	Type	Mult.	Access	Stereotypes
signalPropertyName	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The name of the signal property to which the rule applies.				
signalPropertyValueRule	SignalPropertyValueRule	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Indicates how the signal properties should be accounted for.				
applicableSignalValue	String	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Specific values of the signal property to which the rule applies.				
numberOfSignalValues	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The number of instances of this specific property that can be supported by the group.				

Table 145 – Attributes for data type *SignalPropertyRule***2.6.10 ValidationMechanism****Description:**

- Identifies the validation mechanism and describes the characteristics of that mechanism.

Attribute Name	Type	Mult.	Access	Stereotypes
validationMechanism	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Name of mechanism used to validate adjacency.				
layerProtocolAdjacencyValidated	String	1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
State of validation.				
validationRobustness	String	1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Quality of validation (i.e. how likely is the stated validation to be invalid).				

Table 146 – Attributes for data type *ValidationMechanism*

2.7 Enumerations

2.7.1 ForwardingRule

Description:

- Rule that restricts the creation/deletion of a Connection between points referenced by rule groups.

Contains Enumeration Literals:

- MAY_FORWARD_ACROSS_GROUP:
 - NEPs referenced by the NodeRuleGroup (or indirectly by the InterRuleGroup between NodeRuleGroups) may have Connections created between them unless some other rule overrides this. For an InterRuleGroup, points in a NodeRuleGroup at one end of the InterRuleGroup may be connected to points in a NodeRuleGroup at another end of the InterRuleGroup.
- MUST_FORWARD_ACROSS_GROUP:
 - NEPs referenced by the NodeRuleGroup (or indirectly by the InterRuleGroup between NodeRuleGroups) MUST have Connections created between them unless some other rule overrides this. For an InterRuleGroup, points in a NodeRuleGroup at one end of the InterRuleGroup MUST be connected to points in a NodeRuleGroup at another end of the InterRuleGroup.

- CANNOT_FORWARD_ACROSS_GROUP:
 - NEPs referenced by the NodeRuleGroup (or indirectly by the InterRuleGroup between NodeRuleGroups) MUST NOT have Connections created between them. For an InterRuleGroup points in a NodeRuleGroup at one end of the InterRuleGroup MUST NOT be connected to points in an NodeRuleGroup at another end of the InterRuleGroup.
- NO_STATEMENT_ON_FORWARDING:
 - The rule group makes no statement on forwarding.
- INTER_CONNECTION_CONTENTION:
 - Connections to NEPs in the Rule Group contend for resources based upon a constraint of some signal property. For example, each Connection to a NEP in the Group must use a different value of the signal property from all other Connections to NEPs in the Rule Group. For example, each Connection to a NEP in the Group must use a same value of the signal property as all other Connections to NEPs in the Rule Group. In this case the first Connection created in the Rule Group sets the value and the Group constraint is freed when the last Connection is deleted.

2.7.2 PortRoleRuleOption

Description:

- Indicates how to interpret the port role list.

Contains Enumeration Literals:

- SAME_ROLE:
 - The (conceptual) ports of the Connection to which the rule applies must have the same role from the list in port role.
- DIFFERENT_ROLE:
 - The (conceptual) ports of the Connection to which the rule applies must have different roles from the list in port role.
- ANY_ROLE:
 - The (conceptual) ports of the Connection to which the rule applies may take any identified role.
- NOT_ROLE:
 - The (conceptual) ports of the Connection to which the rule applies must not have any of the listed roles.

2.7.3 ProtectionType

Description:

- The types of protection and restoration.

Contains Enumeration Literals:

- NO_PROTECTION:
- ONE_PLUS_ONE_PROTECTION:
 - Protection scheme where the switches are not required to be coordinated (typically the signal is always bridged).
- ONE_PLUS_ONE_PROTECTION_WITH_DYNAMIC_RESTORATION:
 - Protection scheme where the switches are not required to be coordinated (typically the signal is always bridged). In addition is implemented a second level of resilience, through dynamic restoration of the first connection affected by a failure.

- PERMANENT_ONE_PLUS_ONE_PROTECTION:
 - Extends the ONE_PLUS_ONE_PROTECTION_WITH_DYNAMIC_RESTORATION allowing an indeterminate number of failures to affect either of the 1+1 routes and the respective subsequent dynamic restorations.
- ONE_FOR_ONE_PROTECTION:
 - Protection scheme where the switches are coordinated (e.g. by signalling).
- DYNAMIC_RESTORATION:
 - Restoration scheme where the protection route is computed and implemented only when the current (and only) route is impaired (e.g. by a failure or maintenance command).
- PRE_COMPUTED_RESTORATION:
 - Restoration scheme where the protection route is pre-computed. When the current (and only) route is impaired (e.g. by a failure or maintenance command) the pre-computed route is implemented.
- ONE_PLUS_ONE_PROTECTION_WITH_PRE_COMPUTED_RESTORATION:
 - Protection scheme where the switches are not required to be coordinated (typically the signal is always bridged). In addition a further protection route is pre-computed. When either the current or protection route is impaired (e.g. by a failure or maintenance command), the pre-computed route is implemented to restore resiliency level.
- ONE_FOR_N_PROTECTION:
 - N routes share one protection route. Switches need coordination (e.g. by signalling).
- M_FOR_N_PROTECTION:
 - N routes share M protection routes. Switches need coordination (e.g. by signalling).
- ONE_FOR_ONE_BY_N:
 - N parallel one-for-one schemes.

2.7.4 RestorationPolicy

Description:

- The restoration policy.

Contains Enumeration Literals:

- PER_DOMAIN_RESTORATION:
 - Restoration is expected to be performed independently within each (restoration) domain scope. This implies that the server is responsible of activating the required control mechanisms to guarantee the restoration of the service autonomously.
- END_TO_END_RESTORATION:
 - Restoration is expected to be performed on end to end basis across all domain(s).
- NA:
 - Not Applicable.

2.7.5 RuleType

Description:

- The focus of the rule.

Contains Enumeration Literals:

- FORWARDING:
 - The rule applies to the creation of Connections.
- CAPACITY:

- The rule applies to capacity limitations.
- COST:
 - The rule applies to the cost of the creation of Connections.
- TIMING:
 - The rule applies to timing constraints across the group.
- RISK:
 - The rule applies to risk considerations across the group so as to express shared risk.
- GROUPING:
 - The rule is simply for grouping related to other rules.
- IMPAIRMENT:

2.7.6 SignalPropertyValueRule

Description:

- Indicates how to interpret the signal property value rule.

Contains Enumeration Literals:

- SAME_VALUE:
 - The signal property of the CEP to which the rule applies must have the same value from the identified list.
- ANY_VALUE:
 - The signal property of the CEP to which the rule applies may take any identified value.
- DIFFERENT_VALUE:
 - The signal property of the CEP to which the rule applies each must have different values from the identified list.
- NOT_VALUE:
 - The signal property of the CEP to which the rule applies must not have any of the identified values.

2.7.7 TopologyObjectType

Description:

- The list of TAPI Topology Global Object Class types on which Notification signals can be raised.

Contains Enumeration Literals:

- TOPOLOGY:
 - The Topology class.
- NODE:
 - The Node class.
- LINK:
 - The Link class.
- NODE_EDGE_POINT:
 - The NodeEdgePoint (NEP) class.
- NODE_RULE_GROUP:
 - The NodeRuleGroup class.
- INTER_RULE_GROUP:
 - The InterRuleGroup class.
- RULE:
 - The Rule class.

- NETWORK_TOPOLOGY_SERVICE:
 - The NetworkTopologyService class.

2.7.8 TopologyProfileType

Contains Enumeration Literals:

- TRANSMISSION_CAPABILITY:

2.8 Primitives

3 Connectivity Model

TapiConnectivity: This module contains TAPI Connectivity Model definitions. Source: TapiConnectivity.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

3.1 Diagrams

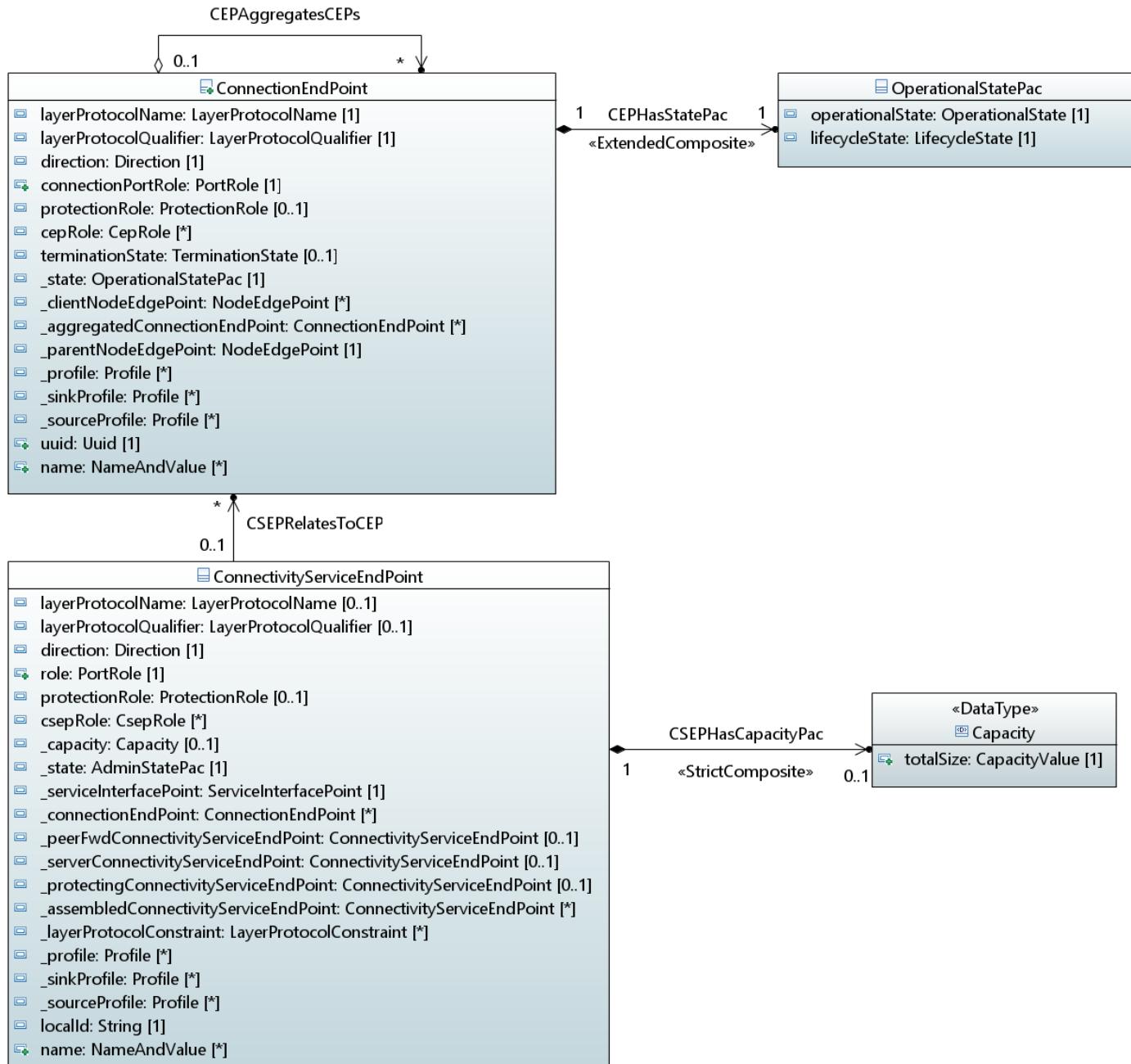
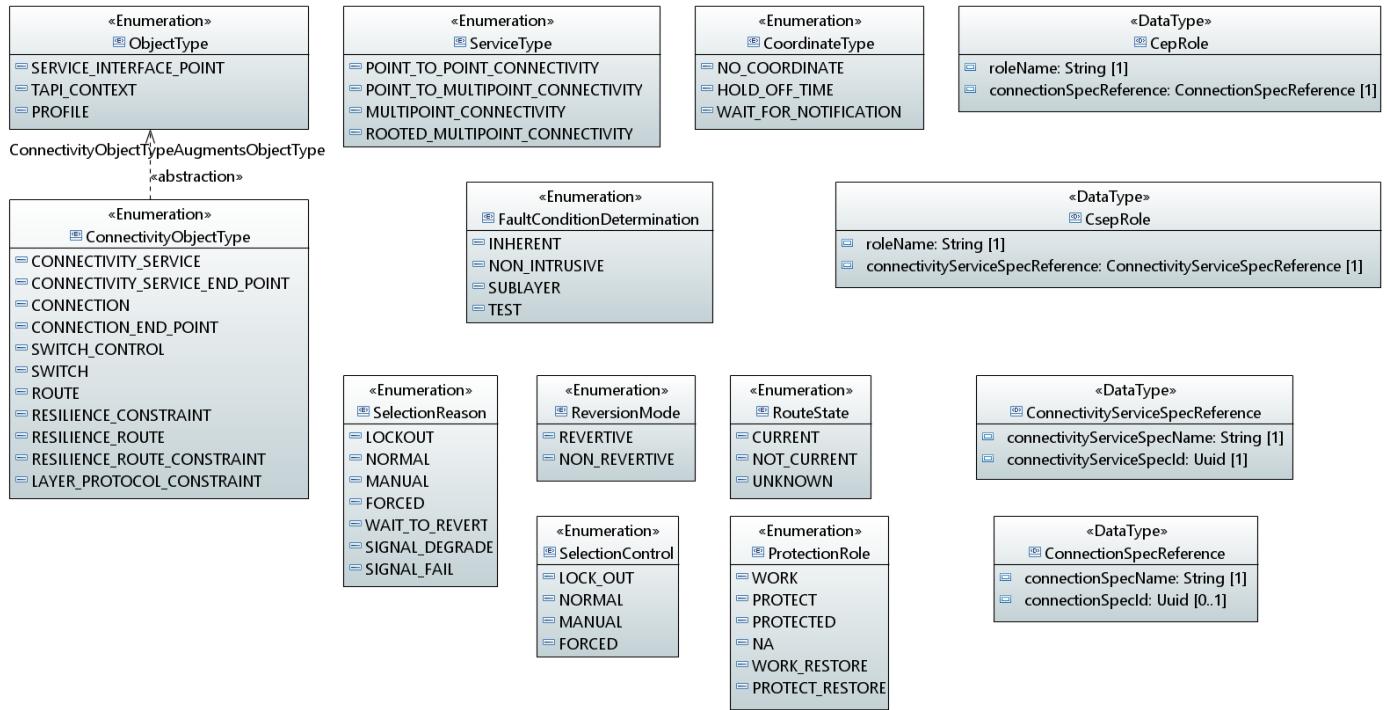
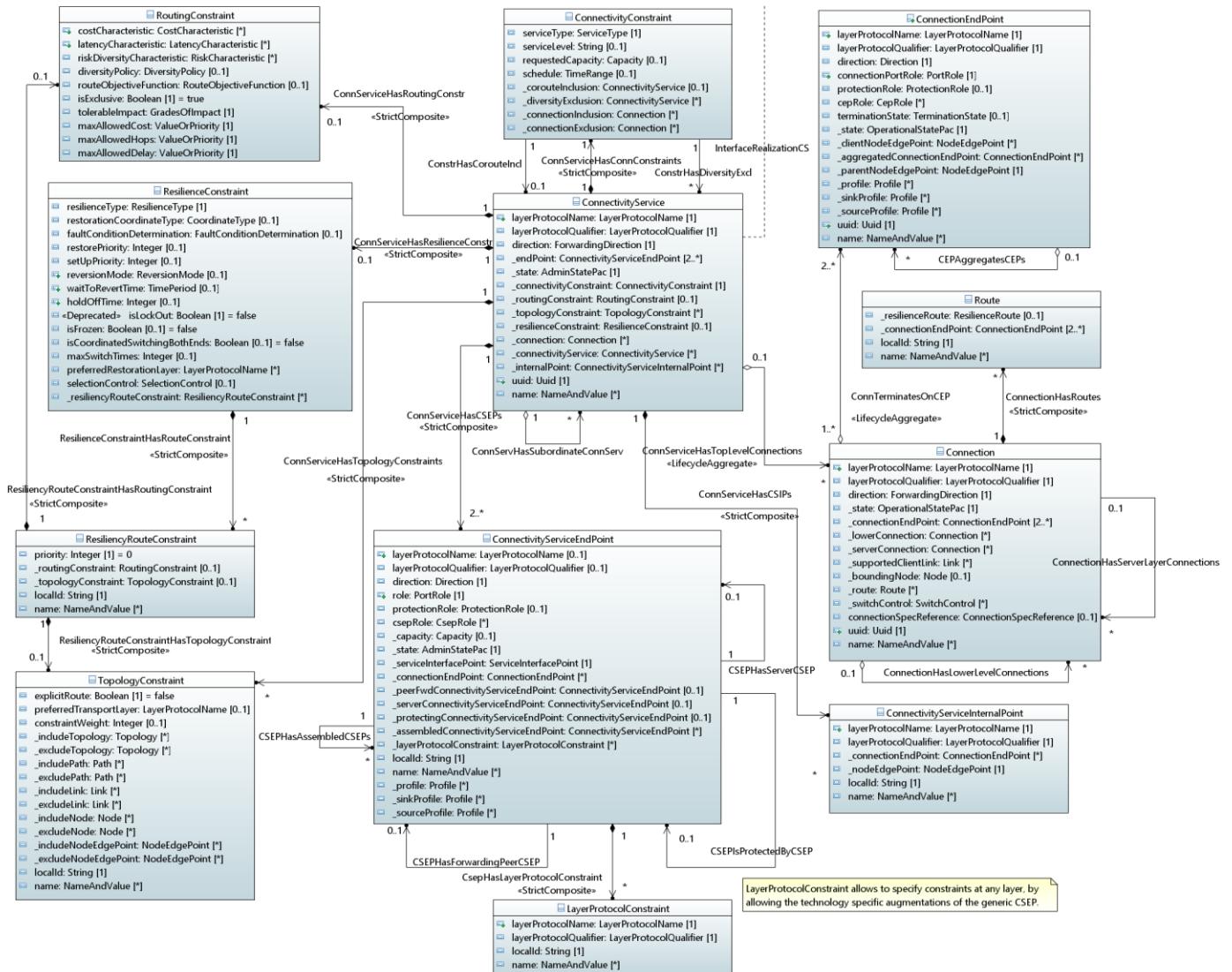


Figure 12 – Diagram **ConnectionEndPointDetails**

Figure 13 – Diagram *ConnectivityDataTypes*Figure 14 – Diagram *ConnectivityNotifAndStream*

Figure 15 – Diagram *ConnectivityServiceDetails*

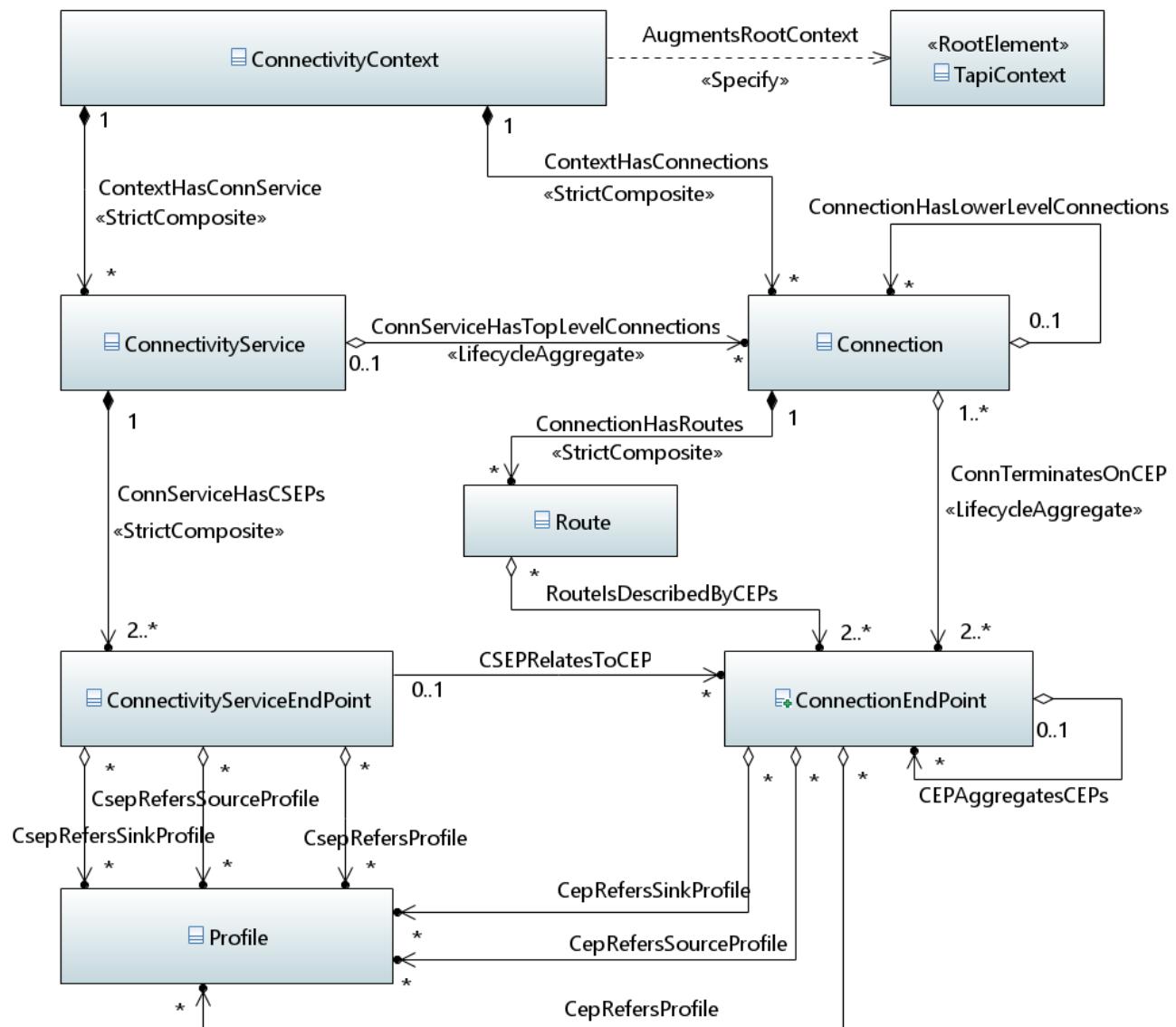
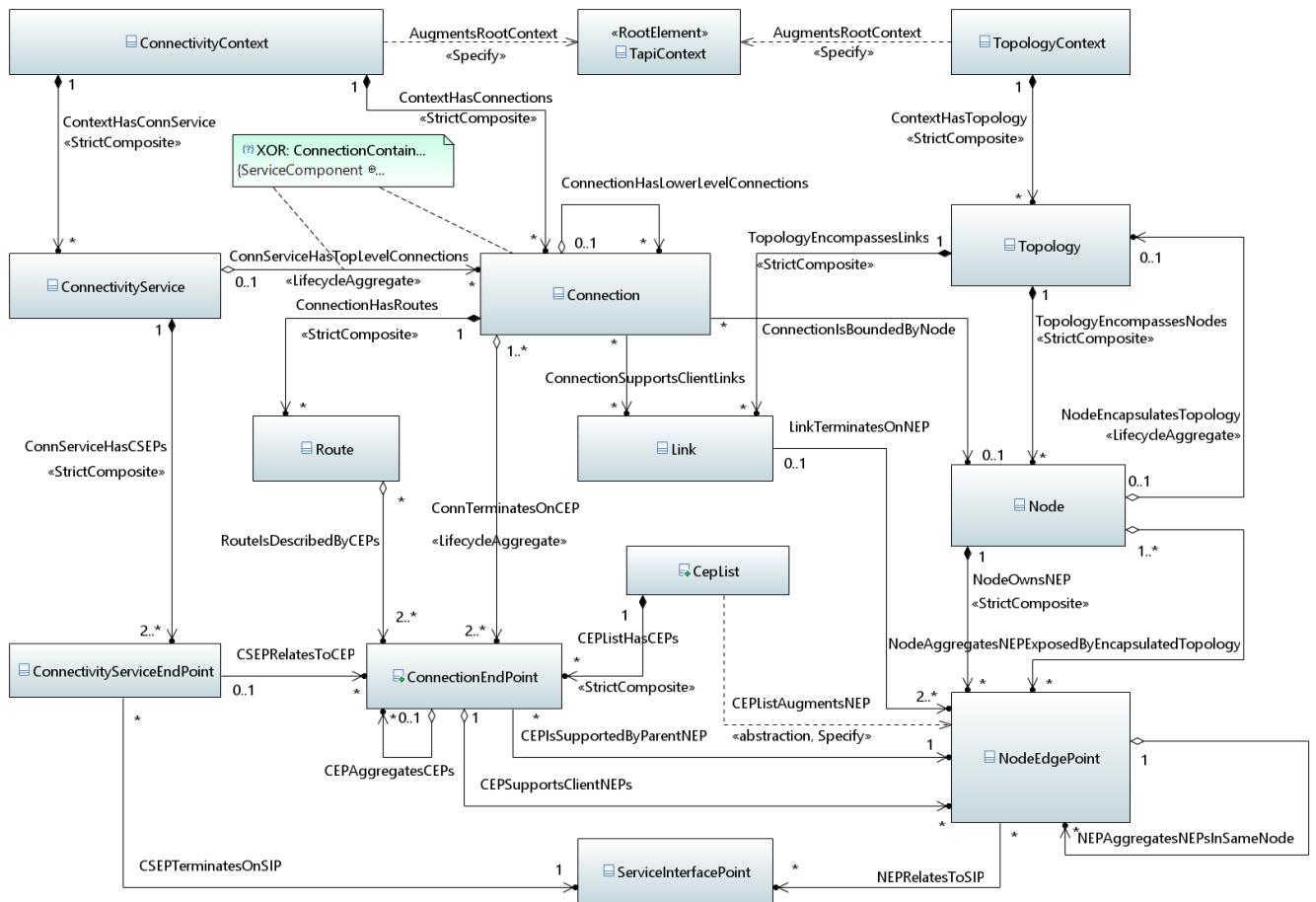


Figure 16 – Diagram *ConnectivityServiceSkeleton*

Figure 17 – Diagram *ConnectivityTopologySkeleton*

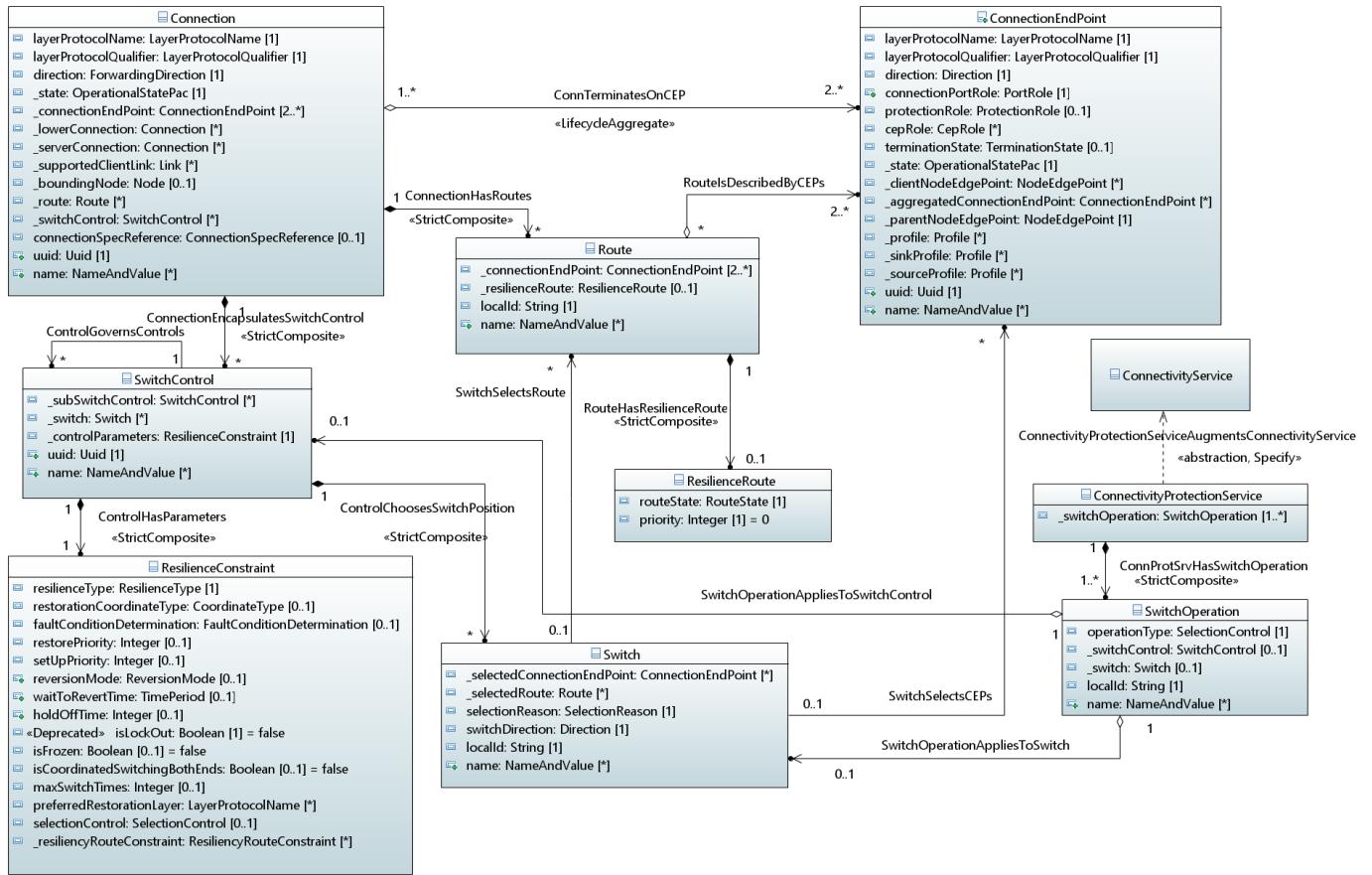


Figure 18 – Diagram Resilience

3.2 Classes

3.2.1 CepList

Description:

- This class provides the linkage between the NodeEdgePoint (NEP) instance and its supported ConnectionEndPoint CEP instances. The NEP class, which is defined in TapiTopology module, cannot directly include the reference to its CEPs, because CEP class is defined in another module, TapiConnectivity.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_connectionEndPoint	ConnectionEndPoint	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The list of supported ConnectionEndPoint (CEP) instances.

Table 147 – Attributes for class *CepList*

3.2.2 Connection

Description:

- A Connection represents an enabled (provisioned) potential for forwarding (of transport characteristic information including all circuit/packet forms) between two or more ConnectionEndPoint instances. The bounding Node of a Connection may be explicit or be conceptually implicit. The Connection is a container for provisioned connectivity that tracks the state of the allocated resources and is distinct from the ConnectivityService. At the lowest level of recursion, a Connection may represent a cross-connection in a switch matrix (i.e., a fabric) in an equipment.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The layer protocol of the Connection.
layerProtocolQualifier	LayerProtocolQualifier	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
direction	ForwardingDirection	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The forwarding direction of the Connection.				
_state	OperationalStatePac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Connection status information.				
_connectionEndPoint	ConnectionEndPoint	2..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectionEndPoint (CEP) instances of the Connection.				
_lowerConnection	Connection	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A Connection supports a recursive aggregation relationship such that the internal construction of a Connection can be exposed as multiple lower level Connection objects (partitioning). Aggregation is used as for the Node/Topology to allow changes in hierarchy. Connection aggregation reflects Node/Topology aggregation. Note that a cross-connection in a switch matrix (i.e., a fabric) is not necessarily the lowest level of Connection partitioning.				
_serverConnection	Connection	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The server layer Connections supporting this Connection.				

Attribute Name	Type	Mult.	Access	Stereotypes
_supportedClientLink	Link	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A Connection instance supports one or more Link instances. G.800: "The links in a client layer network are supported by trails in a server layer network".				
_boundingNode	Node	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A Connection may or may not be bounded by a Node, which defines the forwarding scope.				
_route	Route	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Route instances of the Connection.				
_switchControl	SwitchControl	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The SwitchControl instances associated to the Connection.				
connectionSpecReference	ConnectionSpecReference	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Provides the reference to the spec that defines the connection type and cepRoles.				

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 148 – Attributes for class *Connection*

3.2.3 ConnectionEndPoint

Description:

- The ConnectionEndPoint (CEP) encapsulates information related to a Connection at the ingress/egress points of every Node that the Connection traverses in a Topology. The CEP includes the termination and adaptation functions of one or more transport layers (circuit and packet forms) plus the information of the (conceptual) port of associated Connection.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The layer protocol of the ConnectionEndPoint (CEP).			
layerProtocolQualifier	LayerProtocolQualifier	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The layer protocol qualifier of the ConnectionEndPoint (CEP).			
direction	Direction	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The CEP direction.			
connectionPortRole	PortRole	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The role of the (conceptual) port of the associated Connection.			
protectionRole	ProtectionRole	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The protection role of the (conceptual) port of the associated Connection. It is recommended the alignment with the priority of ResilienceRoute.			
cepRole	CepRole	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Defines the role of the CEP in the context of the Connection spec. There may be many CEP role - Connection spec combinations for a particular CEP where each corresponds to a specific Connection associated with the CEP.			

Attribute Name	Type	Mult.	Access	Stereotypes
terminationState	TerminationState	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_state	OperationalStatePac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectionEndPoint (CEP) status information.				
_clientNodeEdgePoint	NodeEdgePoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The supported NodeEdgePoint instance(s).				
_aggregatedConnectionEndPoint	ConnectionEndPoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
A ConnectionEndPoint (CEP) instance may aggregate one or more other CEP instances for e.g. pooling purposes, when a set of CEP instances are equivalent for usage.				
_parentNodeEdgePoint	NodeEdgePoint	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The supporting NodeEdgePoint (NEP) instance.				

Attribute Name	Type	Mult.	Access	Stereotypes
_profile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_sinkProfile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_sourceProfile	Profile	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 149 – Attributes for class *ConnectionEndPoint***3.2.4 ConnectivityConstraint****Description:**

- The connectivity constraints associated to a ConnectivityService instance.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
serviceType	ServiceType	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityService type.				
serviceLevel	String	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
Class of Service Name. An abstract value the meaning of which is mutually agreed - typically represents metrics such as - Class of service, priority, resiliency, availability.				
requestedCapacity	Capacity	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityService capacity.				
schedule	TimeRange	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The ConnectivityService timing.			
_corouteInclusion	ConnectivityService	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The reference to another ConnectivityService instance for corouting purposes.			
_diversityExclusion	ConnectivityService	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The references to other ConnectivityService instances for routing diversity purposes.			
_connectionInclusion	Connection	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: A ConnectivityService may use one or more existing Connections. A common traditional strategy is to set up 'stranded' connectivity in the core of the network as "express channels" (this is essentially a serial compound link, but can be treated as simple connections). A Connection inclusion capability allows for adoption of discovered Connections, i.e. will allow discovered Connections with no stated intent to be associated with an intent via the ConnectivityService. A ConnectivityService is requested with a Connection inclusion constraint that identifies a Connection (or chain of Connections) that is bounded by CEPs that each belong to a NEP that references a SIP that is referenced by a CSEP of the ConnectivityService such that all CSEPs are satisfied by CEPs of the existing Connection. The type is generic UUID given read/write constraints, the Connection is a readonly node.			
_connectionExclusion	Connection	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The list of Connection instances which shall not be used to implement the ConnectivityService. The type is generic UUID given read/write constraints, the Connection is a readonly node.			

Table 150 – Attributes for class *ConnectivityConstraint*

3.2.5 ConnectivityContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the connectivity description. An instance of this class includes its ConnectivityService and Connection object instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_connectivityService	ConnectivityService	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The included ConnectivityService instances.				
_connection	Connection	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The included Connection instances.				

Table 151 – Attributes for class *ConnectivityContext*

3.2.6 ConnectivityProtectionService

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_switchOperation	SwitchOperation	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 152 – Attributes for class *ConnectivityProtectionService*

3.2.7 ConnectivityService

Description:

- A ConnectivityService represents an intent-like request for connectivity between two or more ConnectivityServiceEndPoint (CSEP) instances. The ConnectivityService is a container for connectivity request details and is distinct from the Connection(s) that realize the request.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
layerProtocolQualifier	LayerProtocolQualifier	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
direction	ForwardingDirection	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The forwarding direction of the ConnectivityService.				
_endPoint	ConnectivityServiceEndPoint	2..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityServiceEndPoint (CSEP) instances of the ConnectivityService.				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityService status information.				
_connectivityConstraint	ConnectivityConstraint	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated connectivity constraints.				
_routingConstraint	RoutingConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated routing constraints.				

Attribute Name	Type	Mult.	Access	Stereotypes
_topologyConstraint	TopologyConstraint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated topology constraints. Different instances of TopologyConstraints may be used to specify constraints at different layer networks.				
_resilienceConstraint	ResilienceConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated resilience constraints.				
_connection	Connection	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Connection instance(s) tracking the state of the allocated resources for the support of the ConnectivityService.				
_connectivityService	ConnectivityService	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Association to other ConnectivityService instances for complex connectivity provisioning.				
_internalPoint	ConnectivityServiceInternalPoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityServiceInternalPoint (CSIP) instances of the ConnectivityService.				

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 153 – Attributes for class *ConnectivityService*

3.2.8 ConnectivityServiceEndPoint

Description:

- The ConnectivityServiceEndPoint (CSEP) encapsulates information related to a ConnectivityService at the ingress/egress points of that ConnectivityService.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				The layer protocol of the ConnectivityServiceEndPoint (CSEP).

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolQualifier	LayerProtocolQualifier	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The layer protocol qualifier of the ConnectivityServiceEndPoint (CSEP).				
direction	Direction	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The CSEP direction. It is intended the "internal viewpoint", i.e. the source CSEP is sending to the network, the sink CSEP is sending from the network.				
role	PortRole	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The role of the (conceptual) port of the associated ConnectivityService.				
protectionRole	ProtectionRole	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The protection role of the (conceptual) port of the associated ConnectivityService. It is recommended the alignment with the priority of ResilienceRoute.				
csepRole	CsepRole	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Defines the role of the CSEP in the context of the Connectivity Service spec. There may be many CSEP role - CS spec combinations for a particular CSEP where each corresponds to a specific Connectivity Service associated with the CSEP.				

Attribute Name	Type	Mult.	Access	Stereotypes
_capacity	Capacity	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityServiceEndPoint (CSEP) capacity.				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectivityServiceEndPoint (CSEP) status information.				
_serviceInterfacePoint	ServiceInterfacePoint	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The supporting ServiceInterfacePoint (SIP) instance.				
_connectionEndPoint	ConnectionEndPoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated ConnectionEndPoint (CEP) instances.				
_peerFwdConnectivityServiceEndPoint	ConnectivityServiceEndPoint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated ConnectivityServiceEndPoint (CSEP) instance from forwarding perspective.				

Attribute Name	Type	Mult.	Access	Stereotypes
_serverConnectivityServiceEndPoint	ConnectivityServiceEndPoint	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated ConnectivityServiceEndPoint (CSEP) instance at a server layer protocol (qualifier).				
_protectingConnectivityServiceEndPoint	ConnectivityServiceEndPoint	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated ConnectivityServiceEndPoint (CSEP) instance from resilience perspective.				
_assembledConnectivityServiceEndPoint	ConnectivityServiceEndPoint	0..*	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated ConnectivityServiceEndPoint (CSEP) instances from assembling perspective, e.g. in inverse multiplexing schemes.				
_layerProtocolConstraint	LayerProtocolConstraint	0..*	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The constraints applicable at specific layers.				
_profile	Profile	0..*	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_sinkProfile	Profile	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_sourceProfile	Profile	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 154 – Attributes for class *ConnectivityServiceEndPoint*

3.2.9 ConnectivityServiceInternalPoint

Description:

- Experimental class for complex/detailed provisioning schemes.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			The layer protocol of the ConnectivityServiceInternalPoint (CSIP).
layerProtocolQualifier	LayerProtocolQualifier	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			The layer protocol qualifier of the ConnectivityServiceInternalPoint (CSIP).
_connectionEndPoint	ConnectionEndPoint	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			The associated ConnectionEndPoint (CEP) instances.
_nodeEdgePoint	NodeEdgePoint	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			The supporting NodeEdgePoint (NEP) instance.
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: yes – part: true • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			An identifier that is unique in the context of the GlobalClass from which it is inseparable.

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 155 – Attributes for class *ConnectivityServiceInternalPoint***3.2.10 LayerProtocolConstraint****Description:**

- LayerProtocolConstraint allows to specify constraints at any layer, by allowing the technology specific augmentations of the generic CSEP.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
layerProtocolQualifier	LayerProtocolQualifier	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 156 – Attributes for class *LayerProtocolConstraint*

3.2.11 ResilienceConstraint

Description:

- The parameters of a protection/restoration scheme of a ConnectivityService or Connection.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
resilienceType	ResilienceType	1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The type of resiliency (protection/restoration).
restorationCoordinateType	CoordinateType	0..1	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The coordination mechanism between protection/restoration operations across multiple layers.			
faultConditionDetermination	FaultConditionDetermination	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The types of the determinations of a fault condition on a serial compound link connection within the protected domain. Ref: G.808 Amendment 1 (03/2018)			
restorePriority	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: 0 highest priority, 1 lower, etc.			
setUpPriority	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The priority with respect to other possible concurrent requests. 0 highest priority, 1 lower, etc.			
reversionMode	ReversionMode	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Indicates whether the protection/restoration scheme is revertive or non-revertive.			
waitForRevertTime	TimePeriod	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: If the protection/restoration scheme is revertive, this attribute specifies the time to wait after a fault clears on a higher priority (preferred) resource before reverting to the preferred resource.			

Attribute Name	Type	Mult.	Access	Stereotypes
holdOffTime	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the time, in milliseconds, between declaration of signal degrade or signal fail, and the initialization of the protection/restoration switching algorithm.				
isLockOut	Boolean Default value: <i>false</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA Deprecated
Description:				
The resource is configured to temporarily not be available for use in the protection/restoration scheme(s) it is part of. This overrides all other control states including e.g. "forced". If the item is locked out then it cannot be used under any circumstances. Note: Only relevant when part of a protection/restoration scheme.				
isFrozen	Boolean Default value: <i>false</i>	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Temporarily prevents any switch action to be taken and, as such, freezes the current state of the protection/restoration scheme. Until the freeze is cleared, additional near-end external commands are rejected and fault condition changes and signalling (e.g, received APS messages) are ignored. All administrative controls of any aspect of the protection/restoration scheme are rejected.				
isCoordinatedSwitchingBothEnds	Boolean Default value: <i>false</i>	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Is operating such that the switching at both ends of each flow across the resilient forwarding entity (e.g. ConnectivityService or Connection) is coordinated at both ingress and egress ends.				
maxSwitchTimes	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Used to limit the maximum switch times. When the impairment on preferred/intended resource disappears and traffic returns to the preferred/intended resource, switch counter reset.			
preferredRestorationLayer	LayerProtocolName	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Indicates which layer protocol this resilience parameters package is configured for.			
selectionControl	SelectionControl	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Degree of administrative control applied to the switch selection.			
_resiliencyRouteConstraint	ResiliencyRouteConstraint	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The associated constraints related to resiliency routes.			

Table 157 – Attributes for class *ResilienceConstraint*

3.2.12 ResilienceRoute

Description:

- This object adds resilience and state attributes to the Route. When this object is not present, then the Route is intended as "current" Route of the Connection.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
routeState	RouteState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Current information on the route selection.
priority	Integer Default value: 0	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Value of 0 (zero) means "unspecified priority". Highest priority is 1, sometimes referred as "preferred" or "main" or "intended" route. 2 has lower priority than 1, 3 has lower priority than 2, etc. It is recommended the alignment with the protectionRole of CEP/CSEP.

Table 158 – Attributes for class *ResilienceRoute*

3.2.13 ResiliencyRouteConstraint

Description:

- The constraints related to the Resiliency route.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
priority	Integer Default value: 0	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Value of 0 (zero) means "unspecified priority". Highest priority is 1, sometimes referred as "preferred" or "main" or "intended" route. 2 has lower priority than 1, 3 has lower priority than 2, etc.

Attribute Name	Type	Mult.	Access	Stereotypes
_routingConstraint	RoutingConstraint	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The associated routing constraints.			
_topologyConstraint	TopologyConstraint	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The associated topology constraints.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 159 – Attributes for class *ResiliencyRouteConstraint*

3.2.14 Route

Description:

- The Route of a Connection is modeled as a collection of ConnectionEndPoint (CEP) instances. The logical order of the ConnectionEndPoint (CEP) instances within the Route object can be inferred by the TAPI client by the knowledge of the topology information.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_resilienceRoute	ResilienceRoute	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
Provides optional resilience and state attributes to the Route.				
_connectionEndPoint	ConnectionEndPoint	2..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
The ConnectionEndPoint (CEP) instances composing the Route.				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 160 – Attributes for class *Route*

3.2.15 Switch

Description:

- The class models the switched forwarding of traffic (traffic flow) between (conceptual) ports of resilient forwarding entities (e.g. resilient ConnectivityService, resilient Connection), these ports being mapped to ConnectionEndPoint (CEP) instances. A resilient forwarding entity may have two or more (conceptual) ports that provide alternative identical inputs/outputs, and one or more associated Switch instances to represent the alternative flow choices visible at the edge of the

forwarding entity. The Switch instance represents and defines a protection switch structure conceptually encapsulated in the forwarding entity. The Switch instance essentially performs one of the functions of the Protection Group in a traditional model. It associates to 2 or more (conceptual) ports each playing the role of a Protection Unit. One or more protection, i.e. standby/backup, conceptual ports provide protection for one or more working (i.e. regular/main/preferred) ports where either protection or working can feed one or more protected port. The switch may be used in revertive or non-revertive (symmetric) mode. When in revertive mode it may define a waitToRestore time. It may be used in one of several modes including source switch, destination switched, source and destination switched, etc. (covering cases such as 1+1 and 1:1). It may be locked out (prevented from switching), force switched or manual switched. It will indicate switch state and change of state. The Switch can be switched away from all sources such that it becomes open and hence two coordinated switches can both feed the same (conceptual) port or CEP so long as at least one of the two is switched away from all sources (is "open"). The ability for a Switch to be "high impedance" allows bidirectional forwarding entities to be overlaid on the same bidirectional CEP where the appropriate control is enabled to prevent signal conflict. This ability allows multiple alternate routes to be present that otherwise would be in conflict.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_selectedConnectionEndPoint	ConnectionEndPoint	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The ConnectionEndPoint (CEP) instance(s) which is (are) currently selected for traffic flow.				
_selectedRoute	Route	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The Route instance(s) which is (are) currently selected for traffic flow.				
selectionReason	SelectionReason	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The reason for the current switch selection.			
switchDirection	Direction	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Sink direction is intended from the unreliable to reliable CEPs. Source direction is the reverse.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 161 – Attributes for class Switch

3.2.16 SwitchControl

Description:

- Represents the capability to control and coordinate Switch instances, to add/delete/modify Connections and to add/delete/modify CEPs so as to realize a protection scheme.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_subSwitchControl	SwitchControl	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Recursive association to represents hierarchical schemes.			
_switch	Switch	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Switch instances composing the protection scheme.			
_controlParameters	ResilienceConstraint	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The parameters of the protection scheme.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 162 – Attributes for class *SwitchControl***3.2.17 SwitchOperation**

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
operationType	SelectionControl	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_switchControl	SwitchControl	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_switch	Switch	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_connectionEndPoint	ConnectionEndPoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 163 – Attributes for class *SwitchOperation*

3.3 Signals

3.4 Associations

3.4.1 CEPAggregatesCEPs

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_aggregatedConnectionEndPoint	shared	Yes	ConnectionEndPoint	0..*
connectionendpoint	none	No	ConnectionEndPoint	0..1

Table 164 – Member ends for association *CEPAggregatesCEPs*

3.4.2 CEPHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	OperationalStatePac	1
_connectionEndPoint	none	No	ConnectionEndPoint	1

Table 165 – Member ends for association *CEPHasStatePac*

3.4.3 CEPIsSupportedByParentNEP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_parentNodeEdgePoint	none	Yes	NodeEdgePoint	1
connectionendpoint	none	No	ConnectionEndPoint	0..*

Table 166 – Member ends for association *CEPIsSupportedByParentNEP***3.4.4 CEPListHasCEPs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	composite	Yes	ConnectionEndPoint	0..*
cepholder	none	No	CepList	1

Table 167 – Member ends for association *CEPListHasCEPs***3.4.5 CEPSupportsClientNEPs**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_clientNodeEdgePoint	shared	Yes	NodeEdgePoint	0..*
_connectionEndPoint	none	No	ConnectionEndPoint	1

Table 168 – Member ends for association *CEPSupportsClientNEPs***3.4.6 CSEPHasAssembledCSEPs**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_assembledConnectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..*
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 169 – Member ends for association *CSEPHasAssembledCSEPs***3.4.7 CSEPHasCapacityPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_capacity	composite	Yes	Capacity	0..1
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 170 – Member ends for association *CSEPHasCapacityPac***3.4.8 CSEPHasForwardingPeerCSEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_peerFwdConnectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..1
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 171 – Member ends for association *CSEPHasForwardingPeerCSEP***3.4.9 CSEPHasServerCSEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serverConnectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..1
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 172 – Member ends for association *CSEPHasServerCSEP***3.4.10 CSEPHasStatePac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 173 – Member ends for association *CSEPHasStatePac***3.4.11 CSEPIsProtectedByCSEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_protectingConnectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..1
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 174 – Member ends for association *CSEPIsProtectedByCSEP***3.4.12 CSEPRelatesToCEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	none	Yes	ConnectionEndPoint	0..*
_connectivityServiceEndPoint	none	No	ConnectivityServiceEndPoint	0..1

Table 175 – Member ends for association *CSEPRelatesToCEP***3.4.13 CSEPTerminatesOnSIP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serviceInterfacePoint	none	Yes	ServiceInterfacePoint	1
_connServicePort	none	No	ConnectivityServiceEndPoint	0..*

Table 176 – Member ends for association *CSEPTerminatesOnSIP***3.4.14 CSITerminatesOnNEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	none	Yes	NodeEdgePoint	1
connectivityserviceinternalpoint	none	No	ConnectivityServiceInternalPoint	0..*

Table 177 – Member ends for association *CSITerminatesOnNEP***3.4.15 CepRefersProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
connectionendpoint	none	No	ConnectionEndPoint	0..*

Table 178 – Member ends for association *CepRefersProfile***3.4.16 CepRefersSinkProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkProfile	shared	Yes	Profile	0..*
connectionendpoint	none	No	ConnectionEndPoint	0..*

Table 179 – Member ends for association *CepRefersSinkProfile***3.4.17 CepRefersSourceProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sourceProfile	shared	Yes	Profile	0..*
connectionendpoint	none	No	ConnectionEndPoint	0..*

Table 180 – Member ends for association *CepRefersSourceProfile***3.4.18 ConnProtSrvHasSwitchOperation**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_switchOperation	composite	Yes	SwitchOperation	1..*
connectivityprotectionservice	none	No	ConnectivityProtectionService	1

Table 181 – Member ends for association *ConnProtSrvHasSwitchOperation***3.4.19 ConnServHasSubordinateConnServ****Description:**

- Useful to specify constraints for subordinate Connectivity Services, e.g. in case of a protection scheme which does not span the whole parent Connectivity Service.

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityService	shared	Yes	ConnectivityService	0..*
connectivityservice	none	No	ConnectivityService	1

Table 182 – Member ends for association *ConnServHasSubordinateConnServ***3.4.20 ConnServiceHasCSEPs****Applied stereotype:**

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_endPoint	composite	Yes	ConnectivityServiceEndPoint	2..*
_service	none	No	ConnectivityService	1

Table 183 – Member ends for association *ConnServiceHasCSEPs***3.4.21 ConnServiceHasCSIPs****Applied stereotype:**

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_internalPoint	composite	Yes	ConnectivityServiceInternalPoint	0..*
connectivityservice	none	No	ConnectivityService	1

Table 184 – Member ends for association *ConnServiceHasCSIPs***3.4.22 ConnServiceHasConnConstraints****Applied stereotype:**

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityConstraint	composite	Yes	ConnectivityConstraint	1
_service	none	No	ConnectivityService	1

Table 185 – Member ends for association *ConnServiceHasConnConstraints***3.4.23 ConnServiceHasResilienceConstr**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_resilienceConstraint	composite	Yes	ResilienceConstraint	0..1
connectivityservice	none	No	ConnectivityService	1

Table 186 – Member ends for association *ConnServiceHasResilienceConstr***3.4.24 ConnServiceHasRoutingConstr**

Description:

- Test comment

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
routingConstraint	composite	Yes	RoutingConstraint	0..1
connectivityservice	none	No	ConnectivityService	1

Table 187 – Member ends for association *ConnServiceHasRoutingConstr***3.4.25 ConnServiceHasStatePac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
_service	none	No	ConnectivityService	1

Table 188 – Member ends for association *ConnServiceHasStatePac***3.4.26 ConnServiceHasTopLevelConnections**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connection	shared	Yes	Connection	0..*
_service	none	No	ConnectivityService	0..1

Table 189 – Member ends for association *ConnServiceHasTopLevelConnections***3.4.27 ConnServiceHasTopologyConstraints**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topologyConstraint	composite	Yes	TopologyConstraint	0..*
connectivityservice	none	No	ConnectivityService	1

Table 190 – Member ends for association *ConnServiceHasTopologyConstraints***3.4.28 ConnTerminatesOnCEP**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	shared	Yes	ConnectionEndPoint	2..*
_connPort	none	No	Connection	1..*

Table 191 – Member ends for association *ConnTerminatesOnCEP***3.4.29 ConnectionEncapsulatesSwitchControl**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_switchControl	composite	Yes	SwitchControl	0..*
connection	none	No	Connection	1

Table 192 – Member ends for association *ConnectionEncapsulatesSwitchControl***3.4.30 ConnectionHasLowerLevelConnections**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_lowerConnection	shared	Yes	Connection	0..*
connection	none	No	Connection	0..1

Table 193 – Member ends for association *ConnectionHasLowerLevelConnections*

3.4.31 ConnectionHasRoutes

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_route	composite	Yes	Route	0..*
connection	none	No	Connection	1

Table 194 – Member ends for association *ConnectionHasRoutes*

3.4.32 ConnectionHasServerLayerConnections

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serverConnection	none	Yes	Connection	0..*
connection	none	No	Connection	0..1

Table 195 – Member ends for association *ConnectionHasServerLayerConnections*

3.4.33 ConnectionHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	OperationalStatePac	1
connection	none	No	Connection	1

Table 196 – Member ends for association *ConnectionHasStatePac*

3.4.34 ConnectionIsBoundedByNode

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_boundingNode	none	Yes	Node	0..1
connection	none	No	Connection	0..*

Table 197 – Member ends for association *ConnectionIsBoundedByNode*

3.4.35 ConnectionSupportsClientLinks

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedClientLink	none	Yes	Link	0..*
_supportingConnection	none	No	Connection	0..*

Table 198 – Member ends for association *ConnectionSupportsClientLinks*

3.4.36 ConstrHasCorouteIncl

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_corouteInclusion	none	Yes	ConnectivityService	0..1
_connectivityConstraint	none	No	ConnectivityConstraint	1

Table 199 – Member ends for association *ConstrHasCorouteIncl*

3.4.37 ConstrHasDiversityExcl

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_diversityExclusion	none	Yes	ConnectivityService	0..*
_connectivityConstraint	none	No	ConnectivityConstraint	1

Table 200 – Member ends for association *ConstrHasDiversityExcl*

3.4.38 ContextHasConnService

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityService	composite	Yes	ConnectivityService	0..*
connectivitycontext	none	No	ConnectivityContext	1

Table 201 – Member ends for association *ContextHasConnService*

3.4.39 ContextHasConnections

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connection	composite	Yes	Connection	0..*
connectivitycontext	none	No	ConnectivityContext	1

Table 202 – Member ends for association *ContextHasConnections*

3.4.40 ControlChoosesSwitchPosition

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_switch	composite	Yes	Switch	0..*
switchcontrol	none	No	SwitchControl	1

Table 203 – Member ends for association *ControlChoosesSwitchPosition***3.4.41 ControlGovernsControls**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_subSwitchControl	none	Yes	SwitchControl	0..*
switchcontrol	none	No	SwitchControl	1

Table 204 – Member ends for association *ControlGovernsControls***3.4.42 ControlHasParameters**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_controlParameters	composite	Yes	ResilienceConstraint	1
switchcontrol	none	No	SwitchControl	1

Table 205 – Member ends for association *ControlHasParameters***3.4.43 CsepHasLayerProtocolConstraint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_layerProtocolConstraint	composite	Yes	LayerProtocolConstraint	0..*
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	1

Table 206 – Member ends for association *CsepHasLayerProtocolConstraint***3.4.44 CsepRefersProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	shared	Yes	Profile	0..*
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	0..*

Table 207 – Member ends for association *CsepRefersProfile***3.4.45 CsepRefersSinkProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkProfile	shared	Yes	Profile	0..*
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	0..*

Table 208 – Member ends for association *CsepRefersSinkProfile***3.4.46 CsepRefersSourceProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sourceProfile	shared	Yes	Profile	0..*
connectivityserviceendpoint	none	No	ConnectivityServiceEndPoint	0..*

Table 209 – Member ends for association *CsepRefersSourceProfile***3.4.47 ResilienceConstraintHasRouteConstraint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_resiliencyRouteConstraint	composite	Yes	ResiliencyRouteConstraint	0..*
resilienceconstraint	none	No	ResilienceConstraint	1

Table 210 – Member ends for association *ResilienceConstraintHasRouteConstraint***3.4.48 ResiliencyRouteConstraintHasRoutingConstraint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_routingConstraint	composite	Yes	RoutingConstraint	0..1
resiliencyrouteconstraint	none	No	ResiliencyRouteConstraint	1

Table 211 – Member ends for association *ResiliencyRouteConstraintHasRoutingConstraint***3.4.49 ResiliencyRouteConstraintHasTopologyConstraint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topologyConstraint	composite	Yes	TopologyConstraint	0..1
resiliencyrouteconstraint	none	No	ResiliencyRouteConstraint	1

Table 212 – Member ends for association *ResiliencyRouteConstraintHasTopologyConstraint*

3.4.50 RouteHasResilienceRoute

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_resilienceRoute	composite	Yes	ResilienceRoute	0..1
route	none	No	Route	1

Table 213 – Member ends for association *RouteHasResilienceRoute*

3.4.51 RouteIsDescribedByCEPs

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	shared	Yes	ConnectionEndPoint	2..*
route	none	No	Route	0..*

Table 214 – Member ends for association *RouteIsDescribedByCEPs*

3.4.52 SwitchOperationAppliesToCep

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	shared	Yes	ConnectionEndPoint	0..*
switchoperation	none	No	SwitchOperation	1

Table 215 – Member ends for association *SwitchOperationAppliesToCep*

3.4.53 SwitchOperationAppliesToSwitch

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_switch	shared	Yes	Switch	0..1
switchoperation	none	No	SwitchOperation	1

Table 216 – Member ends for association *SwitchOperationAppliesToSwitch*

3.4.54 SwitchOperationAppliesToSwitchControl

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
switchControl	shared	Yes	SwitchControl	0..1
switchoperation	none	No	SwitchOperation	1

Table 217 – Member ends for association *SwitchOperationAppliesToSwitchControl*

3.4.55 SwitchSelectsCEPs

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_selectedConnectionEndPoint	none	Yes	ConnectionEndPoint	0..*
switchgroup	none	No	Switch	0..1

Table 218 – Member ends for association *SwitchSelectsCEPs***3.4.56 SwitchSelectsRoute**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_selectedRoute	none	Yes	Route	0..*
switch	none	No	Switch	0..1

Table 219 – Member ends for association *SwitchSelectsRoute***3.5 Abstractions****3.5.1 AugmentsRootContext**

Augmenting Class	Augmented Class	Comment
ConnectivityContext	TapiContext	Augments the base TAPI Context with ConnectivityContext model.
target: "/TapiCommon:Context:_context"		

Table 220 – Member ends for class abstraction *AugmentsRootContext***3.5.2 CEPListAugmentsNEP**

Augmenting Class	Augmented Class	Comment
CepList	NodeEdgePoint	This augment allows NEP to refer to its CEPs despite TapiTopology model does not import TapiConnectivity model.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint"		

Table 221 – Member ends for class abstraction *CEPListAugmentsNEP***3.5.3 CepAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
ConnectionEndPoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 222 – Member ends for class abstraction *CepAugmentsEventNotif*

3.5.4 CepAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
ConnectionEndPoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 223 – Member ends for class abstraction *CepAugmentsEventNotifSignal*

3.5.5 ConnectionAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
Connection	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 224 – Member ends for class abstraction *ConnectionAugmentsEventNotif*

3.5.6 ConnectionAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
Connection	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 225 – Member ends for class abstraction *ConnectionAugmentsEventNotifSignal*

3.5.7 ConnectionAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
Connection	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 226 – Member ends for class abstraction *ConnectionAugmentsLogRecordBody*

3.5.8 ConnectionEndPointAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
ConnectionEndPoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 227 – Member ends for class abstraction *ConnectionEndPointAugmentsLogRecordBody*

3.5.9 ConnectivityObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
<p>ConnectivityObjectType</p> <ul style="list-style-type: none"> • CONNECTION • CONNECTION END POINT • CONNECTIVITY_SERVICE • CONNECTIVITY_SERVICE_END_POINT • LAYER PROTOCOL CONSTRAINT • RESILIENCE_CONSTRAINT • RESILIENCE_ROUTE • RESILIENCE_ROUTE_CONSTRAINT • ROUTE • SWITCH • SWITCH CONTROL 	<p>ObjectType</p> <ul style="list-style-type: none"> • PROFILE • SERVICE INTERFACE POINT • TAPI_CONTEXT
Comment	
Enumeration Augment.	

Table 228 – Member ends for enum abstraction *ConnectivityObjectTypeAugmentsObjectType***3.5.10 ConnectivityProtectionServiceAugmentsConnectivityService**

Augmenting Class	Augmented Class	Comment
ConnectivityProtectionService	ConnectivityService	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService"		

Table 229 – Member ends for class abstraction *ConnectivityProtectionServiceAugmentsConnectivityService***3.5.11 ConnectivityServiceAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
ConnectivityService	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 230 – Member ends for class abstraction *ConnectivityServiceAugmentsEventNotif***3.5.12 ConnectivityServiceAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
ConnectivityService	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 231 – Member ends for class abstraction *ConnectivityServiceAugmentsEventNotifSignal***3.5.13 ConnectivityServiceAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
ConnectivityService	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 232 – Member ends for class abstraction *ConnectivityServiceAugmentsLogRecordBody***3.5.14 ConnectivityServiceEndPointAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
ConnectivityServiceEndPoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 233 – Member ends for class abstraction *ConnectivityServiceEndPointAugmentsLogRecordBody***3.5.15 CsepAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
ConnectivityServiceEndPoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 234 – Member ends for class abstraction *CsepAugmentsEventNotif***3.5.16 CsepAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
ConnectivityServiceEndPoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 235 – Member ends for class abstraction *CsepAugmentsEventNotifSignal***3.5.17 InterfaceRealizationCS**

Augmenting Enumeration	Augmented Enumeration
ConnectivityService	ConnectivityService
Comment	
The CS Interface Realization.	

Table 236 – Member ends for enum abstraction *InterfaceRealizationCS***3.5.18 RouteAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Route	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 237 – Member ends for class abstraction *RouteAugmentsEventNotif***3.5.19 RouteAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Route	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 238 – Member ends for class abstraction *RouteAugmentsEventNotifSignal***3.5.20 RouteAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Route	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 239 – Member ends for class abstraction *RouteAugmentsLogRecordBody***3.5.21 SwitchAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Switch	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 240 – Member ends for class abstraction *SwitchAugmentsEventNotif***3.5.22 SwitchAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Switch	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 241 – Member ends for class abstraction *SwitchAugmentsEventNotifSignal***3.5.23 SwitchAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Switch	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 242 – Member ends for class abstraction *SwitchAugmentsLogRecordBody***3.5.24 SwitchControlAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
SwitchControl	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 243 – Member ends for class abstraction *SwitchControlAugmentsEventNotif***3.5.25 SwitchControlAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
SwitchControl	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 244 – Member ends for class abstraction *SwitchControlAugmentsEventNotifSignal***3.5.26 SwitchControlAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
SwitchControl	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 245 – Member ends for class abstraction *SwitchControlAugmentsLogRecordBody***3.6 Data Types****3.6.1 CepRole****Description:**

- The role of the CEP in the context of the Connection spec.

Attribute Name	Type	Mult.	Access	Stereotypes
roleName	String	1	R	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The name of the CEP role in the context of the referenced spec.			
connectionSpecReference	ConnectionSpecReference	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The reference to the spec that defines the CEP role.			

Table 246 – Attributes for data type *CepRole*

3.6.2 ConnectionSpecReference

Description:

- The reference to a spec for a type of Connection.

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The name of the Connection spec. This can be used alone (with no spec reference) where there is only a paper spec.			
connectionSpecName	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The reference to a formal spec. This reference need not be provided (e.g., where there is no formal machine interpretable spec for the type of Connection).			
connectionSpecId	Uuid	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 247 – Attributes for data type *ConnectionSpecReference*

3.6.3 ConnectivityServiceSpecReference

Description:

- The reference to a spec for a type of Connectivity Service

Attribute Name	Type	Mult.	Access	Stereotypes
connectivityServiceSpecName	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The name of the Connectivity Service spec. This can be used alone (with no spec reference) where there is only a paper spec.
connectivityServiceSpecId	Uuid	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The reference to a formal spec. This reference need not be provided (e.g., where there is no formal machine interpretable spec for the type of Connectivity Service).

Table 248 – Attributes for data type *ConnectivityServiceSpecReference*

3.6.4 CsepRole

Description:

- The role of the CSEP in the context of the Connectivity Service spec.

Attribute Name	Type	Mult.	Access	Stereotypes
roleName	String	1	R	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The name of the CSEP role in the context of the referenced spec.
connectivityServiceSpecReference	ConnectivityServiceSpecReference	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The reference to the spec that defines the CSEP role.

Table 249 – Attributes for data type *CsepRole*

3.7 Enumerations

3.7.1 ConnectivityObjectType

Description:

- The list of TAPI Connectivity Global Object Class types on which Notification signals can be raised.

Contains Enumeration Literals:

- CONNECTIVITY_SERVICE:
 - The ConnectivityService class.
- CONNECTIVITY_SERVICE_END_POINT:
 - The ConnectivityServiceEndPoint (CSEP) class.
- CONNECTION:
 - The Connection class.
- CONNECTION_END_POINT:
 - The ConnectionEndPoint (CEP) class.
- SWITCH_CONTROL:
 - The SwitchControl class.
- SWITCH:
 - The Switch class.
- ROUTE:
 - The Route class.
- RESILIENCE_CONSTRAINT:
 - The ResilienceConstraint class.
- RESILIENCE_ROUTE:
 - The ResilienceRoute class.
- RESILIENCE_ROUTE_CONSTRAINT:
 - The ResilienceRouteConstraint class.
- LAYER_PROTOCOL_CONSTRAINT:
 - The ServerConstraint class.

3.7.2 CoordinateType

Description:

- The types of coordination mechanisms between protection/restoration operations across multiple layers.

Contains Enumeration Literals:

- NO_COORDINATE:
 - No coordination, i.e. each layer network restores independently.
- HOLD_OFF_TIME:
 - The client layer network protection/restoration process is suspended for a certain time to possibly allow server layer network to protect/restore, avoiding useless multi-layer protection/restoration. It is assumed that the server layer network successful protection/restoration operation will inherently cancel the protection/restoration trigger at client layer.
- WAIT_FOR_NOTIFICATION:
 - The client layer network protection/restoration process is suspended until a notification is received from the server layer protection/restoration process. The notification should inform about the success or failure of the protection/restoration process at server layer.

3.7.3 FaultConditionDetermination

Description:

- ITU-T G.808 Amendment 1 (03/2018) - 3.2.6.8 subnetwork connection protection: "Transport entity protection for the case where the transport entity is a subnetwork connection. The serial compound link connection within the subnetwork connection is protected by adding bridges and selectors in the connection functions at the edges of the protected domain and an additional serial compound link connection between these connection functions. The determination of a fault condition on a serial compound link connection within the protected domain can be performed as follows: (see enumeration entries)."

Contains Enumeration Literals:

- INHERENT:
 - Inherent monitored (/I): The fault condition status of each link connection is derived from the status of the underlying server layer trail.
- NON_INTRUSIVE:
 - Non-intrusive monitored (/N): Each serial compound link connection is extended with a non-intrusive monitoring termination sink function to derive the fault condition status from the traffic signal that is present.
- SUBLAYER:
 - Sublayer monitored (/S): Each serial compound link connection is extended with tandem connection monitoring or segment termination/adaptation functions to derive the fault condition status independent of the traffic signal present.
- TEST:
 - Test monitored (/T): Each serial compound link connection's fault condition status is derived from an additional monitored serial compound link connection transported via the same serial compound link.

3.7.4 ProtectionRole

Description:

- The protection role of a (conceptual) port of a forwarding entity, e.g. Link, ConnectivityService, Connection, PathComputationService, Path, VirtualNetworkService.

Contains Enumeration Literals:

- WORK:
 - The unreliable/unprotected resource is assumed to be the preferred/intended/nominal/highest priority for usage.
- PROTECT:
 - The unreliable/unprotected resource is assumed to be the spare/protection of a higher priority resource.
- PROTECTED:
 - The resource which is reliable/protected/resilient by the protection/restoration scheme.
- NA:
 - Protection role not applicable to the resource.
- WORK_RESTORE:
 - The unreliable/unprotected resource is assumed to be the preferred/intended/nominal/highest priority for usage. Revertive behavior.

- PROTECT_RESTORE:
 - The unreliable/unprotected resource is assumed to be the spare/protection of a higher priority resource. Revertive behavior.

3.7.5 ReversionMode

Description:

- The reversion mode associated with protection scheme.

Contains Enumeration Literals:

- REVERTIVE:
 - A Connection switched to a lower priority (non-preferred/spare/protection) resource will revert to a higher priority (preferred/intended/nominal) resource when that recovers (potentially after some wait-to-revert-time).
- NON_REVERTIVE:
 - A Connection switched to a lower priority (non-preferred/spare/protection) resource will not revert to a higher priority (preferred/intended/nominal) resource when that recovers. This mode is typically applied when there is no ranking between the redundant resources.

3.7.6 RouteState

Description:

- Potential Route states concerning the service support.

Contains Enumeration Literals:

- CURRENT:
 - The Route instance identified is the current Route, i.e., is the one that is active and selected to support service.
- NOT_CURRENT:
 - The Route instance is not the one supporting the service.
- UNKNOWN:
 - The Route state is unknown.

3.7.7 SelectionControl

Description:

- Possible degrees of administrative control applied to the Route selection.

Contains Enumeration Literals:

- LOCK_OUT:
 - The resource is configured to temporarily not be available for use in the protection/restoration scheme(s) it is part of. This overrides all other protection/restoration control states including "forced". The effect is that the resource is either kept or switched to work role. If the item is locked out then it cannot be used under any circumstances. Note: Only relevant when part of a protection/restoration scheme.
- NORMAL:
 - Remove of any previous administrative command (CLEAR) or no administrative command currently applied.

- **MANUAL:**
 - The traffic is temporarily switched to the spare/protection resource, unless and until it is in a fault condition state. Note: Only relevant when part of a protection/restoration scheme.
- **FORCED:**
 - The traffic is temporarily switched to the spare/protection resource, regardless its fault condition state, current or future. Note: Only relevant when part of a protection/restoration scheme.
- **MANUAL_TO_WORK:**
 - The traffic is temporarily switched to the main/working resource, unless and until it is in a fault condition state. Note: Only relevant when part of a protection/restoration scheme.
- **FORCED_TO_WORK:**
 - The traffic is temporarily switched to the main/working resource, regardless its fault condition state, current or future. Note: Only relevant when part of a protection/restoration scheme.

3.7.8 SelectionReason

Description:

- The cause of the current Route selection.

Contains Enumeration Literals:

- **LOCKOUT:**
 - A "lockout" administrative command has been issued.
- **NORMAL:**
 - No reason to affect the selection.
- **MANUAL:**
 - A "manual" administrative command has been issued.
- **FORCED:**
 - A "forced" administrative command has been issued.
- **WAIT_TO_REVERT:**
 - The scheme is waiting for reversion to preferred/intended/nominal resource.
- **SIGNAL_DEGRADE:**
 - A "signal degrade" condition is active.
- **SIGNAL_FAIL:**
 - A "signal fail" condition is active.

3.7.9 ServiceType

Description:

- List of simple connectivity types.

Contains Enumeration Literals:

- **POINT_TO_POINT_CONNECTIVITY:**
 - Point to point.
- **POINT_TO_MULTIPOINT_CONNECTIVITY:**
 - Point to multipoint.
- **MULTIPOINT_CONNECTIVITY:**
 - Multipoint to multipoint.
- **ROOTED_MULTIPOINT_CONNECTIVITY:**

- Rooted multipoint.

3.8 Primitives

4 Path Computation Model

TapiPathComputation: This module contains TAPI Path Computation Model definitions. Source: TapiPathComputation.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

4.1 Diagrams

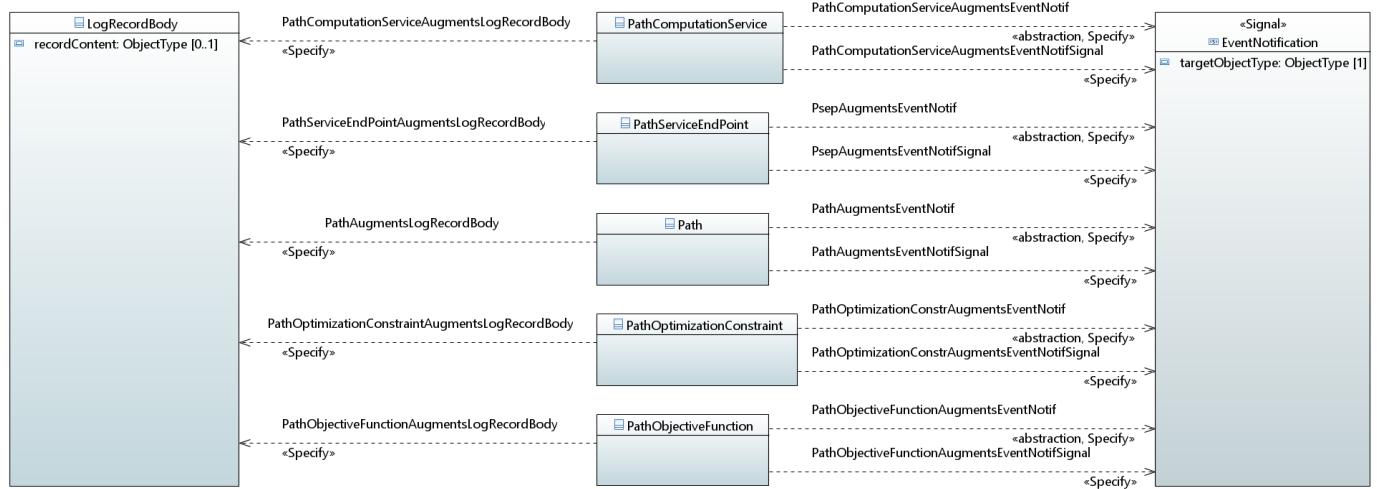
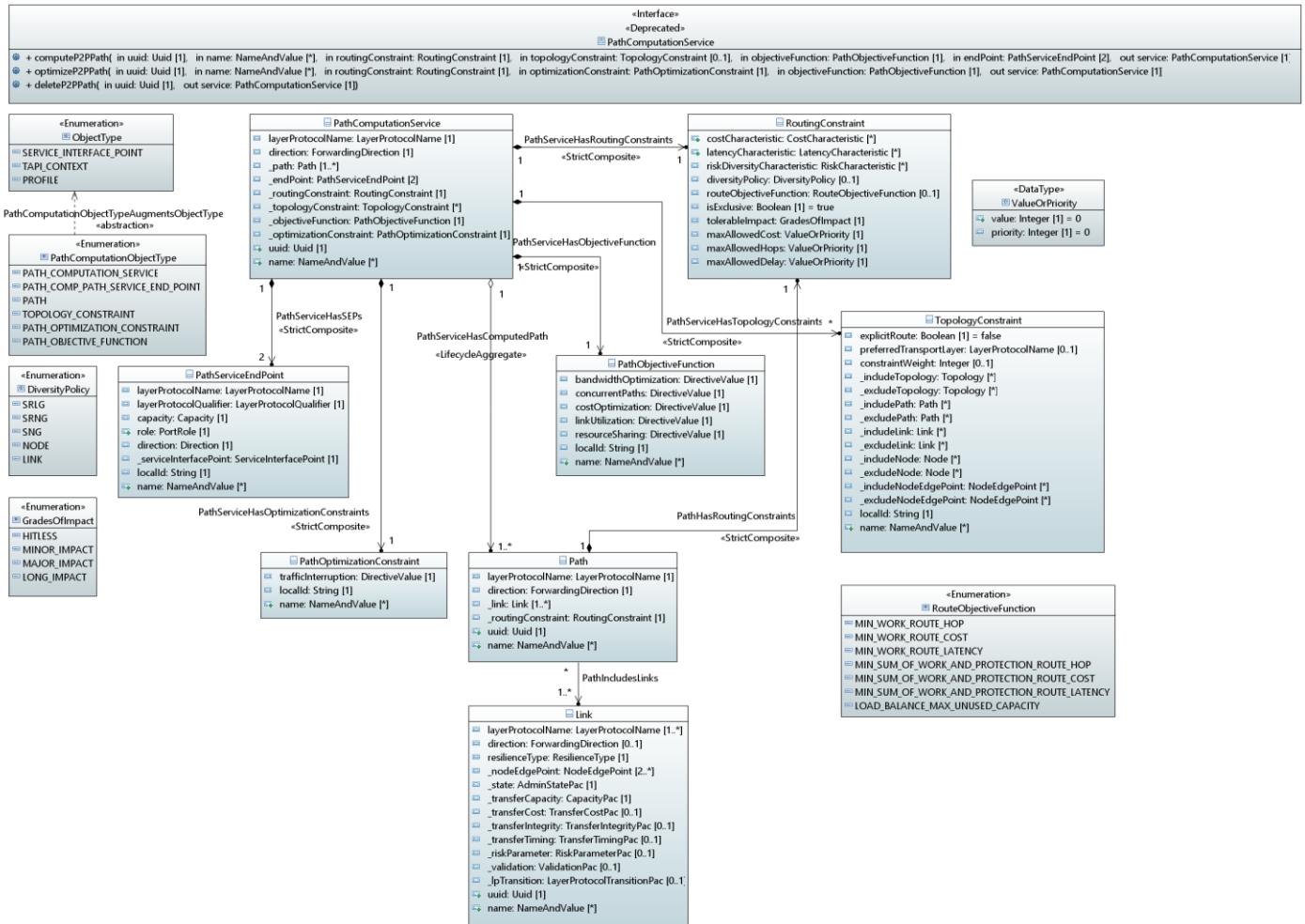
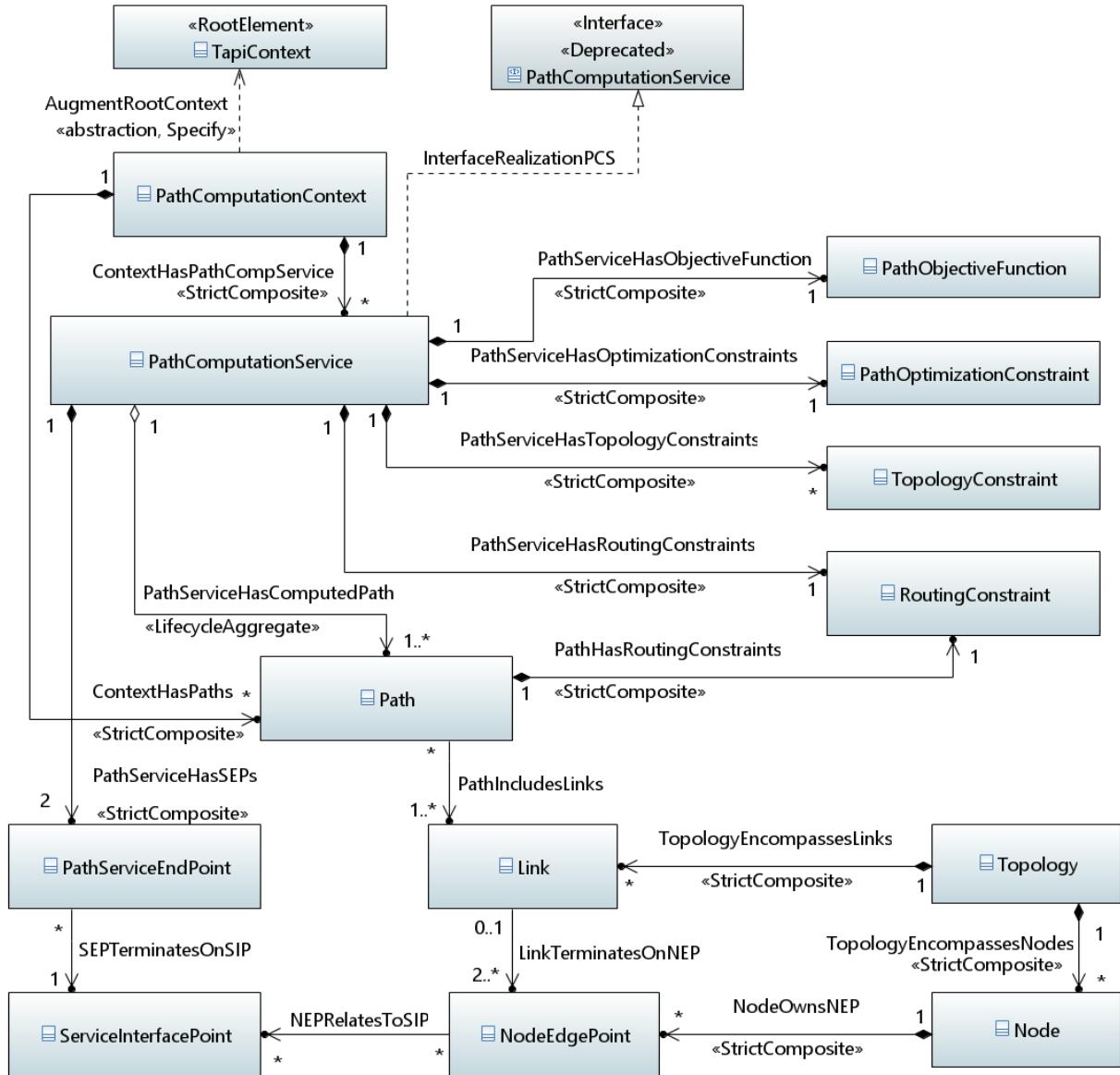


Figure 19 – Diagram *PathComputationNotifAndStream*

Figure 20 – Diagram *PathComputationServiceDetails*

Figure 21 – Diagram *PathComputationServiceSkeleton*

4.2 Classes

4.2.1 Path

Description:

- The Path is described by an ordered list of (TE) Links. A (TE) Link is conceptually defined by a pair of Node/NodeEdgePoint IDs. A Connection is realized by concatenating link resources (associated with a Link) and the lower-level Connections (e.g. cross-connections) in the different Nodes.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The layer protocol of the Path.
direction	ForwardingDirection	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The forwarding direction of the Path.
_link	Link	1..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The list of Link instances composing the Path instance.
_routingConstraint	RoutingConstraint	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The associated routing constraints.
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 250 – Attributes for class *Path*

4.2.2 PathComputationContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the path computation description. An instance of this class includes its PathComputationService and Path object instances.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_pathCompService	PathComputationService	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The included PathComputationService instances.			
_path	Path	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: The included Path instances.				

Table 251 – Attributes for class *PathComputationContext***4.2.3 PathComputationService****Description:**

- A PathComputationService represents an "intent-like" request for connectivity between two or more PathServiceEndPoint (PSEP) instances. The PathComputationService is a container for connectivity request details and is distinct from the Path(s) that realize the request.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The layer protocol of the PathComputationService.			
direction	ForwardingDirection	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The forwarding direction of the PathComputationService.			
_path	Path	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The Path instance(s) tracking the state of the identified resources for the support of the PathComputationService.			

Attribute Name	Type	Mult.	Access	Stereotypes
_endPoint	PathServiceEndPoint	2	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The PathServiceEndPoint (PSEP) instances of the PathComputationService.				
_routingConstraint	RoutingConstraint	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated routing constraints.				
_topologyConstraint	TopologyConstraint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated topology constraints. Different instances of TopologyConstraints may be used to specify constraints at different layer networks.				
_objectiveFunction	PathObjectiveFunction	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated objective functions.				
_optimizationConstraint	PathOptimizationConstraint	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The associated optimization constraints.				

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 252 – Attributes for class *PathComputationService*

4.2.4 PathObjectiveFunction

Description:

- The parameters defining the objective functions.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
bandwidthOptimization	DirectiveValue	1	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The directive types regarding bandwidth optimization.

Attribute Name	Type	Mult.	Access	Stereotypes
concurrentPaths	DirectiveValue	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The directive types regarding concurrent paths.				
costOptimization	DirectiveValue	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The directive types regarding cost optimization.				
linkUtilization	DirectiveValue	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The directive types regarding link utilization.				
resourceSharing	DirectiveValue	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The directive types regarding resource sharing.				
localId <i>Inherited: TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 253 – Attributes for class *PathObjectiveFunction*

4.2.5 PathOptimizationConstraint

Description:

- The parameters defining the optimization constraints.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
trafficInterruption	DirectiveValue	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The directive types regarding traffic interruption.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 254 – Attributes for class *PathOptimizationConstraint*

4.2.6 PathServiceEndPoint

Description:

- The PathServiceEndPoint (PSEP) encapsulates information related to a PathComputationService at the ingress/egress points of that PathComputationService.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description: The layer protocol of the PathServiceEndPoint (PSEP).				
layerProtocolQualifier	LayerProtocolQualifier	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description: The layer protocol qualifier of the PathServiceEndPoint (PSEP).				
capacity	Capacity	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description: The PathServiceEndPoint (PSEP) capacity.				

Attribute Name	Type	Mult.	Access	Stereotypes
role	PortRole	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The role of the (conceptual) port of the associated PathComputationService.				
direction	Direction	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The direction of the end point.				
_serviceInterfacePoint	ServiceInterfacePoint	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The supporting ServiceInterfacePoint (SIP) instance.				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 255 – Attributes for class *PathServiceEndPoint*

4.2.7 RoutingConstraint

Description:

- The parameters of the routing constraints.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
costCharacteristic	CostCharacteristic	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
The list of costs where each cost relates to some aspect of a topological entity.				
latencyCharacteristic	LatencyCharacteristic	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
The effect on the latency of a queuing process. This only has significant effect for packet based systems and has a complex characteristic.				
riskDiversityCharacteristic	RiskCharacteristic	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
The diversity risk characteristics.				
diversityPolicy	DiversityPolicy	0..1	RW	
Description:				
The diversity policies.				
routeObjectiveFunction	RouteObjectiveFunction	0..1	RW	
Description:				
The route objective functions.				

Attribute Name	Type	Mult.	Access	Stereotypes
isExclusive	Boolean Default value: <i>true</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORYOpenInterfaceModelAttribute• AVC: NA
Description: To distinguish if the resources are to be exclusive to the service.				
tolerableImpact	GradesOfImpact	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORYOpenInterfaceModelAttribute• AVC: NA
Description: Grades of maximum tolerable disruption to traffic.				
maxAllowedCost	ValueOrPriority	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORYOpenInterfaceModelAttribute• AVC: NA
Description: The specification of the maximum allowed cost.				
maxAllowedHops	ValueOrPriority	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORYOpenInterfaceModelAttribute• AVC: NA
Description: The specification of the maximum allowed hops.				
maxAllowedDelay	ValueOrPriority	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORYOpenInterfaceModelAttribute• AVC: NA
Description: The specification of the maximum allowed delay, value in microseconds.				

Table 256 – Attributes for class *RoutingConstraint*

4.2.8 TopologyConstraint

Description:

- The TopologyConstraint class allows to specify topology entities in order to impose specific constraints (as denoted by the attribute name) on ConnectivityService/PathComputationService realization. The topology entities are specified by their instance UUID rather than using references/path (to allow for mapping to Yang 1.0). This loose typing and reference necessitates that implementations validate not only the presence of the instance, but also that it is of the correct type as implied by the attribute name. If this validation fails, then the implementation is expected to return an error.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
explicitRoute	Boolean Default value: <i>false</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description: If true, indicates that the route constraints are specified with full detail, i.e. no need for further route computation.				
preferredTransportLayer	LayerProtocolName	0..1	RW	
Description: Soft constraint requested by client to indicate the layer of transport connection that it prefers to carry the service. This could be same as the service layer or one of the supported server layers.				
constraintWeight	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description: Zero and positive values: zero means "strongly required to be included", +1 means "less strongly required to be included", etc. For example the work/intended route will be calculated considering the topologies which weights are lowest (but not negative). Negative values: -1 means "strongly required to be excluded", -2 means "less strongly required to be excluded", etc.				
_includeTopology	Topology	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description: The Topology instance to be included in the connectivity route.				

Attribute Name	Type	Mult.	Access	Stereotypes
_excludeTopology	Topology	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Topology instance to be excluded from the connectivity route.				
_includePath	Path	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Path instance to be followed by the connectivity route. The type is generic UUID given read/write constraints, the Path is a readonly node.				
_excludePath	Path	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Path instance to be excluded from the connectivity route. The type is generic UUID given read/write constraints, the Path is a readonly node.				
_includeLink	Link	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Link instance to be included in the connectivity route.				
_excludeLink	Link	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Link instance to be excluded from the connectivity route.				

Attribute Name	Type	Mult.	Access	Stereotypes
_includeNode	Node	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Node instance to be included in the connectivity route.				
_excludeNode	Node	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Node instance to be excluded from the connectivity route.				
_includeNodeEdgePoint	NodeEdgePoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The NodeEdgePoint (NEP) instance to be included in the connectivity route.				
_excludeNodeEdgePoint	NodeEdgePoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The NodeEdgePoint (NEP) instance to be excluded from the connectivity route.				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 257 – Attributes for class *TopologyConstraint*

4.3 Signals

4.4 Associations

4.4.1 ContextHasPathCompService

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathCompService	composite	Yes	PathComputationService	0..*
pathcomputationcontext	none	No	PathComputationContext	1

Table 258 – Member ends for association *ContextHasPathCompService*

4.4.2 ContextHasPaths

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_path	composite	Yes	Path	0..*
pathcomputationcontext	none	No	PathComputationContext	1

Table 259 – Member ends for association *ContextHasPaths*

4.4.3 PathHasRoutingConstraints

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_routingConstraint	composite	Yes	RoutingConstraint	1
_path	none	No	Path	1

Table 260 – Member ends for association *PathHasRoutingConstraints***4.4.4 PathIncludesLinks**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_link	none	Yes	Link	1..*
_path	none	No	Path	0..*

Table 261 – Member ends for association *PathIncludesLinks***4.4.5 PathServiceHasComputedPath**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_path	shared	Yes	Path	1..*
_pathService	none	No	PathComputationService	1

Table 262 – Member ends for association *PathServiceHasComputedPath***4.4.6 PathServiceHasObjectiveFunction**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_objectiveFunction	composite	Yes	PathObjectiveFunction	1
_path	none	No	PathComputationService	1

Table 263 – Member ends for association *PathServiceHasObjectiveFunction***4.4.7 PathServiceHasOptimizationConstraints**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_optimizationConstraint	composite	Yes	PathOptimizationConstraint	1
_path	none	No	PathComputationService	1

Table 264 – Member ends for association *PathServiceHasOptimizationConstraints*

4.4.8 PathServiceHasRoutingConstraints

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_routingConstraint	composite	Yes	RoutingConstraint	1
pathService	none	No	PathComputationService	1

Table 265 – Member ends for association *PathServiceHasRoutingConstraints*

4.4.9 PathServiceHasSEPs

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_endPoint	composite	Yes	PathServiceEndPoint	1
_service	none	No	PathComputationService	1

Table 266 – Member ends for association *PathServiceHasSEPs*

4.4.10 PathServiceHasTopologyConstraints

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topologyConstraint	composite	Yes	TopologyConstraint	0..*
pathcomputationservice	none	No	PathComputationService	1

Table 267 – Member ends for association *PathServiceHasTopologyConstraints*

4.4.11 SEPTerminatesOnSIP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serviceInterfacePoint	none	Yes	ServiceInterfacePoint	1
_pathServicePort	none	No	PathServiceEndPoint	0..*

Table 268 – Member ends for association *SEPTerminatesOnSIP*

4.5 Abstractions

4.5.1 AugmentRootContext

Augmenting Class	Augmented Class	Comment
PathComputationContext	TapiContext	Augments the base TAPI Context with PathComputationContext model.
target: "/TapiCommon:Context:_context"		

Table 269 – Member ends for class abstraction *AugmentRootContext***4.5.2 InterfaceRealizationPCS**

Augmenting Enumeration	Augmented Enumeration
PathComputationService	PathComputationService
Comment	
The Path Computation Service Interface Realization.	

Table 270 – Member ends for enum abstraction *InterfaceRealizationPCS***4.5.3 PathAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Path	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 271 – Member ends for class abstraction *PathAugmentsEventNotif***4.5.4 PathAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Path	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 272 – Member ends for class abstraction *PathAugmentsEventNotifSignal***4.5.5 PathAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Path	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 273 – Member ends for class abstraction *PathAugmentsLogRecordBody***4.5.6 PathComputationObjectTypeAugmentsObjectType**

Augmenting Enumeration	Augmented Enumeration
PathComputationObjectType <ul style="list-style-type: none"> • PATH • PATH COMPUTATION SERVICE • PATH_COMP_PATH_SERVICE_END_POINT • PATH_OBJECTIVE_FUNCTION • PATH OPTIMIZATION CONSTRAINT • TOPOLOGY_CONSTRAINT 	ObjectType <ul style="list-style-type: none"> • PROFILE • SERVICE INTERFACE POINT • TAPI_CONTEXT
Comment	Enumeration Augment.

Table 274 – Member ends for enum abstraction *PathComputationObjectTypeAugmentsObjectType***4.5.7 PathComputationServiceAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PathComputationService	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 275 – Member ends for class abstraction *PathComputationServiceAugmentsEventNotif***4.5.8 PathComputationServiceAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
PathComputationService	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 276 – Member ends for class abstraction *PathComputationServiceAugmentsEventNotifSignal***4.5.9 PathComputationServiceAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
PathComputationService	LogRecordBody	
target: "/TapiStreaming:StreamRecord: streamRecord/TapiStreaming:StreamRecord: logRecord/TapiStreaming:LogRecord: logRecordBody"		

Table 277 – Member ends for class abstraction *PathComputationServiceAugmentsLogRecordBody***4.5.10 PathObjectiveFunctionAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PathObjectiveFunction	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 278 – Member ends for class abstraction *PathObjectiveFunctionAugmentsEventNotif*

4.5.11 PathObjectiveFunctionAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
PathObjectiveFunction	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 279 – Member ends for class abstraction *PathObjectiveFunctionAugmentsEventNotifSignal*

4.5.12 PathObjectiveFunctionAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
PathObjectiveFunction	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 280 – Member ends for class abstraction *PathObjectiveFunctionAugmentsLogRecordBody*

4.5.13 PathOptimizationConstrAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
PathOptimizationConstraint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 281 – Member ends for class abstraction *PathOptimizationConstrAugmentsEventNotif*

4.5.14 PathOptimizationConstrAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
PathOptimizationConstraint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 282 – Member ends for class abstraction *PathOptimizationConstrAugmentsEventNotifSignal*

4.5.15 PathOptimizationConstraintAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
PathOptimizationConstraint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 283 – Member ends for class abstraction *PathOptimizationConstraintAugmentsLogRecordBody*

4.5.16 PathServiceEndPointAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
PathServiceEndPoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 284 – Member ends for class abstraction *PathServiceEndPointAugmentsLogRecordBody***4.5.17 PsepAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PathServiceEndPoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 285 – Member ends for class abstraction *PsepAugmentsEventNotif***4.5.18 PsepAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
PathServiceEndPoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 286 – Member ends for class abstraction *PsepAugmentsEventNotifSignal***4.6 Data Types****4.6.1 ValueOrPriority****Description:**

- Quantitative target: when a value is specified it is intended as mandatory for fulfilment. If value is specified, priority is not considered. Qualitative target: when priority is specified. Zero means "unspecified", 1 is highest priority, then 2 has lower priority than 1, 3 has lower priority than 2, etc.

Attribute Name	Type	Mult.	Access	Stereotypes
value	Integer Default value: 0	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: The specified value.				

Attribute Name	Type	Mult.	Access	Stereotypes
priority	Integer Default value: 0	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 287 – Attributes for data type *ValueOrPriority*

4.7 Enumerations

4.7.1 DiversityPolicy

Description:

- The types of routing diversity policies.

Contains Enumeration Literals:

- SRLG:
 - Shared Risk Link Group.
- SRNG:
 - Shared Risk Node Group.
- SNG:
 - Shared Node Group.
- NODE:
 - Diversity with respect to involved Node instances.
- LINK:
 - Diversity with respect to involved Link instances.

4.7.2 GradesOfImpact

Description:

- The grades of impact on traffic.

Contains Enumeration Literals:

- HITLESS:
 - No impact on traffic.
- MINOR_IMPACT:
 - Impact less or equal to 50ms.
- MAJOR_IMPACT:
 - Impact order of magnitude: several seconds to minutes.
- LONG_IMPACT:
 - Impact order of magnitude: several minutes to hours.

4.7.3 PathComputationObjectType

Description:

- The list of TAPI Path Computation Global Object Class types on which Notification signals can be raised.

Contains Enumeration Literals:

- PATH_COMPUTATION_SERVICE:
 - The PathComputationService class.
- PATH_COMP_PATH_SERVICE_END_POINT:
 - The PathServiceEndPoint (PSEP) class.
- PATH:
 - The Path class.
- TOPOLOGY_CONSTRAINT:
 - The TopologyConstraint class.
- PATH_OPTIMIZATION_CONSTRAINT:
 - The PathOptimizationConstraint class.
- PATH_OBJECTIVE_FUNCTION:
 - The PathObjectiveFunction class.

4.7.4 RouteObjectiveFunction

Description:

- The types of route objective function.

Contains Enumeration Literals:

- MIN_WORK_ROUTE_HOP:
 - Minimize the number of hops in the working/preferred/intended route.
- MIN_WORK_ROUTE_COST:
 - Minimize the routing cost in the working/preferred/intended route.
- MIN_WORK_ROUTE_LATENCY:
 - Minimize the latency in the working/preferred/intended route.
- MIN_SUM_OF_WORK_AND_PROTECTION_ROUTE_HOP:
 - Minimize the total number of hops of the working/preferred/intended and spare/protection routes.
- MIN_SUM_OF_WORK_AND_PROTECTION_ROUTE_COST:
 - Minimize the total cost of the working/preferred/intended and spare/protection routes.
- MIN_SUM_OF_WORK_AND_PROTECTION_ROUTE_LATENCY:
 - Minimize the total latency of the working/preferred/intended and spare/protection routes.
- LOAD_BALANCE_MAX_UNUSED_CAPACITY:
 - Balance the unused capacity of the working/preferred/intended and spare/protection routes.

4.8 Primitives

5 OAM Model

TapiOam: This module contains TAPI OAM Model definitions. Source: TapiOam.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

5.1 Diagrams

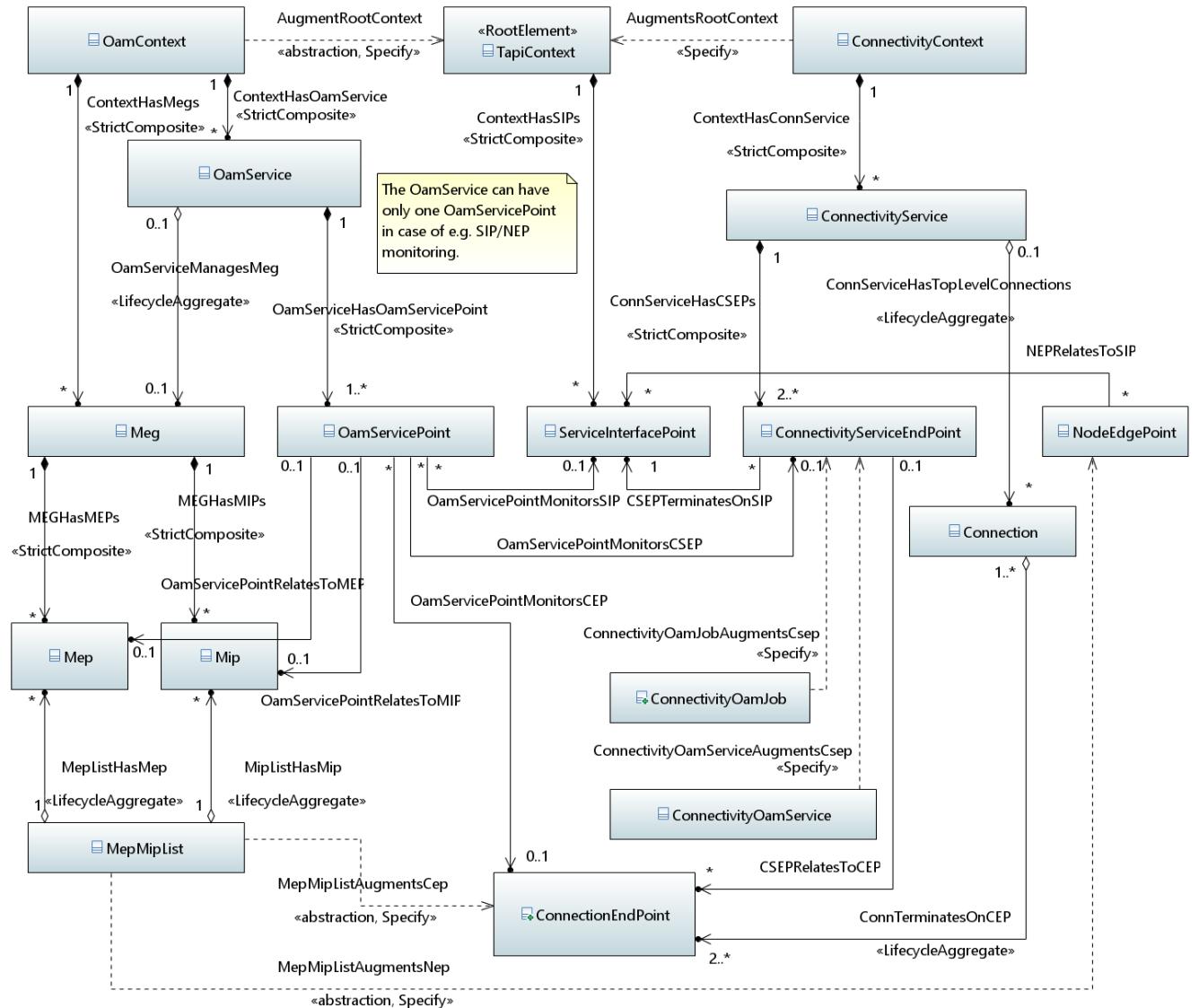
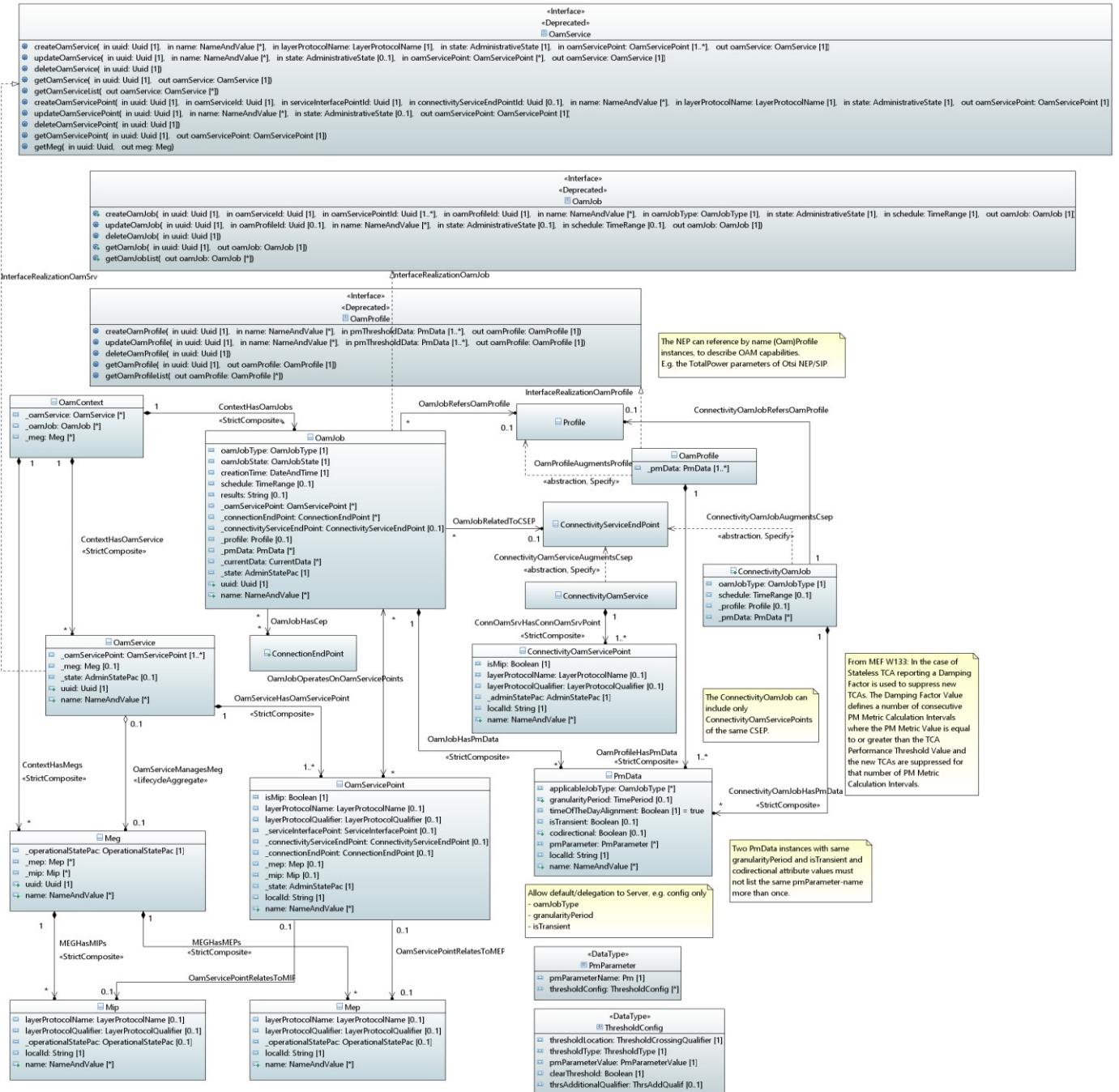
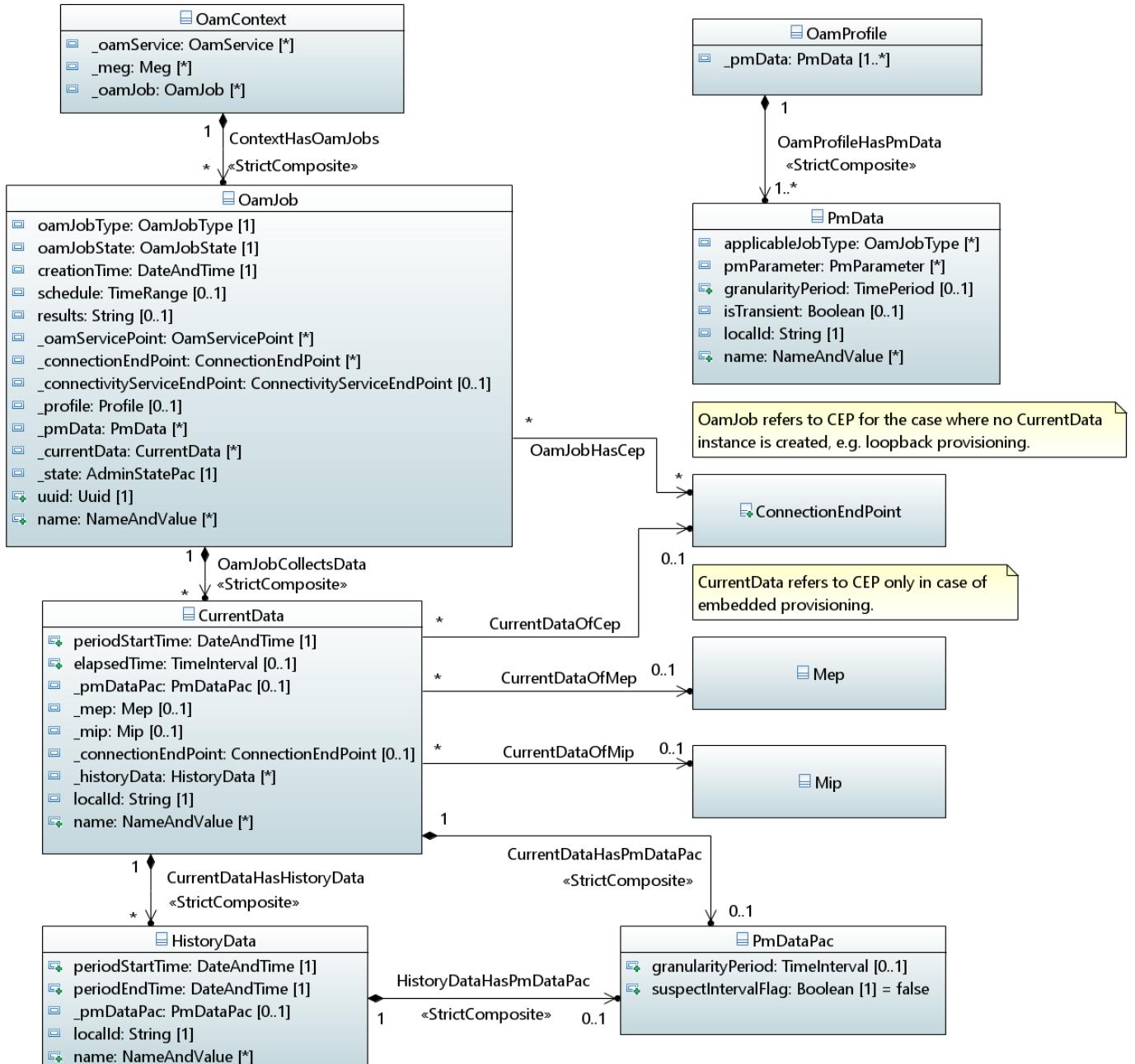


Figure 22 – Diagram *OamConnSkeleton*

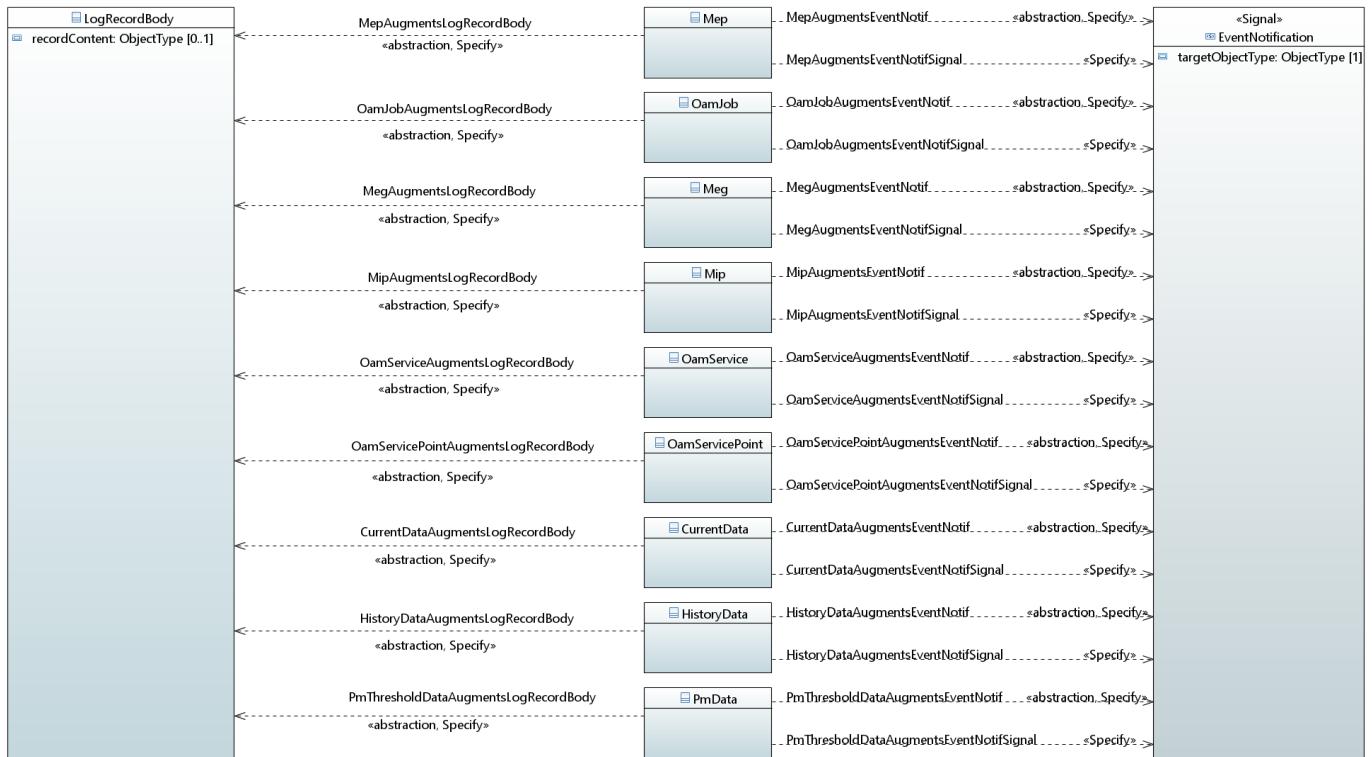
Figure 23 – Diagram *OamDetails*

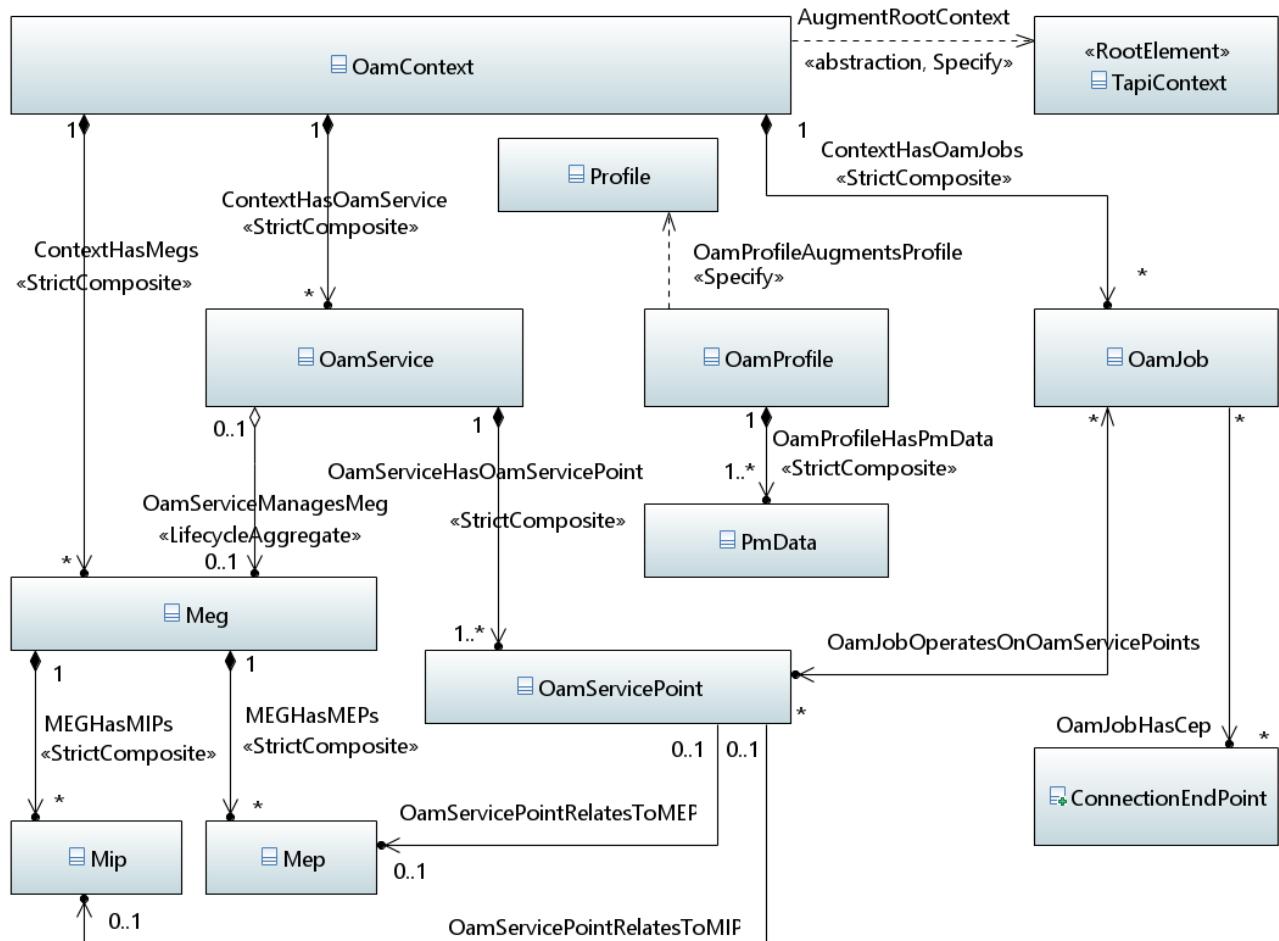


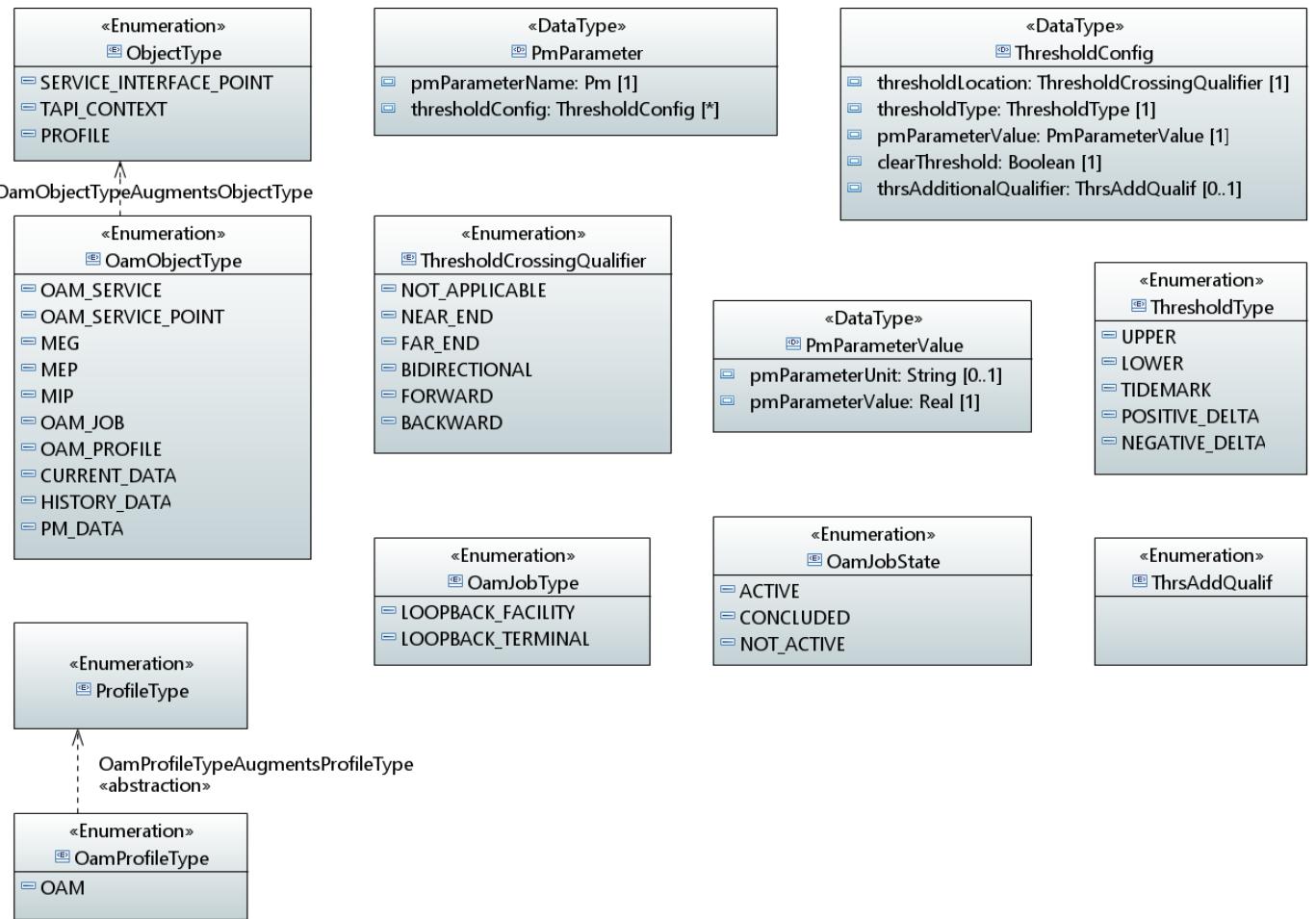
- 1) OamJob does not foresee any CurrentData instance when no result is expected, e.g. the loopback.
- 2) OamJob foresees both CurrentData and HistoryData instances for traditional collection of PM metrics, e.g. the 15 minutes and 24h granularity periods.
- 3) In case of instantaneous measurement like ODU Delay, with granularity period not specified, it is expected only one instance of HistoryData.
- 4) HistoryData may not be instantiated in case the Server Controller implements the streaming of CurrentData.

Oam Job Provisioning (and thresholds) through ConnectivityService allows "service" related OAM (QoS). The OamJob instance is created as result, without associated OamService/Point object, but only referring to the CSEP.

Figure 24 – Diagram *OamJobDetails*

Figure 25 – Diagram *OamNotifAndStream*

Figure 26 – Diagram *OamSkeleton*

Figure 27 – Diagram *OamTypes*

5.2 Classes

5.2.1 ConnectivityOamJob

Description:

- This class augments the ConnectivityService class to associate OAM job provisioning to ConnectivityService provisioning.

Applied stereotypes:

- `OpenInterfaceModelClass`
 - `objectCreationNotification: NA`
 - `objectDeletionNotification: NA`
- `OpenModelClass`
 - `support: MANDATORY`

Attribute Name	Type	Mult.	Access	Stereotypes
oamJobType	OamJobType	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The type of the OAM job.
schedule	TimeRange	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The schedule of the OAM job.
_profile	Profile	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The (Oam)Profile instance referred by the OamJob.
_pmData	PmData	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 288 – Attributes for class *ConnectivityOamJob*

5.2.2 ConnectivityOamService

Description:

- This class augments the ConnectivityServiceEndPoint (CSEP) class to associate OAM service provisioning to ConnectivityService provisioning.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass

- support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_connectivityOamServicePoint	ConnectivityOamServicePoint	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 289 – Attributes for class *ConnectivityOamService*

5.2.3 ConnectivityOamServicePoint

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
isMip	Boolean	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				If true, the object is related to a MIP. If false, the object is related to a MEP.
layerProtocolName	LayerProtocolName	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
layerProtocolQualifier	LayerProtocolQualifier	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
_adminStatePac	AdminStatePac	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 290 – Attributes for class *ConnectivityOamServicePoint*

5.2.4 CurrentData

Description:

- The CurrentData class. The PM metrics/types can be specified in technology specific augmentations of this class. ITU-T Q.822: This object contains the measurements for the resource being monitored for a specified time interval (measurement interval time / granularity period).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
periodStartTime	DateAndTime	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the start time of the current monitoring interval / granularity period. The value is bound to the quarter of an hour in case of a 15 minute interval and bound to the hour in case of a 24 hour interval.				
elapsedTime	TimeInterval	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Q822: This attribute represents the difference between the current time and the start of the present interval.				
_pmDataPac	PmDataPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Parameters specific to Performance Monitoring functions.				
_mep	Mep	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The MEP to which the measurements refer to. At least and exclusively one of CurrentDataOfCep, CurrentDataOfMep, CurrentDataOfMip must be referred by the CurrentData instance.				
_mip	Mip	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The MIP to which the measurements refer to. At least and exclusively one of CurrentDataOfCep, CurrentDataOfMep, CurrentDataOfMip must be referred by the CurrentData instance.			
_connectionEndPoint	ConnectionEndPoint	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The CEP to which the measurements refer to. At least and exclusively one of CurrentDataOfCep, CurrentDataOfMep, CurrentDataOfMip must be referred by the CurrentData instance.			
_historyData	HistoryData	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The associated HistoryData instances. In case of 24hr CurrentData, at least 1 HistoryData instance shall be maintained. In case of 15min CurrentData, at least 16 HistoryData instances shall be maintained. In case of <15min, the number of HistoryData instances shall be able to cover a span of 4 hours.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 291 – Attributes for class *CurrentData*

5.2.5 HistoryData

Description:

- The HistoryData class. The PM metrics/types can be specified in technology specific augmentations of this class. ITU-T Q.822: This object will contain a copy of the performance management and other selected attributes that are present in the CurrentData object at the end of the current interval (measurement interval time / granularity period). A new instance of this object class is created at the end of each interval.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
periodStartTime	DateAndTime	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
	Description:			
	This attribute indicates the start time of the monitoring interval / granularity period. The value is bound to the quarter of an hour in case of a 15 minute interval and bound to the hour in case of a 24 hour interval.			
periodEndTime	DateAndTime	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
	Description:			
	This attribute indicates the end time of the monitoring interval / granularity period. The value is bound to the quarter of an hour in case of a 15 minute interval and bound to the hour in case of a 24 hour interval.			
_pmDataPac	PmDataPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
	Description:			
	Parameters specific to Performance Monitoring functions.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: yes – part: 1 isInvariant: true valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 292 – Attributes for class *HistoryData*

5.2.6 Meg

Description:

- The Maintenance Entity Group. ITU-T G.8001: A group defined, for the purpose of fragment or connection monitoring, between a set of flow or connection points within a fragment/connection. This set of flow or connection points may be located at the boundary of one administrative domain or a protection domain, or at the boundaries of two adjacent administrative domains. The maintenance entity group consists of one or more maintenance entities (the entity between two of the flow/connection points in a maintenance entity group).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_operationalStatePac	OperationalStatePac	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The Meg status information.			
_mep	Mep	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The maintenance entity group consists of one or more maintenance entities. There are the following cases: 1. A maintenance entity may have 0 MEPs (case of transit domains where at least 1 MIP is present). 2. A maintenance entity may have 1 MEP (case of edge domains, where the peer MEP is outside the managed domain). 3. A maintenance entity may have 2 MEPs.			
_mip	Mip	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The maintenance entity group may have 0, 1, or more MIPs.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 293 – Attributes for class *Meg*

5.2.7 Mep

Description:

- The Maintenance Entity group end Point. ITU-T G.8001: maintenance entity group end point compound sink function: A compound transport processing function that accepts the characteristic information of the layer network at its input, extracts and processes the OAM information related to the monitoring of the maintenance entity group, filters the OAM information from within to the maintenance entity group, adapts the information and presents it as the characteristic information of the layer or a client layer at its output, potentially as a (client) layer maintenance signal (e.g., AIS). ITU-T G.8001: maintenance entity group end point compound source function: A compound transport processing function that accepts the characteristic information of the layer or a client layer

network at its input, adapts that information, filters it for OAM information interfering with its own OAM information, adds OAM information to allow the maintenance entity group to be monitored and presents the resulting information at its output.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Mep layer protocol.			
layerProtocolQualifier	LayerProtocolQualifier	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_operationalStatePac	OperationalStatePac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Mep status information.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
	An identifier that is unique in the context of the GlobalClass from which it is inseparable.			

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 294 – Attributes for class *Mep*

5.2.8 MepMipList

Description:

- This augment allows CEP and NEP to refer to their MEPs/MIPs despite TapiOam model does not import resp. TapiConnectivity and TapiTopology models.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_mep	Mep	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
				Description: The list of associated Mep instances.
_mip	Mip	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
				Description: The list of associated Mip instances.

Table 295 – Attributes for class *MepMipList*

5.2.9 Mip

Description:

- The Maintenance entity group Intermediate Point. ITU-T G.8001: maintenance entity group intermediate point compound function: A compound transport processing function that accepts the characteristic information of the layer network at its input, reacts to OAM information related to on-demand monitoring of a maintenance entity group and presents the characteristic information without the OAM to which it reacted at its output.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
				The Mip layer protocol.
layerProtocolQualifier	LayerProtocolQualifier	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
_operationalStatePac	OperationalStatePac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClas</i> ss::localId	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: yes – part: 1 isInvariant: true valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
				An identifier that is unique in the context of the GlobalClass from which it is inseparable.

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 296 – Attributes for class *Mip*

5.2.10 OamContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the OAM description. An instance of this class includes its OamService, OamJob and Meg object instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_oamService	OamService	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Description:

The included OamService instances.

_oamJob	OamJob	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
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Description:

The included OamJob instances.

Attribute Name	Type	Mult.	Access	Stereotypes
_meg	Meg	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The included Meg instances.

Table 297 – Attributes for class *OamContext*

5.2.11 OamJob

Description:

- This class allows the provisioning of performance monitoring functions on specified resources.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
oamJobType	OamJobType	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The OamJob type.
oamJobState	OamJobState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
creationTime	DateAndTime	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The OamJob creation time.			
schedule	TimeRange	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
	Description: The OamJob schedule.			
results	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: Information allowing to retrieve the OAM job results by other means., e.g. file name.			
_oamServicePoint	OamServicePoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The OamServicePoint (OSP) instances involved in the OamJob.			
_connectionEndPoint	ConnectionEndPoint	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The ConnectionEndPoint (CEP) instances involved in the OamJob.			
_connectivityServiceEndPoint	ConnectivityServiceEndPoint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: In case the OamJob instance is not related to any OamService/Point but created together with ConnectivityService through ConnectivityOamJob augment.			

Attribute Name	Type	Mult.	Access	Stereotypes
_profile	Profile	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
The (Oam)Profile instance referred by the OamJob.				
_pmData	PmData	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_currentData	CurrentData	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
The CurrentData instances in the scope of the OamJob.				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
The OamJob status information.				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 298 – Attributes for class *OamJob*

5.2.12 OamProfile

Description:

- The OamProfile allows centralization of OAM provisioning aspects, e.g. the PM parameters and their threshold values.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_pmData	PmData	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 299 – Attributes for class *OamProfile*

5.2.13 OamService

Description:

- An OamService represents an "intent-like" request for OAM functions between two or more OamServicePoint (OSP) instances. The OamService is a container for OAM request details and is distinct from the Meg that realize the request.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass

- support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_oamServicePoint	OamServicePoint	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The OamServicePoint (OSP) instances of the OamService.			
_meg	Meg	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Meg instance tracking the state of the allocated resources for the support of the OamService.			
_state	AdminStatePac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The OamService status information.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 300 – Attributes for class *OamService***5.2.14 OamServicePoint****Description:**

- The OamServicePoint (OSP) is a container for OAM request details and is distinct from the Mep and/or Mip instances that realize the request.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
isMip	Boolean	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description: If true, the object is related to a MIP. If false, the object is related to a MEP.				
layerProtocolName	LayerProtocolName	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description: The OamServicePoint (OSP) layer protocol.				
layerProtocolQualifier	LayerProtocolQualifier	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_serviceInterfacePoint	ServiceInterfacePoint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The supporting ServiceInterfacePoint (SIP) instance. If neither ConnectivityServiceEndPoint (CSEP) nor ConnectionEndPoint (CEP) are specified, the OamServicePoint (OSP) is intended for SIP monitoring.
_connectivityServiceEndPoint	ConnectivityServiceEndPoint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The ConnectivityServiceEndPoint (CSEP) instance monitored by the OamServicePoint (OSP). If not specified (and neither CEP is specified), the OamServicePoint (OSP) is intended for SIP monitoring.
_connectionEndPoint	ConnectionEndPoint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The ConnectionEndPoint (CEP) instance monitored by the OamServicePoint (OSP). If not specified (and neither CSEP is specified), the OamServicePoint (OSP) is intended for SIP monitoring.
_mep	Mep	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The associated Mep instance, mutually exclusive wrt Mip instance.
_mip	Mip	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The associated Mip instance, mutually exclusive wrt Mep instance.

Attribute Name	Type	Mult.	Access	Stereotypes
_state	AdminStatePac	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The OamServicePoint (OSP) status information.
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 301 – Attributes for class *OamServicePoint*

5.2.15 PmData

Description:

- The PM threshold information associated to an OamProfile instance. It defines a set of PM metrics, their threshold values, the granularity period or measurement interval time for these PM metrics, the stateful or stateless types of related threshold crossing alert (TCA) reporting.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
applicableJobType	OamJobType	0..*	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				This attribute allows an PmThresholdData instance to be constrained to specific job types. If a PmThresholdData instance is so configured to be applicable to more than one job type (worst case ALL), only the parameters relevant for the job instance will be used (non-applicable profile parameters will be ignored).
granularityPeriod	TimePeriod	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The granularity period or measurement interval time. In case of instantaneous measurement this parameter is omitted (e.g. ODU Delay measurement).
timeOfDayAlignment	Boolean Default value: <i>true</i>	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
isTransient	Boolean	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				A threshold crossing alert (TCA) is transient when stateless, i.e. an explicit alarm clear notification is not foreseen. MEF 35.1: Thresholds and associated TCAs are specific to a particular performance metric in a given PM Session (or OAM job). There are two types of TCA reporting: stateless and stateful. With stateless reporting, a TCA is generated in each Measurement Interval in which the threshold is crossed. With stateful reporting, a SET TCA is generated in the first Measurement Interval in which the threshold is crossed, and a CLEAR TCA is subsequently generated at the end of the first Measurement Interval in which the threshold is not crossed. Note: In ITU-T G.7710 terminology, stateless TCA reporting corresponds to a transient condition, and stateful TCA reporting corresponds to a standing condition. Note that threshold management for gauges may be more complex (e.g. out of range function for gauge overflow/underflow detection).

Attribute Name	Type	Mult.	Access	Stereotypes
codirectional	Boolean	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				Applicable in case of embedded provisioning through ConnectivityOamJob. In this case two MIPs on the same CEP can be involved in the same OamJob, hence may be necessary to set different thresholds for codirectional and contradirectional PM Parameters.
pmParameter	PmParameter	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				The PM metrics and their threshold values.
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 302 – Attributes for class *PmData*

5.2.16 PmDataPac

Description:

- Parameters specific to Performance Monitoring functions.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
granularityPeriod	TimeInterval	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				The granularity period or measurement interval time.
suspectIntervalFlag	Boolean Default value: <i>false</i>	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				This attribute is used to indicate that the performance data for the current period may not be reliable. Some reasons for this to occur are: - Suspect data were detected by the actual resource doing data collection. - Transition of the administrativeState attribute to/from the 'lock' state. - Transition of the operationalState to/from the 'disabled' state. - Scheduler setting that inhibits the collection function. - The performance counters were reset during the interval. - The currentData (or subclass) object instance was created during the monitoring period.

Table 303 – Attributes for class *PmDataPac*

5.3 Signals

5.4 Associations

5.4.1 ConnOamSrvHasConnOamSrvPoint

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityOamServicePoint	composite	Yes	ConnectivityOamServicePoint	1..*
connectivityoamservice	none	No	ConnectivityOamService	1

Table 304 – Member ends for association *ConnOamSrvHasConnOamSrvPoint*

5.4.2 ConnOamSrvPointHasAdminStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_adminStatePac	composite	Yes	AdminStatePac	1
connectivityoamservicepoint	none	No	ConnectivityOamServicePoint	1

Table 305 – Member ends for association *ConnOamSrvPointHasAdminStatePac***5.4.3 ConnectivityOamJobHasPmData**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmData	composite	Yes	PmData	0..*
connectivityoamjob	none	No	ConnectivityOamJob	1

Table 306 – Member ends for association *ConnectivityOamJobHasPmData***5.4.4 ConnectivityOamJobRefersOamProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	none	Yes	Profile	0..1
connectivityoamjob	none	No	ConnectivityOamJob	1

Table 307 – Member ends for association *ConnectivityOamJobRefersOamProfile***5.4.5 ContextHasMegs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_meg	composite	Yes	Meg	0..*
_fc	none	No	OamContext	1

Table 308 – Member ends for association *ContextHasMegs***5.4.6 ContextHasOamJobs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oamJob	composite	Yes	OamJob	0..*
oamcontext	none	No	OamContext	1

Table 309 – Member ends for association *ContextHasOamJobs*

5.4.7 ContextHasOamService

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oamService	composite	Yes	OamService	0..*
oamcontext	none	No	OamContext	1

Table 310 – Member ends for association *ContextHasOamService*

5.4.8 CurrentDataHasHistoryData

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_historyData	composite	Yes	HistoryData	0..*
_currentData	none	No	CurrentData	1

Table 311 – Member ends for association *CurrentDataHasHistoryData*

5.4.9 CurrentDataHasPmDataPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmDataPac	composite	Yes	PmDataPac	0..1
currentdata	none	No	CurrentData	1

Table 312 – Member ends for association *CurrentDataHasPmDataPac*

5.4.10 CurrentDataOfCep

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	none	Yes	ConnectionEndPoint	0..1
currentdata	none	No	CurrentData	0..*

Table 313 – Member ends for association *CurrentDataOfCep*

5.4.11 CurrentDataOfMep

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mep	none	Yes	Mep	0..1
currentdata	none	No	CurrentData	0..*

Table 314 – Member ends for association *CurrentDataOfMep***5.4.12 CurrentDataOfMip**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mip	none	Yes	Mip	0..1
currentdata	none	No	CurrentData	0..*

Table 315 – Member ends for association *CurrentDataOfMip***5.4.13 HistoryDataHasPmDataPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmDataPac	composite	Yes	PmDataPac	0..1
historydata	none	No	HistoryData	1

Table 316 – Member ends for association *HistoryDataHasPmDataPac***5.4.14 MEGHasMEPs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mep	composite	Yes	Mep	0..*
_me	none	No	Meg	1

Table 317 – Member ends for association *MEGHasMEPs***5.4.15 MEGHasMIPs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mip	composite	Yes	Mip	0..*
_me	none	No	Meg	1

Table 318 – Member ends for association *MEGHasMIPs*

5.4.16 MEGHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_operationalStatePac	composite	Yes	OperationalStatePac	1
meg	none	No	Meg	1

Table 319 – Member ends for association *MEGHasStatePac*

5.4.17 MEPHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_operationalStatePac	composite	Yes	OperationalStatePac	0..1
mep	none	No	Mep	1

Table 320 – Member ends for association *MEPHasStatePac*

5.4.18 MIPHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_operationalStatePac	composite	Yes	OperationalStatePac	0..1
mip	none	No	Mip	1

Table 321 – Member ends for association *MIPHasStatePac*

5.4.19 MepListHasMep

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mep	shared	Yes	Mep	0..*
oamctppacspe	none	No	MepMipList	1

Table 322 – Member ends for association *MepListHasMep*

5.4.20 MipListHasMip

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mip	shared	Yes	Mip	0..*
oamctppacspe	none	No	MepMipList	1

Table 323 – Member ends for association *MipListHasMip*

5.4.21 OSPHasStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
oamservicepoint	none	No	OamServicePoint	1

Table 324 – Member ends for association *OSPHasStatePac*

5.4.22 OamJobCollectsData

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_currentData	composite	Yes	CurrentData	0..*
oamjob	none	No	OamJob	1

Table 325 – Member ends for association *OamJobCollectsData*

5.4.23 OamJobHasAdminStatePac

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	1
measurementjob	none	No	OamJob	1

Table 326 – Member ends for association *OamJobHasAdminStatePac*

5.4.24 OamJobHasCep

Description:

- Direct reference to CEP for simple OAM jobs like loopback.

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	none	Yes	ConnectionEndPoint	0..*
oamjob	none	No	OamJob	0..*

Table 327 – Member ends for association *OamJobHasCep***5.4.25 OamJobHasPmData**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmData	composite	Yes	PmData	0..*
oamjob	none	No	OamJob	1

Table 328 – Member ends for association *OamJobHasPmData***5.4.26 OamJobOperatesOnOamServicePoints**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oamServicePoint	none	Yes	OamServicePoint	0..*
_oamJob	none	Yes	OamJob	0..*

Table 329 – Member ends for association *OamJobOperatesOnOamServicePoints***5.4.27 OamJobRefersOamProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	none	Yes	Profile	0..1
oamjob	none	No	OamJob	0..*

Table 330 – Member ends for association *OamJobRefersOamProfile***5.4.28 OamJobRelatedToCSEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..1
oamjob	none	No	OamJob	0..*

Table 331 – Member ends for association *OamJobRelatedToCSEP***5.4.29 OamProfileHasPmData**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmData	composite	Yes	PmData	1..*
pmthresholdprofile	none	No	OamProfile	1

Table 332 – Member ends for association *OamProfileHasPmData***5.4.30 OamServiceHasAdminStatePac**

Applied stereotype:

- ExtendedComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_state	composite	Yes	AdminStatePac	0..1
oamservice	none	No	OamService	1

Table 333 – Member ends for association *OamServiceHasAdminStatePac***5.4.31 OamServiceHasOamServicePoint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oamServicePoint	composite	Yes	OamServicePoint	1..*
oamservice	none	No	OamService	1

Table 334 – Member ends for association *OamServiceHasOamServicePoint***5.4.32 OamServiceManagesMeg**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_meg	shared	Yes	Meg	0..1
fc	none	No	OamService	0..1

Table 335 – Member ends for association *OamServiceManagesMeg***5.4.33 OamServicePointMonitorsCEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectionEndPoint	none	Yes	ConnectionEndPoint	0..1
oamservicepoint	none	No	OamServicePoint	0..*

Table 336 – Member ends for association *OamServicePointMonitorsCEP*

5.4.34 OamServicePointMonitorsCSEP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_connectivityServiceEndPoint	none	Yes	ConnectivityServiceEndPoint	0..1
oamserviceendpoint	none	No	OamServicePoint	0..*

Table 337 – Member ends for association *OamServicePointMonitorsCSEP*

5.4.35 OamServicePointMonitorsSIP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serviceInterfacePoint	none	Yes	ServiceInterfacePoint	0..1
oamserviceendpoint	none	No	OamServicePoint	0..*

Table 338 – Member ends for association *OamServicePointMonitorsSIP*

5.4.36 OamServicePointRelatesToMEP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
mep	none	Yes	Mep	0..1
_oamServiceEndPoint	none	No	OamServicePoint	0..1

Table 339 – Member ends for association *OamServicePointRelatesToMEP*

5.4.37 OamServicePointRelatesToMIP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mip	none	Yes	Mip	0..1
_oamServiceEndPoint	none	No	OamServicePoint	0..1

Table 340 – Member ends for association *OamServicePointRelatesToMIP*

5.5 Abstractions

5.5.1 AugmentRootContext

Augmenting Class	Augmented Class	Comment
OamContext	TapiContext	Augments the base TAPI Context with OamContext model.
target: "/TapiCommon:Context:_context"		

Table 341 – Member ends for class abstraction *AugmentRootContext*

5.5.2 ConnectivityOamJobAugmentsCsep

Augmenting Class	Augmented Class	Comment
ConnectivityOamJob	ConnectivityServiceEndPoint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint"		

Table 342 – Member ends for class abstraction *ConnectivityOamJobAugmentsCsep***5.5.3 ConnectivityOamServiceAugmentsCsep**

Augmenting Class	Augmented Class	Comment
Diagrams	ConnectivityServiceEndPoint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint"		

Table 343 – Member ends for class abstraction *ConnectivityOamServiceAugmentsCsep***5.5.4 CurrentDataAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
CurrentData	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 344 – Member ends for class abstraction *CurrentDataAugmentsEventNotif***5.5.5 CurrentDataAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
CurrentData	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 345 – Member ends for class abstraction *CurrentDataAugmentsEventNotifSignal***5.5.6 CurrentDataAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
CurrentData	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 346 – Member ends for class abstraction *CurrentDataAugmentsLogRecordBody***5.5.7 HistoryDataAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
HistoryData	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 347 – Member ends for class abstraction *HistoryDataAugmentsEventNotif***5.5.8 HistoryDataAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
HistoryData	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 348 – Member ends for class abstraction *HistoryDataAugmentsEventNotifSignal***5.5.9 HistoryDataAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
HistoryData	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 349 – Member ends for class abstraction *HistoryDataAugmentsLogRecordBody***5.5.10 InterfaceRealizationOamJob**

Augmenting Enumeration	Augmented Enumeration
OamJob	OamJob
Comment	
The OamJob Interface Realization.	

Table 350 – Member ends for enum abstraction *InterfaceRealizationOamJob***5.5.11 InterfaceRealizationOamProfile**

Augmenting Enumeration	Augmented Enumeration
OamProfile	OamProfile
Comment	
The OamProfile Interface Realization.	

Table 351 – Member ends for enum abstraction *InterfaceRealizationOamProfile***5.5.12 InterfaceRealizationOamSrv**

Augmenting Enumeration	Augmented Enumeration
OamService	OamService
Comment	
The OamService Interface Realization.	

Table 352 – Member ends for enum abstraction *InterfaceRealizationOamSrv***5.5.13 MegAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Meg	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 353 – Member ends for class abstraction *MegAugmentsEventNotif***5.5.14 MegAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Meg	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 354 – Member ends for class abstraction *MegAugmentsEventNotifSignal***5.5.15 MegAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Meg	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 355 – Member ends for class abstraction *MegAugmentsLogRecordBody***5.5.16 MepAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Mep	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 356 – Member ends for class abstraction *MepAugmentsEventNotif***5.5.17 MepAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Mep	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 357 – Member ends for class abstraction *MepAugmentsEventNotifSignal***5.5.18 MepAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Mep	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 358 – Member ends for class abstraction *MepAugmentsLogRecordBody***5.5.19 MepMipListAugmentsCep**

Augmenting Class	Augmented Class	Comment
MepMipList	ConnectionEndPoint	This augment allows CEP to refer to its MEPs/MIPs despite TapiOam model does not import TapiConnectivity model.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:Connection:_connectionEndPoint"		

Table 359 – Member ends for class abstraction *MepMipListAugmentsCep***5.5.20 MepMipListAugmentsNep**

Augmenting Class	Augmented Class	Comment
MepMipList	NodeEdgePoint	This augment allows NEP to refer to its MEPs/MIPs despite TapiOam model does not import TapiTopology model.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint"		

Table 360 – Member ends for class abstraction *MepMipListAugmentsNep***5.5.21 MipAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Mip	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 361 – Member ends for class abstraction *MipAugmentsEventNotif*

5.5.22 MipAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
Mip	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 362 – Member ends for class abstraction *MipAugmentsEventNotifSignal*

5.5.23 MipAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
Mip	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 363 – Member ends for class abstraction *MipAugmentsLogRecordBody*

5.5.24 OamJobAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
OamJob	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 364 – Member ends for class abstraction *OamJobAugmentsEventNotif*

5.5.25 OamJobAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
OamJob	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 365 – Member ends for class abstraction *OamJobAugmentsEventNotifSignal*

5.5.26 OamJobAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
OamJob	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 366 – Member ends for class abstraction *OamJobAugmentsLogRecordBody*

5.5.27 OamObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
<p>OamObjectType</p> <ul style="list-style-type: none"> • CURRENT_DATA • HISTORY DATA • MEG • MEP • MIP • OAM_JOB • OAM_PROFILE • OAM_SERVICE • OAM_SERVICE_POINT • PM_DATA 	<p>ObjectType</p> <ul style="list-style-type: none"> • PROFILE • SERVICE INTERFACE POINT • TAPI_CONTEXT
Comment	Enumeration Augment.

Table 367 – Member ends for enum abstraction *OamObjectTypeAugmentsObjectType*

5.5.28 OamProfileAugmentsProfile

Augmenting Class	Augmented Class	Comment
OamProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 368 – Member ends for class abstraction *OamProfileAugmentsProfile*

5.5.29 OamProfileTypeAugmentsProfileType

Augmenting Enumeration	Augmented Enumeration
<p>OamProfileType</p> <ul style="list-style-type: none"> • OAM 	ProfileType
Comment	Enumeration Augment.

Table 369 – Member ends for enum abstraction *OamProfileTypeAugmentsProfileType*

5.5.30 OamServiceAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
OamService	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 370 – Member ends for class abstraction *OamServiceAugmentsEventNotif*

5.5.31 OamServiceAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
OamService	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 371 – Member ends for class abstraction *OamServiceAugmentsEventNotifSignal***5.5.32 OamServiceAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
OamService	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 372 – Member ends for class abstraction *OamServiceAugmentsLogRecordBody***5.5.33 OamServicePointAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
OamServicePoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 373 – Member ends for class abstraction *OamServicePointAugmentsEventNotif***5.5.34 OamServicePointAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
OamServicePoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 374 – Member ends for class abstraction *OamServicePointAugmentsEventNotifSignal***5.5.35 OamServicePointAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
OamServicePoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 375 – Member ends for class abstraction *OamServicePointAugmentsLogRecordBody***5.5.36 PmThresholdDataAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PmData	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 376 – Member ends for class abstraction *PmThresholdDataAugmentsEventNotif***5.5.37 PmThresholdDataAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
PmData	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 377 – Member ends for class abstraction *PmThresholdDataAugmentsEventNotifSignal***5.5.38 PmThresholdDataAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
PmData	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 378 – Member ends for class abstraction *PmThresholdDataAugmentsLogRecordBody***5.6 Data Types****5.6.1 PmParameter****Description:**

- PM metrics, their locations and threshold values.

Attribute Name	Type	Mult.	Access	Stereotypes
pmParameterName	Pm	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: PM metric name.			
thresholdConfig	ThresholdConfig	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: PM metric location.				

Table 379 – Attributes for data type *PmParameter***5.6.2 ThresholdConfig**

Attribute Name	Type	Mult.	Access	Stereotypes
thresholdLocation	ThresholdCrossingQualifier	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
	Description:			
thresholdType	ThresholdType	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 2 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
pmParameterValue	PmParameterValue	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
clearThreshold	Boolean	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 3 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
thrsAdditionalQualifier	ThrsAddQualif	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 380 – Attributes for data type *ThresholdConfig*

5.7 Enumerations

5.7.1 OamJobState

Contains Enumeration Literals:

- ACTIVE:
- CONCLUDED:
- NOT_ACTIVE:

5.7.2 OamJobType

Description:

- The OAM job types. This extensible enumeration can be augmented with specific OAM job types in the other modules.

Contains Enumeration Literals:

- LOOPBACK_FACILITY:
 - External / Line Loopback.
- LOOPBACK_TERMINAL:
 - Internal / Device Loopback.

5.7.3 OamObjectType

Description:

- The list of TAPI OAM Global Object Class types on which Notification signals can be raised.

Contains Enumeration Literals:

- OAM_SERVICE:
 - The OamService class.
- OAM_SERVICE_POINT:
 - The OamServicePoint (OSP) class.
- MEG:
 - The Meg class.
- MEP:
 - The Mep class.
- MIP:

- The Mip class.
- OAM_JOB:
 - The OamJob class.
- OAM_PROFILE:
 - The OamProfile class.
- CURRENT_DATA:
 - The CurrentData class.
- HISTORY_DATA:
 - The HistoryData class.
- PM_DATA:
 - The PmThresholdData class.

5.7.4 OamProfileType

Contains Enumeration Literals:

- OAM:

5.7.5 ThresholdCrossingQualifier

Description:

- Threshold crossing location or qualifier.

Contains Enumeration Literals:

- NOT_APPLICABLE:
 - Location or qualifier not applicable.
- NEAR-END:
 - Near End detection.
- FAR-END:
 - Far end detection.
- BIDIRECTIONAL:
 - Composition of near and far end detections.
- FORWARD:
 - MEF 35.1: The direction of performance measurements from the Controller MEP towards the Responder or Sink MEP, when One-way measurements are taken using a Single-Ended or Dual-Ended PM Function. MEF 83: In Single-Ended measurements, it is assumed that the FORWARD and FAR-END qualifiers are equivalent. In Dual-Ended measurements (and in case of TX counters), it is assumed that the FORWARD and NEAR-END qualifiers are equivalent.
- BACKWARD:
 - MEF 35.1: The direction of performance measurements from the Responder MEP towards the Controller MEP, when One-way measurements are taken using a Single-Ended PM Function. Note: this term is not applicable when Dual-Ended PM Functions are used. MEF 83: In Single-Ended measurements, it is assumed that the BACKWARD and NEAR-END qualifiers are equivalent. In Dual-Ended measurements (and in case of TX counters), it is assumed that the BACKWARD and FAR-END qualifiers are equivalent.

5.7.6 ThresholdType

Contains Enumeration Literals:

- UPPER:
- LOWER:
- TIDEMARK:
- POSITIVE_DELTA:
- NEGATIVE_DELTA:

5.7.7 ThrsAddQualif

Description:

- Useful in case the monitored entity encapsulates more monitoring functions (e.g. OMS and Amplification).

Contains Enumeration Literals:

5.8 Primitives

6 Fault Management Model

TapiFm: This module contains TAPI Fault Management Model definitions. Source: TapiFm.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

6.1 Diagrams

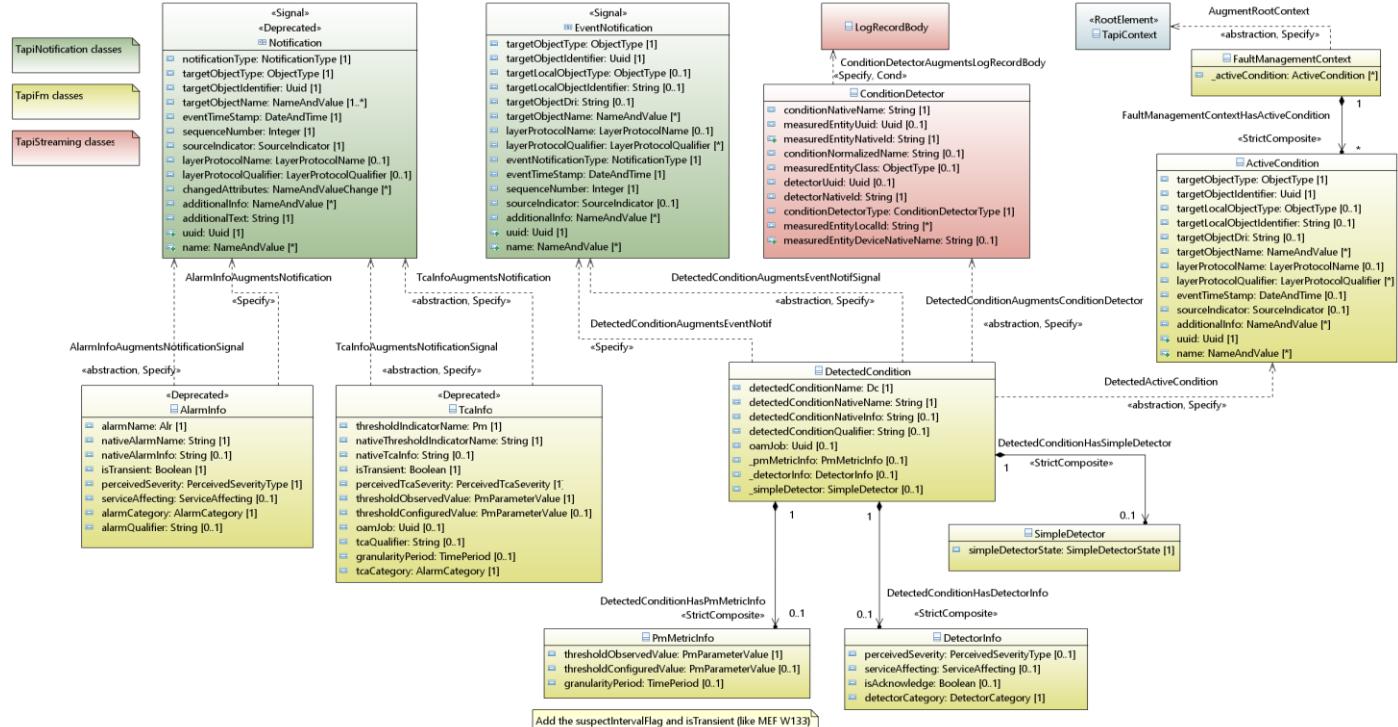
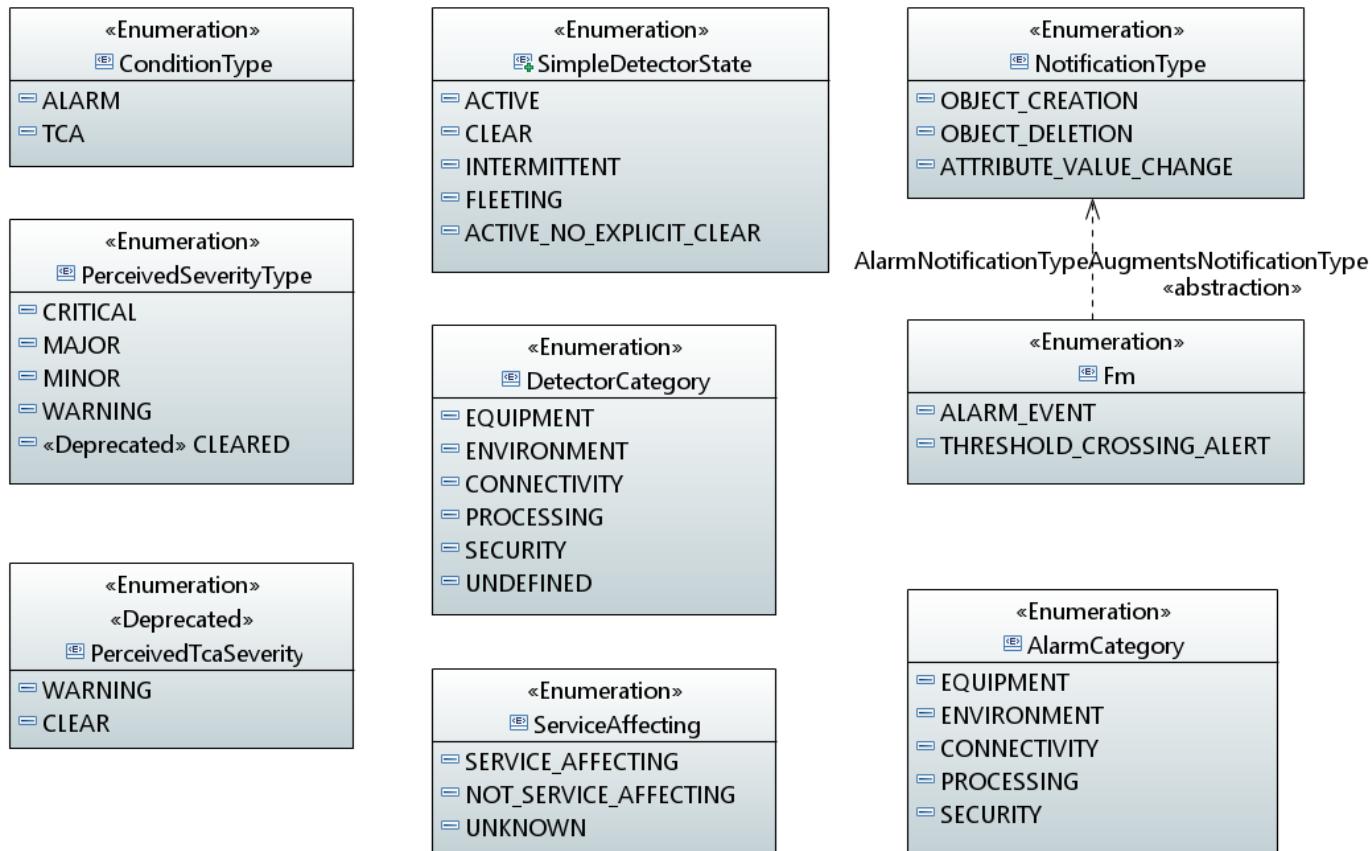


Figure 28 – Diagram *FmDetails*

Figure 29 – Diagram *FmTypes*

6.2 Classes

6.2.1 ActiveCondition

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
targetObjectType	ObjectType	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The ActiveCondition instance is related to the object instance (of a global class - with UUID) with this ObjectType value. Alternatively, the ActiveCondition is related to the object instance of a local class, whose global object has this ObjectType value.			
targetObjectIdentifier	Uuid	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The ActiveCondition instance is related to the object instance (of a global class) with this UUID value. Alternatively, the ActiveCondition is related to the object instance of a local class, whose global object has this UUID value.			
targetLocalObjectType	ObjectType	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The ActiveCondition instance is related to the object instance of a local class, whose global object has targetObjectType value.			
targetLocalObjectIdentifier	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The ActiveCondition instance is related to the object instance of a local class, whose global object has targetObjectIdentifier value.			
targetObjectDri	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: Data Resource Identifier of the target object as per RFC 8040.			
targetObjectName	NameAndValue	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The ActiveCondition instance is related to the object instance with this list of names.			
layerProtocolName	LayerProtocolName	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The ActiveCondition instance is related to a resource with this layer protocol value.			
layerProtocolQualifier	LayerProtocolQualifier	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The ActiveCondition instance is related to a resource with these layer protocol qualifier values.			
eventTimeStamp	DateAndTime	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The best knowledge of the time of the event which originated this ActiveCondition instance.			
sourceIndicator	SourceIndicator	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The possible source of this ActiveCondition instance.			
additionalInfo	NameAndValue	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 381 – Attributes for class *ActiveCondition*

6.2.2 AlarmInfo

Description:

- This class augments the Notification class with alarm related parameters. This class is deprecated in favor of DetectedCondition class, which unifies alarm and TCA related parameters.

Applied stereotypes:

- Deprecated
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
alarmName	Alr	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The probable cause of the failure (detected fault). G.806: - fault: A fault is the inability of a function to perform a required action. This does not include an inability due to preventive maintenance, lack of external resources or planned actions. - fault cause: A single disturbance or fault may lead to the detection of multiple defects. - defect: The density of anomalies has reached a level where the ability to perform a required function has been interrupted. Defects are used as input for performance monitoring, the control of consequent actions and for the determination of fault causes. A fault cause is the result of a correlation process which is intended to identify the defect that is representative of the disturbance or fault that is causing the problem. - failure: The fault cause persisted long enough to consider the ability of an item to perform a required function to be terminated. The item may be considered as failed; a fault has now been detected. - alarm: A human-observable indication that draws attention to a failure (detected fault) usually giving an indication of the severity of the fault.			
nativeAlarmName	String	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: The probable cause of the failure as shown by lower level controllers.			
nativeAlarmInfo	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Additional info made available by the lower level controllers.			
isTransient	Boolean	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: An alarm is transient when stateless, i.e. an explicit clear notification is not foreseen.			
perceivedSeverity	PerceivedSeverityType	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: The alarm severity.			

Attribute Name	Type	Mult.	Access	Stereotypes
serviceAffecting	ServiceAffecting	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The impact on the service.			
alarmCategory	AlarmCategory	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The alarm category, based on ITU-T X.733.			
alarmQualifier	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: Further information necessary to precisely/uniquely/unambiguously identify the alarm detector. For Equipment and Processing Alarm Category, e.g. the local id of the ActualNonFieldReplaceableModule which identifies exact alarm source. For Environment Alarm Category, e.g. on the same Device instance may appear more Environmental alarm notifications with same Alarn Name. For Connectivity Alarm Category in case that same CEP instance includes e.g. both OTS and OMS monitoring layers.			

Table 382 – Attributes for class *AlarmInfo*

6.2.3 DetectedCondition

Description:

- A record of the state of a Detector where that Detector has two underling states that are of asymmetric importance. For example, an alarm or a threshold crossing alert detected on a given resource. A Condition Detector represents any monitoring component that assesses properties of something and determines from those properties what conditions are associated with the thing. For example, a thing might be "too hot" or might be "unreliable".

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
detectedConditionName	Dc	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	<p>The name of the Condition, e.g. an alarm probable cause or the PM metric name which threshold crossing alert refers to. ITU-T probable cause of the failure (detected fault). G.806: - fault: A fault is the inability of a function to perform a required action. This does not include an inability due to preventive maintenance, lack of external resources or planned actions. - fault cause: A single disturbance or fault may lead to the detection of multiple defects. - defect: The density of anomalies has reached a level where the ability to perform a required function has been interrupted. Defects are used as input for performance monitoring, the control of consequent actions and for the determination of fault causes. A fault cause is the result of a correlation process which is intended to identify the defect that is representative of the disturbance or fault that is causing the problem. - failure: The fault cause persisted long enough to consider the ability of an item to perform a required function to be terminated. The item may be considered as failed; a fault has now been detected. - alarm: A human-observable indication that draws attention to a failure (detected fault) usually giving an indication of the severity of the fault.</p>			
detectedConditionNativeName	String	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	<p>The name used for the Condition by the source of the information.</p>			
detectedConditionNativeInfo	String	0..1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	<p>Additional info of the Condition provided by the source of the information.</p>			
detectedConditionQualifier	String	0..1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	<p>Further information necessary to precisely/uniquely/unambiguously identify the Condition Detector. For Equipment and Processing Alarm Category, e.g. the local id of the ActualNonFieldReplaceableModule which identifies exact alarm source. For Environment Alarm Category, e.g. on the same Device instance may appear more Environmental alarm notifications with same Alarn Name. For Connectivity Alarm Category in case that same CEP instance includes e.g. both OTS and OMS monitoring layers.</p>			

Attribute Name	Type	Mult.	Access	Stereotypes
oamJob	Uuid	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Reference to the OamJob instance for which the Condition detection has been configured, e.g. configuration of PM metrics and threshold values and/or of the (alarm) Conditions. The reference is defined as simple UUID because TapiFm does not import TapiOam. MEF 35.1: Identification of the PM Session for which the TCA Function was configured.				
_pmMetricInfo	PmMetricInfo	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The PM metric information.				
_detectorInfo	DetectorInfo	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The detector info for alarm and TCA.				
_simpleDetector	SimpleDetector	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The simple detector state.				

Table 383 – Attributes for class *DetectedCondition*

6.2.4 DetectorInfo

Description:

- (Legacy) information associated to a Condition (alarm).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
perceivedSeverity	PerceivedSeverityType	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			The severity of the detected Condition.
serviceAffecting	ServiceAffecting	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			The impact on the service.
isAcknowledge	Boolean	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			Information on operator acknowledgement.
detectorCategory	DetectorCategory	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			The Detector (alarm) category, based on ITU-T X.733.

Table 384 – Attributes for class *DetectorInfo*

6.2.5 FaultManagementContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the fault management description. An instance of this class includes its ActiveCondition instances.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_activeCondition	ActiveCondition	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 385 – Attributes for class *FaultManagementContext*

6.2.6 PmMetricInfo

Description:

- Information associated to a Threshold Crossing Alert.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
thresholdObservedValue	PmParameterValue	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				The observed value of PM metric to which TCA refers to.
thresholdConfiguredValue	PmParameterValue	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				The configured threshold value of PM metric to which TCA refers to.

Attribute Name	Type	Mult.	Access	Stereotypes
granularityPeriod	TimePeriod	0..1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				The granularity period or measurement interval time. This parameter may be necessary when the reference to the OAM Job is not included, e.g. in case the OAM job is not visible at the management interface.

Table 386 – Attributes for class *PmMetricInfo*

6.2.7 SimpleDetector

Description:

- Information regarding the (simple) state of the Detector.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
simpleDetectorState	SimpleDetectorState	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				The (simple) state of the Detector. The Detector state accounts for the time characteristics of the detected Condition.

Table 387 – Attributes for class *SimpleDetector*

6.2.8 TcaInfo

Description:

- This class augments the Notification class with threshold crossing alert related parameters. This class is deprecated in favor of DetectedCondition class, which unifies alarm and TCA related parameters.

Applied stereotypes:

- Deprecated
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
thresholdIndicatorName	Pm	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
PM metric name which TCA refers to.				
nativeThresholdIndicatorName	String	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
PM metric name which TCA refers to as shown by lower level controllers.				
nativeTcaInfo	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Additional info made available by the lower level controllers.				
isTransient	Boolean	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
A threshold crossing alert is transient when stateless, i.e. an explicit clear notification is not foreseen.				
perceivedTcaSeverity	PerceivedTcaSeverity	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The threshold crossing alert severity.				

Attribute Name	Type	Mult.	Access	Stereotypes
thresholdObservedValue	PmParameterValue	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The observed value of PM metric to which TCA refers to.				
thresholdConfiguredValue	PmParameterValue	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The configured threshold value of PM metric to which TCA refers to.				
oamJob	Uuid	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Reference to the OamJob instance for which the PM metric and threshold values were configured. The reference is defined as simple UUID because TapiFm does not import TapiOam. MEF 35.1: Identification of the PM Session for which the TCA Function was configured.				
tcaQualifier	String	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Further information necessary to precisely/uniquely/unambiguously identify the TCA detector.				
granularityPeriod	TimePeriod	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
The granularity period or measurement interval time. This parameter may be necessary when the reference to the OAM Job is not included, e.g. in case the OAM job is not visible at the management interface.				

Attribute Name	Type	Mult.	Access	Stereotypes
tcaCategory	AlarmCategory	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Table 388 – Attributes for class *TcaInfo*

6.3 Signals

6.4 Associations

6.4.1 DetectedConditionHasDetectorInfo

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_detectorInfo	composite	Yes	DetectorInfo	0..1
detectedcondition	none	No	DetectedCondition	1

Table 389 – Member ends for association *DetectedConditionHasDetectorInfo*

6.4.2 DetectedConditionHasPmMetricInfo

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pmMetricInfo	composite	Yes	PmMetricInfo	0..1
detectedcondition	none	No	DetectedCondition	1

Table 390 – Member ends for association *DetectedConditionHasPmMetricInfo*

6.4.3 DetectedConditionHasSimpleDetector

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_simpleDetector	composite	Yes	SimpleDetector	0..1
detectedcondition	none	No	DetectedCondition	1

Table 391 – Member ends for association *DetectedConditionHasSimpleDetector***6.4.4 FaultManagementContextHasActiveCondition**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_activeCondition	composite	Yes	ActiveCondition	0..*
faultmanagementcontext	none	No	FaultManagementContext	1

Table 392 – Member ends for association *FaultManagementContextHasActiveCondition***6.5 Abstractions****6.5.1 AlarmInfoAugmentsNotification**

Augmenting Class	Augmented Class	Comment
AlarmInfo	Notification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_notification"		

Table 393 – Member ends for class abstraction *AlarmInfoAugmentsNotification***6.5.2 AlarmInfoAugmentsNotificationSignal**

Augmenting Class	Augmented Class	Comment
AlarmInfo	Notification	
target: "/TapiNotification:Notifications:Notification"		

Table 394 – Member ends for class abstraction *AlarmInfoAugmentsNotificationSignal***6.5.3 AlarmNotificationTypeAugmentsNotificationType**

Augmenting Enumeration	Augmented Enumeration
Fm <ul style="list-style-type: none"> • ALARM_EVENT • THRESHOLD_CROSSING_ALERT 	NotificationType <ul style="list-style-type: none"> • ATTRIBUTE_VALUE_CHANGE • OBJECT_CREATION • OBJECT_DELETION
Comment	
Enumeration Augment.	

Table 395 – Member ends for enum abstraction *AlarmNotificationTypeAugmentsNotificationType***6.5.4 AugmentRootContext**

Augmenting Class	Augmented Class	Comment
Diagrams	Diagrams	Augments the base TAPI Context with FaultManagementContext model.
target: "/TapiCommon:Context:_context"		

Table 396 – Member ends for class abstraction *AugmentRootContext***6.5.5 DetectedActiveCondition**

Augmenting Class	Augmented Class	Comment
DetectedCondition	ActiveCondition	
target: "/TapiCommon:Context:_context/TapiFm:FaultManagementContext:_faultManagementContext/TapiFm:FaultManagementContext:_activeCondition"		

Table 397 – Member ends for class abstraction *DetectedActiveCondition***6.5.6 DetectedConditionAugmentsConditionDetector**

Augmenting Class	Augmented Class	Comment
DetectedCondition	ConditionDetector	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody/TapiStreaming:LogRecordBody:_conditionDetector"		

Table 398 – Member ends for class abstraction *DetectedConditionAugmentsConditionDetector***6.5.7 DetectedConditionAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
DetectedCondition	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 399 – Member ends for class abstraction *DetectedConditionAugmentsEventNotif***6.5.8 DetectedConditionAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
DetectedCondition	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 400 – Member ends for class abstraction *DetectedConditionAugmentsEventNotifSignal***6.5.9 TcaInfoAugmentsNotification**

Augmenting Class	Augmented Class	Comment
TcaInfo	Notification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_notification"		

Table 401 – Member ends for class abstraction *TcaInfoAugmentsNotification*

6.5.10 TcaInfoAugmentsNotificationSignal

Augmenting Class	Augmented Class	Comment
TcaInfo	Notification	
target: "/TapiNotification:Notifications:Notification"		

Table 402 – Member ends for class abstraction *TcaInfoAugmentsNotificationSignal*

6.6 Data Types

6.7 Enumerations

6.7.1 AlarmCategory

Contains Enumeration Literals:

- EQUIPMENT:
- ENVIRONMENT:
- CONNECTIVITY:
- PROCESSING:
- SECURITY:

6.7.2 ConditionType

Description:

- The types of the Condition.

Contains Enumeration Literals:

- ALARM:
- TCA:
 - Threshold Crossing Alert

6.7.3 DetectorCategory

Description:

- The Detector (alarm) category, based on ITU-T X.733.

Contains Enumeration Literals:

- EQUIPMENT:
- ENVIRONMENT:
- CONNECTIVITY:

- PROCESSING:
- SECURITY:
- UNDEFINED:

6.7.4 Fm

Description:

- The list of alarm specific notification types.

Contains Enumeration Literals:

- ALARM_EVENT:
 - The notification of a detected condition event, specifically an alarm detected on a given resource.
- THRESHOLD_CROSSING_ALERT:
 - The notification of a detected condition event, specifically a threshold crossing alert detected on a given resource.

6.7.5 PerceivedSeverityType

Description:

- The types of perceived severity. ITU-T G.7710: Failures may have been categorized to indicate the severity or urgency of the fault.

Contains Enumeration Literals:

- CRITICAL:
 - ITU-T G.7710/X.733/M.3100: Indication for a service-affecting condition. Immediate corrective action is required.
- MAJOR:
 - ITU-T G.7710/X.733/M.3100: Indication for a service-affecting condition. Urgent corrective action is required.
- MINOR:
 - ITU-T G.7710/X.733/M.3100: Indication for a non-service-affecting condition. Corrective action should be taken in order to prevent more serious fault.
- WARNING:
 - ITU-T G.7710/X.733/M.3100: Indication for a potential or impending service-affecting fault. Further diagnosis should be made.
- CLEARED:
 - Included only for some possible backward compatibility purpose. It should not be used to assign a severity to a failure. ITU-T G.7710: The severities "cleared" and "indeterminate" defined by [ITU-T X.733] are not included in Table 2, as it is assumed that these are not to be used to assign a failure.
 - Applied stereotype:
 - Deprecated

6.7.6 PerceivedTcaSeverity

Description:

- The types of perceived severity of threshold crossing alerts.

Applied stereotype:

- Deprecated

Contains Enumeration Literals:

- WARNING:
 - ITU-T G.7710/X.733/M.3100: Indication for a potential or impending service-affecting fault. Further diagnosis should be made.
- CLEAR:
 - Included only for some possible backward compatibility purpose. It should not be used to assign a severity to a failure. ITU-T G.7710: The severities "cleared" and "indeterminate" defined by [ITU-T X.733] are not included in Table 2, as it is assumed that these are not to be used to assign a failure.

6.7.7 ServiceAffecting

Description:

- The possible impact on the service.

Contains Enumeration Literals:

- SERVICE_AFFECTING:
 - The service is affected by the detected Condition.
- NOT_SERVICE_AFFECTING:
 - The service is not affected by the detected Condition.
- UNKNOWN:
 - The impact on the service is unknown.

6.7.8 SimpleDetectorState

Description:

- The states of the detector.

Contains Enumeration Literals:

- ACTIVE:
 - The detector is indicating the operation of the monitored entity is not within acceptable bounds with respect to the specific condition measured. If INTERMITTENT is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE is declared. An alternative may be to declare INTERMITTENT. Where INTERMITTENT is supported, ACTIVE indicates the stable presence of a problem.
- CLEAR:
 - The detector is indicating the operation of the monitored entity is within acceptable bounds with respect to the specific condition measured.
- INTERMITTENT:
 - The detector is indicating the operation of the monitored entity is intermittently not within acceptable bounds with respect to the specific condition measured. INTERMITTENT support is optional. Where it is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE or INTERMITTENT is declared.
- FLEETING:

- Event has a very short life (Active-Clear), hence is notified/streamed after its occurrence.
- ACTIVE_NO_EXPLICIT_CLEAR:
 - Same as Active, but an explicit transition to Clear is not foreseen. This e.g. applies to PM metrics which can only increase (counters), hence the "clear" criteria is conventionally the end of a measurement period.

6.8 Primitives

7 Equipment Model

TapiEquipment: This module contains TAPI Equipment Model definitions. Source: TapiEquipment.uml
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7.1 Diagrams

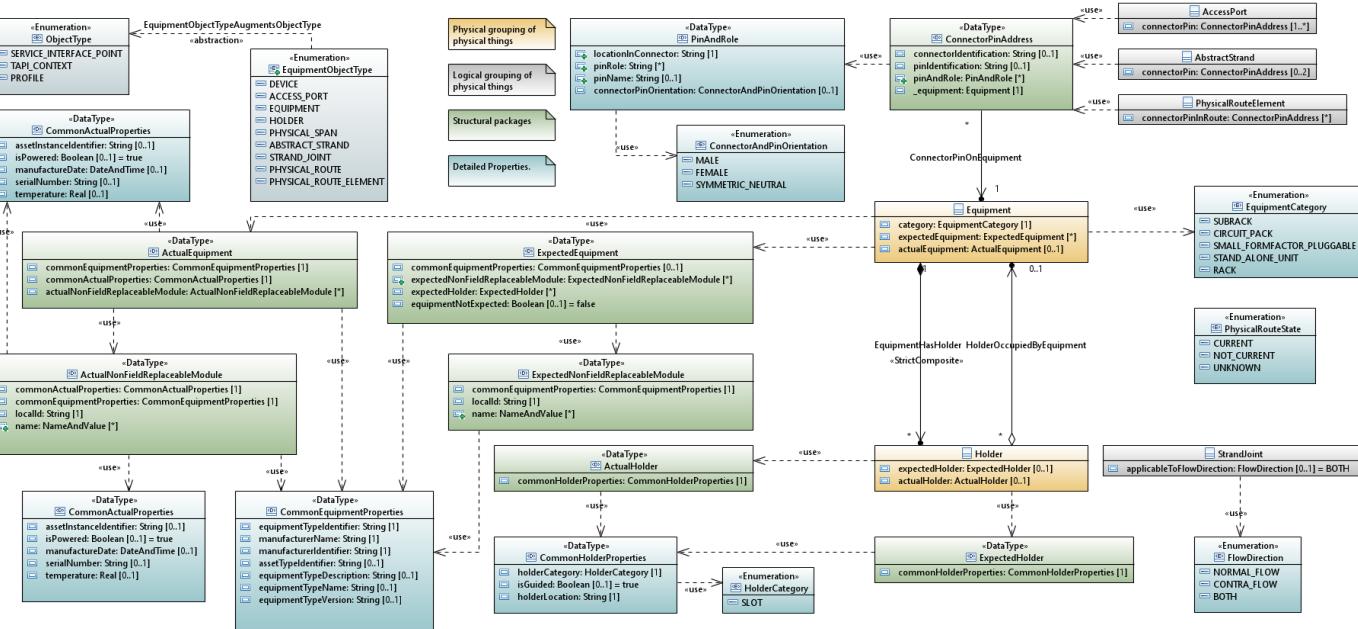
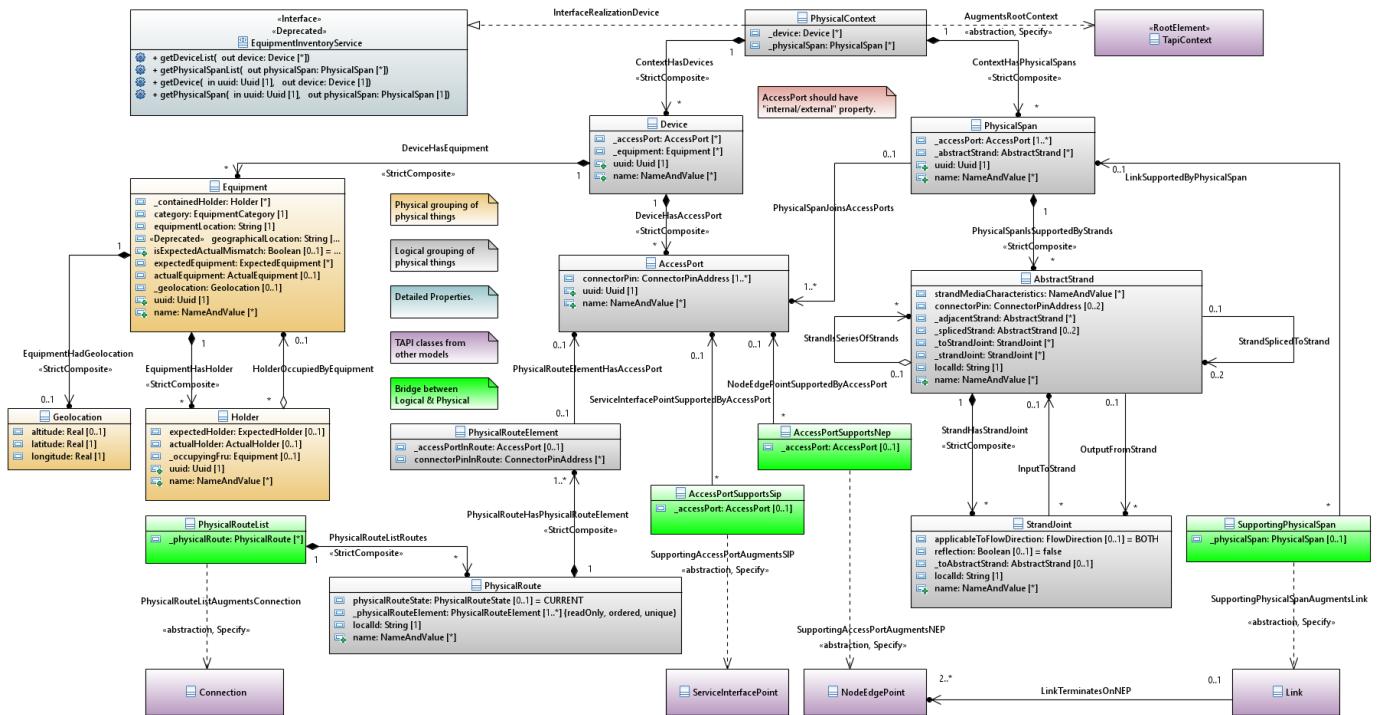
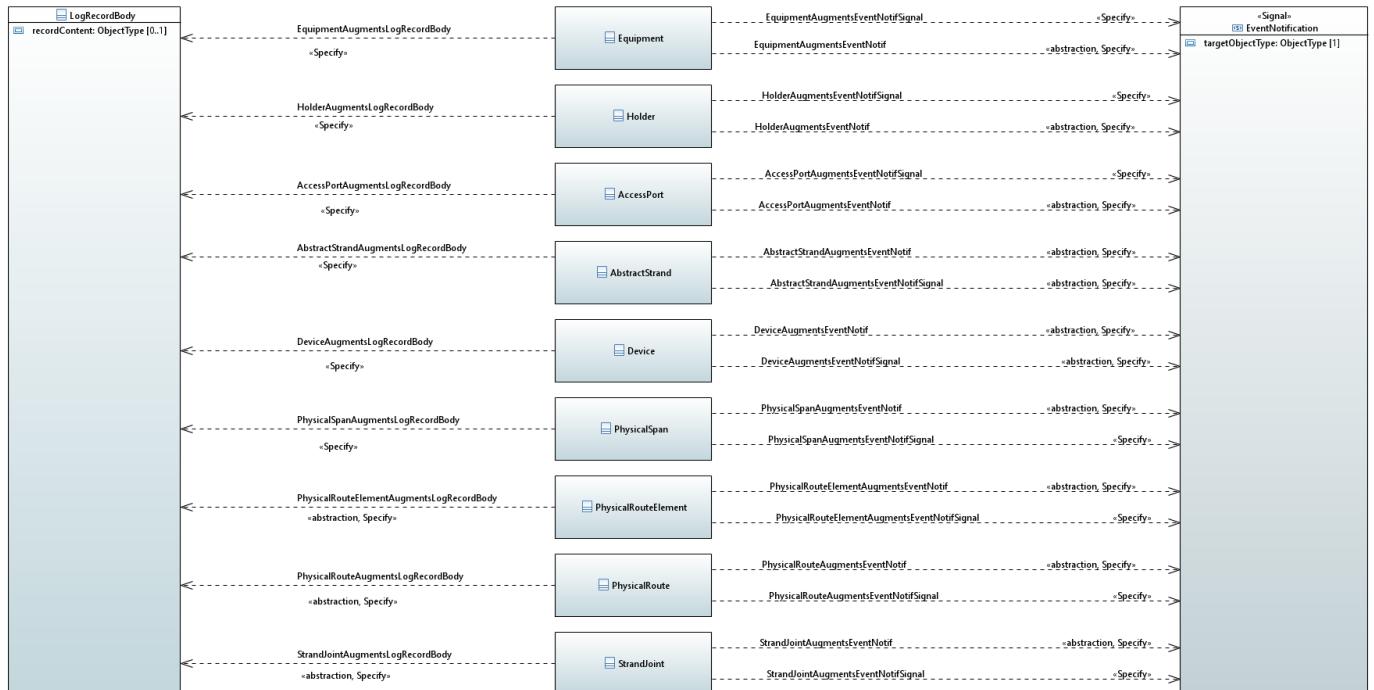
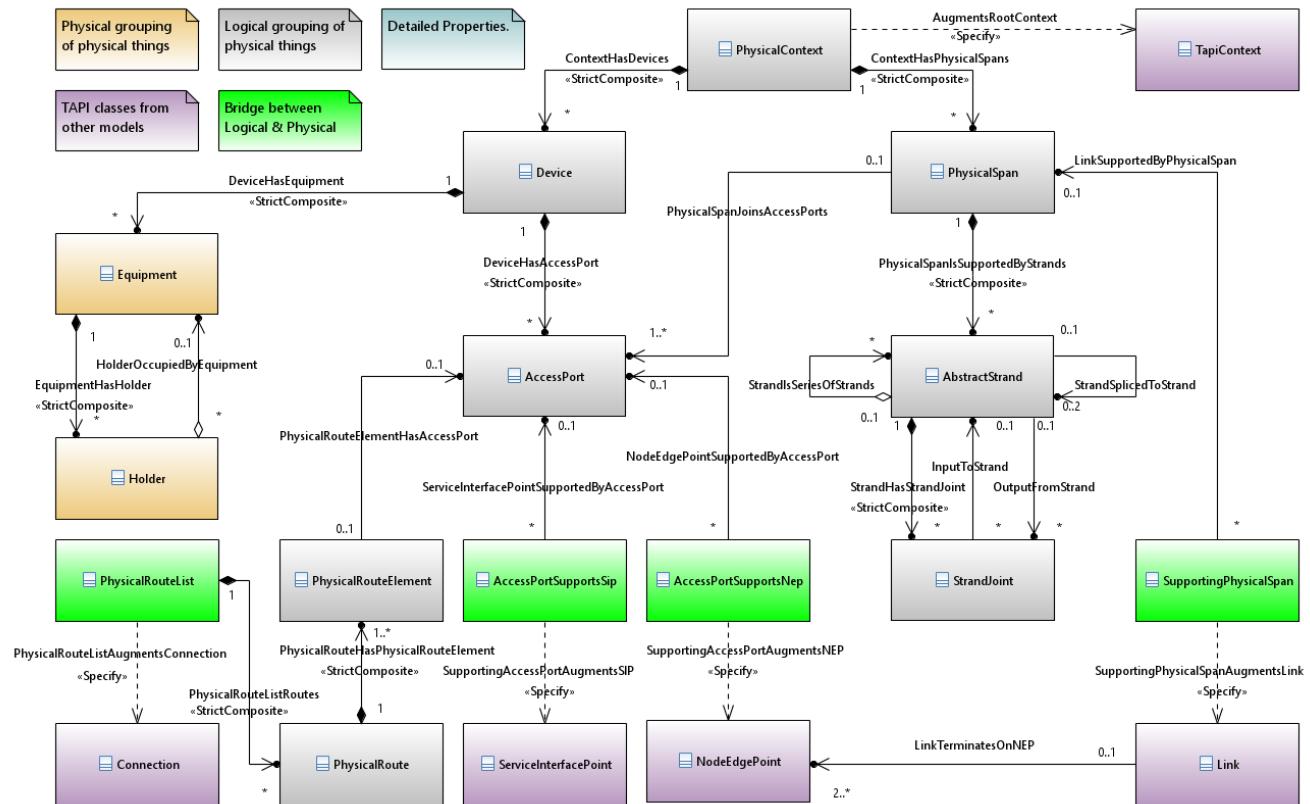


Figure 30 – Diagram *EquipmentDataTypes*

Figure 31 – Diagram *EquipmentModelDetail*Figure 32 – Diagram *EquipmentNotifAndStream*

Figure 33 – Diagram *EquipmentPatternSkeleton*

7.2 Classes

7.2.1 AbstractStrand

Description:

- This object represents an abstraction of one or more strands in series that provides sufficient detail to enable appropriate engineering. A strand represents a continuous long, thin piece of a medium such as glass fiber or copper wire. In this model a Strand: - a strand has two ends - a splice can only be between 2 strands. - the end of a strand may have a splice, a connector or be hidden - only one end can be hidden in an equipment - where a cable has more than two end each strand only goes between two of the ends This model does NOT account for multiple copper strands being spliced.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
strandMediaCharacteristics	NameAndValue	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Relevant physical properties of the abstract strand. CONDITION: Mandatory where a simple form of strand characteristics is to be conveyed.
connectorPin	ConnectorPinAddress	0..2	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				A strand can end on two or more Pins (usually 2 pins, but a strand may be spliced to split a signal). This model supports only 2 ended strands and hence splices must be represented explicitly. A abstract strand may be spliced at both ends and hence have no direct relationship to pins or may be connected to pins at one or both ends. In the essential model these Pins would be on connectors that plug in to connectors on Equipments. The AbstractStrand is extended to the pins of the AccessPort which are the Pins on the Connectors of the Equipment. In some cases it may not be relevant to represent the pin detail and hence the reference is to a connector alone. CONDITION: Mandatory where at least one connector pin detail is to be represented.
_adjacentStrand	AbstractStrand	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Allows expression of an ordered list of abstract strands that support this broader span abstract strand where the specific interconnection is not relevant. CONDITION: Mandatory where the sequence of strands in a physical span a is to be expressed but when the specific interconnection is not relevant.

Attribute Name	Type	Mult.	Access	Stereotypes
_splicedStrand	AbstractStrand	0..2	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
References strands that are spliced to this strand where splice properties need not be represented. CONDITION: Mandatory where a simple representation of a splice between strands is required				
_toStrandJoint	StrandJoint	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
The strand joint through which normal flow of light passes from this fiber. CONDITION: Mandatory where detailed strand joint characteristics related to the flow from the strand are to be expressed.				
_strandJoint	StrandJoint	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Represents a flow opportunity through a joint. The strand joint is owned by this strand which is one of the two strands (or the strand) that this joint connects. CONDITION: Mandatory where details of properties of the joint need to be expressed.				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 403 – Attributes for class *AbstractStrand*

7.2.2 AccessPort

Description:

- A group of pins that together support a signal group where any one pin removed from the group will prevent all signals of the signal group from flowing successfully. In some cases the AccessPort may simply reference a single connector (e.g., where the pin-connector association is simple such that the AccessPort references all pins of one connector).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
connectorPin	ConnectorPinAddress	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
				Description: The list of Pins that support the AccessPort.
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA	
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 404 – Attributes for class *AccessPort*

7.2.3 AccessPortSupportsNep

Description:

- The AccessPort supporting this NEP. More NEPs can be supported by the same AccessPort. This augment allows NEP to refer to its AccessPort despite TapiTopology model does not import TapiEquipment model.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA				
_accessPort	AccessPort	0..1	R		
	Description: Reference to the AccessPort. CONDITION: Mandatory where the NEP is directly supported by an access port.				

Table 405 – Attributes for class *AccessPortSupportsNep*

7.2.4 AccessPortSupportsSip

Description:

- The AccessPort supporting this SIP. More SIPs can be supported by the same AccessPort. This augment allows SIP to refer to its AccessPort despite TapiTopology model does not import TapiEquipment model.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_accessPort	AccessPort	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: CONDITIONAL_MANDATORY condition: OpenInterfaceModelAttribute AVC: NA <p>Description:</p> <p>Reference to the AccessPort. CONDITION: Mandatory where the SIP is directly supported by an access port.</p>

Table 406 – Attributes for class *AccessPortSupportsSip*

7.2.5 Device

Description:

- A logical grouping of Equipments and AccessPorts that are closely located and form a support a coherent system of related functions.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_equipment	Equipment	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Equipments of the device. CONDITION: Mandatory where the device has equipment.				
_accessPort	AccessPort	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Access ports of the device. CONDITION: Mandatory where access ports are present.				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 407 – Attributes for class *Device*

7.2.6 Equipment

Description:

- Represents any relevant physical thing. May be only expectation, only actual or both expectation and actual. Represents a field replaceable unit. May include non-field-replaceable details.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_containedHolder	Holder	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
References the Holder in an Equipment that is available to take other Equipments. For example: - Slot in a sub-rack - Slot in a Field Replaceable Unit that can take a small form-factor pluggable. CONDITION: Mandatory where the equipment has holders.				
category	EquipmentCategory	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute provides the identifier for the form of equipments regarded as having particular shared characteristics.				
equipmentLocation	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
Provides details of the location of the equipment within the context of containing equipments.				

Attribute Name	Type	Mult.	Access	Stereotypes
geographicalLocation	String	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: Deprecated OpenInterfaceModelAttribute • AVC: NA
Description:				
				The location of the equipment in a geographical context (e.g., lat long). This property is deprecated. CONDITION: Mandatory where there is a relevant geographical location and formal geolocation is not being used (only for equipments not in holders).
Description:				
isExpectedActualMismatch	Boolean Default value: <i>false</i>	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				Indicates where the expectation does not match the actual. This is false where there is no expectation. CONDITION: Mandatory where there is potential for expectation and hence the property may sometimes be not default.
Description:				
expectedEquipment	ExpectedEquipment	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				Provides details of expected equipment at the stated location and/or within the containing holder within the device. CONDITION: Mandatory where there is expectation to be stated.
Description:				
actualEquipment	ActualEquipment	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Provides details of a real equipment present at the stated location and/or within the containing holder within the device. CONDITION: Mandatory where a real equipment is to be represented.			
_geolocation	Geolocation	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The location of the equipment in a geographical context using formal coordinates. CONDITION: Mandatory where there is a relevant geographical location using formal coordinates (only for equipments not in holders).			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 408 – Attributes for class *Equipment*

7.2.7 Geolocation

Description:

- GPS location.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
altitude	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
	Distance above sea level. Measured in millimeters. CONDITION: Mandatory where altitude information is relevant and available.			
latitude	Real	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
	Relative position north or south on the Earth's surface, in decimal degree (DD) used to express latitude and longitude geographic coordinates. Range: "-90..90"			
longitude	Real	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
	Angular distance east or west on the Earth's surface in decimal degree (DD) used to express latitude and longitude geographic coordinates. Range: "-180..180"			

Table 409 – Attributes for class *Geolocation*

7.2.8 Holder

Description:

- Represents a space in an equipment in which another equipment can be fitted in the field. It must have at least one of actual holder or expected holder (and may have both).

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
expectedHolder	ExpectedHolder	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Details of the contained holder as stated for the expected equipment. CONDITION: Mandatory where an expected holder is to be stated.			
actualHolder	ActualHolder	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Details of the contained holder as stated for the actual equipment. CONDITION: Mandatory where an actual holder is to be stated.			
_occupyingFru	Equipment	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The field replaceable unit (FRU) that is occupying the holder. The occupying FRU may be only expectation, only actual or both. A holder may be unoccupied. An FRU may occupy more than one holder (using or blocking are intentionally not distinguished here). CONDITION: Mandatory where an occupying FRU is to be stated.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 410 – Attributes for class Holder

7.2.9 PhysicalContext

Description:

- The collection of all physical things to be described.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA			
_device	Device	0..*	R	
	Description: The list of all devices in the context. CONDITION: Mandatory where devices are present and to be listed.			

Attribute Name	Type	Mult.	Access	Stereotypes
_physicalSpan	PhysicalSpan	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				A list of all physical spans in the context. CONDITION: Mandatory where physical spans are present and to be listed.

Table 411 – Attributes for class *PhysicalContext*

7.2.10 PhysicalRoute

Description:

- The physical route of a connection is modeled as an ordered sequence of physical route element instances. The physical route is a description dedicated to the connection.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_physicalRouteElement	PhysicalRouteElement	1..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				A point in the PhysicalRoute. A PhysicalRoute must have atleast one point.
physicalRouteState	PhysicalRouteState Default value: CURRENT	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Provides optional resilience and state attributes to the PhysicalRoute. CONDITION: Mandatory where not always default.

Attribute Name	Type	Mult.	Access	Stereotypes
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 412 – Attributes for class *PhysicalRoute*

7.2.11 PhysicalRouteElement

Description:

- A PhysicalRouteElement describes equipment, connectors on those equipments and pins of those connectors that are involved in the physical route of the connection. The description may be in terms of access port or connector pin in route (at least one of access port or connector pin in route must be provided) or both. Where access port is provided alone, this may be because all pins in the connectors of the access port are used, because the connector pin detail id not known the and to its subset of connectorPins which are involved in the physical route. An access port may include connectorPins of more Equipments, e.g., in case of bidirectional access port shared by two "unidirectional"; Equipments. Connector pin details may be provided alone without an access port where there are no access ports modelled.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_accessPortInRoute	AccessPort	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	The AccessPort included in the physical route. CONDITION: Mandatory where AccessPort is used to define physical route.			
connectorPinInRoute	ConnectorPinAddress	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	The connectors and pins defining this point in the route where the access port alone is not sufficient or the access port is not provided. CONDITION: Mandatory where AccessPort is not used to define PhysicalRoute or where AccessPort requires clarification as it includes more connectorPins than are used in the route.			

Table 413 – Attributes for class *PhysicalRouteElement*

7.2.12 PhysicalRouteList

Description:

- The list of the PhysicalRoutes of a Connection.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_physicalRoute	PhysicalRoute	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: List of PhysicalRoutes composing the physical route of the Connection. CONDITION: Mandatory where a physical route is to be conveyed.				

Table 414 – Attributes for class *PhysicalRouteList*

7.2.13 PhysicalSpan

Description:

- An adjacency between AccessPorts. The adjacency is supported by a group of strands between pins of the AccessPorts. This is a physical abstraction.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_accessPort	AccessPort	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
	Description: The access ports that bound the physical span. This allows for simple point to point cases as well as multi-point cases and cases where the physical span has only one fully defined end.			
_abstractStrand	AbstractStrand	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Both the serial segments that form an end-end strand and the parallel end-end strands. CONDITION: Mandatory where abstract strands are to be stated.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 415 – Attributes for class *PhysicalSpan*

7.2.14 StrandJoint

Description:

- Represents a flow opportunity through a joint. Can represent flow opportunity through: - a connector - a splice - etc. Allows augmentation with impairments and other properties of the joint. Can be used: - as a single instance alone to represent properties that apply equally to each direction of flow - in combinations of multiple instances to represent impairments that are different for normal flow, reverse flow and reflections.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: AbstractStrand			
_toAbstractStrand	AbstractStrand	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: The strand to which the light from the StrandJoint is fed. There may be no reference where the strand joint is at: - visibility boundary - the connector that feeds the transponder. CONDITION: Mandatory where strand joint is not at far end.			

Attribute Name	Type	Mult.	Access	Stereotypes
applicableToFlowDirection	FlowDirection Default value: <i>BOTH</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The flow(s) to which the stated properties of this strand joint apply to. CONDITION: Mandatory where not default			
reflection	Boolean Default value: <i>false</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: Indicates that this strand joint states properties of a reflection. A reflection may be: - normal flow where the light passes from a strand (to strand joint) and then back to the same strand - contra flow where the light passes from the strand referenced in to abstract strand back to the same stand (that references the strand joint via to strand joint). The strand referenced in to abstract strand is the same strand that referenced the strand joint. The properties of the strand joint may apply to BOTH directions of reflection for the abstract strand. CONDITION: Mandatory where not default			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 416 – Attributes for class *StrandJoint*

7.2.15 SupportingPhysicalSpan

Description:

- The PhysicalSpan supporting this Link. More Links can be supported by the same PhysicalSpan. This augment allows Link to refer to its PhysicalSpans despite TapiTopology model does not import TapiEquipment model.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_physicalSpan	PhysicalSpan	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA <p>Description:</p> <p>Reference to the PhysicalSpan. CONDITION: Mandatory where the link is supported by a physical span.</p>

Table 417 – Attributes for class *SupportingPhysicalSpan*

7.3 Signals

7.4 Associations

7.4.1 ConnectorPinOnEquipment

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_equipment	none	Yes	Equipment	1
connectorpinaddress	none	No	ConnectorPinAddress	0..*

Table 418 – Member ends for association *ConnectorPinOnEquipment*

7.4.2 ContextHasDevices

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_device	composite	Yes	Device	0..*
tapiphysicalcontext	none	No	PhysicalContext	1

Table 419 – Member ends for association *ContextHasDevices*

7.4.3 ContextHasPhysicalSpans

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_physicalSpan	composite	Yes	PhysicalSpan	0..*
tapiphysicalcontext	none	No	PhysicalContext	1

Table 420 – Member ends for association *ContextHasPhysicalSpans*

7.4.4 DeviceHasAccessPort

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_accessPort	composite	Yes	AccessPort	0..*
device	none	No	Device	1

Table 421 – Member ends for association *DeviceHasAccessPort*

7.4.5 DeviceHasEquipment

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_equipment	composite	Yes	Equipment	0..*
device	none	No	Device	1

Table 422 – Member ends for association *DeviceHasEquipment*

7.4.6 EquipmentHadGeolocation

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_geolocation	composite	Yes	Geolocation	0..1
equipment	none	No	Equipment	1

Table 423 – Member ends for association *EquipmentHadGeolocation***7.4.7 EquipmentHasHolder**

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_containedHolder	composite	Yes	Holder	0..*
equipment	none	No	Equipment	1

Table 424 – Member ends for association *EquipmentHasHolder***7.4.8 HolderOccupiedByEquipment**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_occupyingFru	shared	Yes	Equipment	0..1
occupiedHolder	none	No	Holder	0..*

Table 425 – Member ends for association *HolderOccupiedByEquipment***7.4.9 InputToStrand**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_toAbstractStrand	none	Yes	AbstractStrand	0..1
strandjoint	none	No	StrandJoint	0..*

Table 426 – Member ends for association *InputToStrand***7.4.10 LinkSupportedByPhysicalSpan**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_physicalSpan	none	Yes	PhysicalSpan	0..1
supportingphysicalspan	none	No	SupportingPhysicalSpan	0..*

Table 427 – Member ends for association *LinkSupportedByPhysicalSpan*

7.4.11 NodeEdgePointSupportedByAccessPort

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_accessPort	none	Yes	AccessPort	0..1
supportingaccessport	none	No	AccessPortSupportsNep	0..*

Table 428 – Member ends for association *NodeEdgePointSupportedByAccessPort*

7.4.12 OutputFromStrand

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_toStrandJoint	none	Yes	StrandJoint	0..*
abstractstrand	none	No	AbstractStrand	0..1

Table 429 – Member ends for association *OutputFromStrand*

7.4.13 PhysicalRouteElementHasAccessPort

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_accessPortInRoute	none	Yes	AccessPort	0..1
physicalrouteelement	none	No	PhysicalRouteElement	0..1

Table 430 – Member ends for association *PhysicalRouteElementHasAccessPort*

7.4.14 PhysicalRouteHasPhysicalRouteElement

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_physicalRouteElement	composite	Yes	PhysicalRouteElement	1..*
physicalroute	none	No	PhysicalRoute	1

Table 431 – Member ends for association *PhysicalRouteHasPhysicalRouteElement*

7.4.15 PhysicalRouteListRoutes

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_physicalRoute	composite	Yes	PhysicalRoute	0..*
physicalroute1	none	No	PhysicalRouteList	1

Table 432 – Member ends for association *PhysicalRouteListRoutes***7.4.16 PhysicalSpanIsSupportedByStrands**

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_abstractStrand	composite	Yes	AbstractStrand	0..*
physicalspan	none	No	PhysicalSpan	1

Table 433 – Member ends for association *PhysicalSpanIsSupportedByStrands***7.4.17 PhysicalSpanJoinsAccessPorts**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_accessPort	none	Yes	AccessPort	1..*
parallelstrandspan	none	No	PhysicalSpan	0..1

Table 434 – Member ends for association *PhysicalSpanJoinsAccessPorts***7.4.18 ServiceInterfacePointSupportedByAccessPort**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_accessPort	none	Yes	AccessPort	0..1
sipsupportingaccessport	none	No	AccessPortSupportsSip	0..*

Table 435 – Member ends for association *ServiceInterfacePointSupportedByAccessPort***7.4.19 StrandHasStrandJoint**

Applied stereotypes:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_strandJoint	composite	Yes	StrandJoint	0..*
abstractstrand	none	No	AbstractStrand	1

Table 436 – Member ends for association *StrandHasStrandJoint***7.4.20 StrandIsSeriesOfStrands**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_adjacentStrand	shared	Yes	AbstractStrand	0..*
abstractstrand	none	No	AbstractStrand	0..1

Table 437 – Member ends for association *StrandIsSeriesOfStrands***7.4.21 StrandSplicedToStrand**

Applied stereotypes:

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_splicedStrand	none	Yes	AbstractStrand	0..2
abstractstrand	none	No	AbstractStrand	0..1

Table 438 – Member ends for association *StrandSplicedToStrand***7.5 Abstractions****7.5.1 AbstractStrandAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
AbstractStrand	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 439 – Member ends for class abstraction *AbstractStrandAugmentsEventNotif***7.5.2 AbstractStrandAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
AbstractStrand	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 440 – Member ends for class abstraction *AbstractStrandAugmentsEventNotifSignal***7.5.3 AbstractStrandAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
AbstractStrand	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 441 – Member ends for class abstraction *AbstractStrandAugmentsLogRecordBody***7.5.4 AccessPortAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
AccessPort	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 442 – Member ends for class abstraction *AccessPortAugmentsEventNotif***7.5.5 AccessPortAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
AccessPort	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 443 – Member ends for class abstraction *AccessPortAugmentsEventNotifSignal***7.5.6 AccessPortAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
AccessPort	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 444 – Member ends for class abstraction *AccessPortAugmentsLogRecordBody***7.5.7 AugmentsRootContext**

Augmenting Class	Augmented Class	Comment
PhysicalContext	TapiContext	Augments the base TAPI Context with PhysicalContext model.
target: "/TapiCommon:TapiContext:_context"		

Table 445 – Member ends for class abstraction *AugmentsRootContext***7.5.8 DeviceAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Device	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 446 – Member ends for class abstraction *DeviceAugmentsEventNotif***7.5.9 DeviceAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Device	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 447 – Member ends for class abstraction *DeviceAugmentsEventNotifSignal***7.5.10 DeviceAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Device	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 448 – Member ends for class abstraction *DeviceAugmentsLogRecordBody***7.5.11 EquipmentAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Equipment	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 449 – Member ends for class abstraction *EquipmentAugmentsEventNotif***7.5.12 EquipmentAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Equipment	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 450 – Member ends for class abstraction *EquipmentAugmentsEventNotifSignal***7.5.13 EquipmentAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Equipment	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 451 – Member ends for class abstraction *EquipmentAugmentsLogRecordBody***7.5.14 EquipmentObjectTypeAugmentsObjectType**

Augmenting Enumeration	Augmented Enumeration
EquipmentObjectType	TAPI_CONTEXT
<ul style="list-style-type: none"> • ABSTRACT_STRAND • ACCESS_PORT • DEVICE • EQUIPMENT • HOLDER • PHYSICAL_ROUTE • PHYSICAL_ROUTE_ELEMENT • PHYSICAL_SPAN • STRAND_JOINT 	
Comment	
Enumeration Augment.	

Table 452 – Member ends for enum abstraction *EquipmentObjectTypeAugmentsObjectType***7.5.15 HolderAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
Holder	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 453 – Member ends for class abstraction *HolderAugmentsEventNotif***7.5.16 HolderAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
Holder	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 454 – Member ends for class abstraction *HolderAugmentsEventNotifSignal***7.5.17 HolderAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
Holder	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 455 – Member ends for class abstraction *HolderAugmentsLogRecordBody***7.5.18 InterfaceRealizationDevice**

Augmenting Enumeration	Augmented Enumeration
PhysicalContext	EquipmentInventoryService
Comment	
The Device Interface Realization.	

Table 456 – Member ends for enum abstraction *InterfaceRealizationDevice***7.5.19 PhysicalRouteAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PhysicalRoute	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 457 – Member ends for class abstraction *PhysicalRouteAugmentsEventNotif***7.5.20 PhysicalRouteAugmentsEventNotifSignal**

Augmenting Class	Augmented Class	Comment
PhysicalRoute	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 458 – Member ends for class abstraction *PhysicalRouteAugmentsEventNotifSignal***7.5.21 PhysicalRouteAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
PhysicalRoute	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 459 – Member ends for class abstraction *PhysicalRouteAugmentsLogRecordBody***7.5.22 PhysicalRouteElementAugmentsEventNotif**

Augmenting Class	Augmented Class	Comment
PhysicalRouteElement	EventNotification	
target: "/TapiCommon:Context: context/TapiNotification:NotificationContext: notificationContext/TapiNotification:NotificationContext: eventNotification"		

Table 460 – Member ends for class abstraction *PhysicalRouteElementAugmentsEventNotif*

7.5.23 PhysicalRouteElementAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
PhysicalRouteElement	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 461 – Member ends for class abstraction *PhysicalRouteElementAugmentsEventNotifSignal*

7.5.24 PhysicalRouteElementAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
PhysicalRouteElement	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 462 – Member ends for class abstraction *PhysicalRouteElementAugmentsLogRecordBody*

7.5.25 PhysicalRouteListAugmentsConnection

Augmenting Class	Augmented Class	Comment
PhysicalRouteList	Connection	This augment allows Connection to describe its physical route(s) by listing all involved AccessPorts, despite TapiConnectivity model does not import TapiEquipment model.
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connection"		

Table 463 – Member ends for class abstraction *PhysicalRouteListAugmentsConnection*

7.5.26 PhysicalSpanAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
PhysicalSpan	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 464 – Member ends for class abstraction *PhysicalSpanAugmentsEventNotif*

7.5.27 PhysicalSpanAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
PhysicalSpan	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 465 – Member ends for class abstraction *PhysicalSpanAugmentsEventNotifSignal*

7.5.28 PhysicalSpanAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
PhysicalSpan	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 466 – Member ends for class abstraction *PhysicalSpanAugmentsLogRecordBody*

7.5.29 StrandJointAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
StrandJoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 467 – Member ends for class abstraction *StrandJointAugmentsEventNotif*

7.5.30 StrandJointAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
StrandJoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 468 – Member ends for class abstraction *StrandJointAugmentsEventNotifSignal*

7.5.31 StrandJointAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
StrandJoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 469 – Member ends for class abstraction *StrandJointAugmentsLogRecordBody*

7.5.32 SupportingAccessPortAugmentsNEP

Augmenting Class	Augmented Class	Comment
AccessPortSupportsNep	NodeEdgePoint	This augment allows NEP to refer to its AccessPorts despite TapiTopology model does not import TapiEquipment model.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint"		

Table 470 – Member ends for class abstraction *SupportingAccessPortAugmentsNEP*

7.5.33 SupportingAccessPortAugmentsSIP

Augmenting Class	Augmented Class	Comment
AccessPortSupportsSip	ServiceInterfacePoint	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_serviceInterfacePoint"		

Table 471 – Member ends for class abstraction *SupportingAccessPortAugmentsSIP*

7.5.34 SupportingPhysicalSpanAugmentsLink

Augmenting Class	Augmented Class	Comment
SupportingPhysicalSpan	Diagrams	This augment allows Link to refer to its PhysicalSpans despite TapiTopology model does not import TapiEquipment model.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_link"		

Table 472 – Member ends for class abstraction *SupportingPhysicalSpanAugmentsLink*

7.6 Data Types

7.6.1 ActualEquipment

Description:

- The equipment that is actually present in the physical network. It will expose all dynamic properties and some critical static properties.

Attribute Name	Type	Mult.	Access	Stereotypes
commonEquipmentProperties	CommonEquipmentProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: Properties related to equipment type.				
commonActualProperties	CommonActualProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: Properties related to equipment instance.				

Attribute Name	Type	Mult.	Access	Stereotypes
actualNonFieldReplaceableModule	ActualNonFieldReplaceableModule	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Details of non-field-replaceable modules. CONDITION: Mandatory where there are non-field-replaceable modules.

Table 473 – Attributes for data type *ActualEquipment*

7.6.2 ActualHolder

Description:

- A holder in the ActualEquipment.

Attribute Name	Type	Mult.	Access	Stereotypes
commonHolderProperties	CommonHolderProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				Properties related to the holder type.

Table 474 – Attributes for data type *ActualHolder*

7.6.3 ActualNonFieldReplaceableModule

Description:

- A structure that represents an actual equipment that cannot be replaced in the field. Is simply a subordinate part of an ActualEquipment (FRU). Does not have any exposed holders (any associated holders are assumed to belong to the containing FRU). Does not have any connectors (any associated connectors are assumed to belong to the containing FRU).

Attribute Name	Type	Mult.	Access	Stereotypes
commonActualProperties	CommonActualProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				Properties related to equipment instance.

Attribute Name	Type	Mult.	Access	Stereotypes
commonEquipmentProperties	CommonEquipmentProperties	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Properties related to equipment type.
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 475 – Attributes for data type *ActualNonFieldReplaceableModule*

7.6.4 CommonActualProperties

Description:

- Properties common to actual Equipment instance.

Attribute Name	Type	Mult.	Access	Stereotypes
assetInstanceIdentifier	String	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute represents the asset identifier of this instance allocated by the owner/operator. May be an empty string where no value has been allocated. May be not present when not supported. The value may be provided written per instance. CONDITION: Mandatory where there is an opportunity to allocate an identifier on an instance basis and where an identifier has been allocated.			
isPowered	Boolean Default value: <i>true</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The state of the power being supplied to the equipment. Note that this attribute summarizes the power state. Full details on the actual power system would be provided from a number of Power function (e.g. different voltage supplies). CONDITION: Mandatory where not default and the power state of the hardware is known.			
manufactureDate	DateAndTime	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The date on which this instance is manufactured (as provided by the actual hardware). CONDITION: Mandatory where the manufacture date is provided by the actual hardware.			
serialNumber	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The serial number of this (as provided by the actual hardware). CONDITION: Mandatory where the serial number is provided by the actual hardware.			

Attribute Name	Type	Mult.	Access	Stereotypes
temperature	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				The measured temperature of the Equipment (stated in Celsius). If the temperature is supported but temporarily not available then this may be represented by max real number. CONDITION: Mandatory where the equipment provides a temperature measurement.

Table 476 – Attributes for data type *CommonActualProperties*

7.6.5 CommonEquipmentProperties

Description:

- Properties common to all equipments.

Attribute Name	Type	Mult.	Access	Stereotypes
assetTypeIdentifier	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Represents the invariant properties of the equipment asset allocated by the owner/operator that define and characterize the type of equipment. CONDITION: Mandatory where a operator/user asset identifier is available to the controller.
equipmentTypeDescription	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Text describing the type of Equipment. CONDITION: Mandatory where a description is available.

Attribute Name	Type	Mult.	Access	Stereotypes
equipmentTypeIdentifier	String	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA
Description:				
	This attribute identifies the part type of the equipment.			
equipmentTypeName	String	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: <p>CONDITIONAL_MANDATORY</p> <ul style="list-style-type: none"> • condition: <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA
Description:				
	This attribute identifies the type of the equipment. CONDITION: Mandatory where there is a name in addition to the equipment type identifier.			
equipmentTypeVersion	String	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: <p>CONDITIONAL_MANDATORY</p> <ul style="list-style-type: none"> • condition: <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA
Description:				
	This attribute identifies the version of the equipment. CONDITION: Mandatory where there is a known version of the type.			
manufacturerIdentifier	String	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA
Description:				
	The formal unique identifier of the manufacturer.			
manufacturerName	String	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The formal name of the manufacturer of the Equipment.			

Table 477 – Attributes for data type *CommonEquipmentProperties***7.6.6 CommonHolderProperties****Description:**

- Properties common to all holders.

Attribute Name	Type	Mult.	Access	Stereotypes
holderCategory	HolderCategory	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: The type of holder.				
isGuided	Boolean Default value: <i>true</i>	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description: This attribute indicates whether the holder has guides that constrain the position of the equipment in the holder or not. CONDITION: Mandatory where not default.				
holderLocation	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: The relative position of the holder in the context of its containing equipment along with the position of that containing Equipment (and further recursion).				

Table 478 – Attributes for data type *CommonHolderProperties***7.6.7 ConnectorPinAddress****Description:**

- The identification of the location of the Connector and/or Pin.

Attribute Name	Type	Mult.	Access	Stereotypes
connectorIdentification	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 2 • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	Identification of the Connector in the context of the referenced Equipment. CONDITION: Mandatory where there is more than one connector on the equipment.			
pinIdentification	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 3 • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	Where relevant, identification of the Pin in the context of the connector. Where the whole connector is used, then individual Pins need not be identified. Simple alternative to pinAndRole. CONDITION: Mandatory where the pin and role is not being used but there is a need to simply identify the relevant pin.			
pinAndRole	PinAndRole	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	If there is more than one pin used in a connector and/or there is a need to identify the role of one or more pins, then this property can be used. For simple cases pinIdentification can be used instead. CONDITION: Mandatory where there is more than one pin and/or a need to identify pin role.			
_equipment	Equipment	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Equipment instance supporting the Connector/Pin.			

Table 479 – Attributes for data type *ConnectorPinAddress*

7.6.8 ExpectedEquipment

Description:

- A definition of the restrictions on the equipment that is expected to be present in the physical network at a particular "place". The expected equipment will state the type and may constrain any other invariant properties. It may also provide desired ranges for dynamic properties.

Attribute Name	Type	Mult.	Access	Stereotypes
commonEquipmentProperties	CommonEquipmentProperties	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Properties common to all aspects of Equipment. CONDITION: Mandatory where not equipment not expected.				
expectedNonFieldReplaceableModule	ExpectedNonFieldReplaceableModule	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Details of modules attached to the expected equipment where those modules are essentially part of the equipment and are not replaceable in the field. Note that there may be modules reported by the actual equipment that are not declared in the expectation detail. Note that mismatch may not account for this detail. CONDITION: Mandatory where expected equipment has known non-field-replaceable modules.				
expectedHolder	ExpectedHolder	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
A definition of a holder expected in the ActualEquipment (i.e., an ActualHolder) as part of the constraints provided by the ExpectedEquipment. CONDITION: Mandatory where expected equipment has known holders.				

Attribute Name	Type	Mult.	Access	Stereotypes
equipmentNotExpected	Boolean Default value: <i>false</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Indicates that it is expected that there be no equipment in the holder. This may be set when there is an intended blanking plate (covering the empty holder) that is not detectable or when the holder is intended to be completely empty. CONDITION: Mandatory where not default.

Table 480 – Attributes for data type *ExpectedEquipment*

7.6.9 ExpectedHolder

Description:

- A definition of a holder expected in the ActualEquipment (i.e., an ActualHolder) as part of the constraints provided by the ExpectedEquipment.

Attribute Name	Type	Mult.	Access	Stereotypes
commonHolderProperties	CommonHolderProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Properties common to all holders.

Table 481 – Attributes for data type *ExpectedHolder*

7.6.10 ExpectedNonFieldReplaceableModule

Description:

- A structure that represents an expected equipment that cannot be replaced in the field. Is simply a subordinate part of an ExpectedEquipment (FRU). Does not have any exposed holders (any associated holders are assumed to belong to the containing FRU). Does not have any connectors (any associated connectors are assumed to belong to the containing FRU).

Attribute Name	Type	Mult.	Access	Stereotypes
commonEquipmentProperties	CommonEquipmentProperties	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Properties common to all equipments.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 482 – Attributes for data type *ExpectedNonFieldReplaceableModule*

7.6.11 PinAndRole

Description:

- Provides an opportunity, for a pin, to give the location of the pin and the role of the pin.

Attribute Name	Type	Mult.	Access	Stereotypes
locationInConnector	String	1	R	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The named location of the pin in the context of the connector. This is likely to be the normal numbering/naming for the type of connector, e.g. "7", "6-GND", "Common" etc.			
pinRole	String	0..*	R	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: It is not always necessary to specify a role (or list of roles) as the connector locationInConnector may be sufficient (as these are sometimes clearly role based). Each entry represents a role in the context of the specific access port. Each entry ties the pin to a functional element in the associated NEP(s) etc. For example: - a pin might carry several distinct signals where each signal is identified in the list - a pin may carry a signal and power - a signal carried by a pin may be the receive flow (INPUT) to a bidirectional NEP or the transmit flow (OUTPUT) or indeed both (BIDIRECTIONAL). CONDITION: Mandatory where pin role is to be stated.			
pinName	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Where the pin has a distinct location identifier and a distinct name this field can be used for the name. For example: - locationInConnector = 6, pinName = GND CONDITION: Mandatory where pin name is relevant as the description is at pin granularity.			
connectorPinOrientation	ConnectorAndPinOrientation	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: States the orientations of the pin/connector. Most connector schemes are asymmetric such that there are two orientations of the connector where a mating is only possible between two connectors of different orientations. A multi-pin connector may have a mix of pin orientations. In this case, it is expected that the dominant orientation of pin is chosen for the connector orientation. CONDITION: Mandatory where connector/pin orientation is known and to be stated.			

Table 483 – Attributes for data type *PinAndRole*

7.7 Enumerations

7.7.1 ConnectorAndPinOrientation

Description:

- Most connector schemes are asymmetric such that there are two orientations of the connector where a mating is only possible between two connectors of different orientations. A multi-pin connector may have a mix of pin orientations. In this case, it is expected that the dominant orientation of pin is chosen for the connector orientation.

Contains Enumeration Literals:

- MALE:
 - The connecting elements are dominantly protrusions.
- FEMALE:
 - The connecting elements are dominantly indentations.
- SYMMETRIC_NEUTRAL:
 - The pin (and housing) orientation combination is such that it is symmetric so a connector is compatible with itself. The connecting element may be a surface rather than protrusions or indentations.

7.7.2 EquipmentCategory

Description:

- The form of equipment.

Contains Enumeration Literals:

- SUBRACK:
 - An assembly with holders designed to accommodate CIRCUIT_PACKs. The assembly is designed to be mounted in a RACK.
- CIRCUIT_PACK:
 - An assembly with connectors compatible with those in a holder. The assembly is designed to be mounted in a holder (SLOT) of a SUBRACK. May also support holders (SLOTS) for SMALL_FORMFACTOR_PLUGGABLEs.
- SMALL_FORMFACTOR_PLUGGABLE:
 - A small assembly (compared to a CIRCUIT_PACK) with connectors compatible with those in a holder. The assembly is designed to be mounted in a holder (SLOT) of a CIRCUIT_PACK or STAND_ALONE_UNIT.
- STAND_ALONE_UNIT:
 - An assembly with connectors for cabling and potentially with holders. The assembly is designed to be mounted in a freeform environment (on a table or simple mechanical cabinet). May support holders (SLOTS) for CIRCUIT_PACKs or for SMALL_FORMFACTOR_PLUGGABLEs.
- RACK:
 - A mechanical assembly with cabling and predefined mounting points for particular SUBRACK types. The assembly is designed to be mounted on the floor in a row with other RACKs.

7.7.3 EquipmentObjectType

Description:

- The list of TAPI Equipment Object types/classes.

Contains Enumeration Literals:

- DEVICE:
- ACCESS_PORT:
- EQUIPMENT:
- HOLDER:
- PHYSICAL_SPAN:
- ABSTRACT_STRAND:
- STRAND_JOINT:

- PHYSICAL_ROUTE:
- PHYSICAL_ROUTE_ELEMENT:

7.7.4 FlowDirection

Description:

- The direction of flow.

Contains Enumeration Literals:

- NORMAL_FLOW:
 - Applies to the normal flow of light through the strand joint as expressed via the "to strand joint" statement of a strand.
- CONTRA_FLOW:
 - The reverse of the NORMAL_FLOW. The light flows to the strand that references the strand joint with "to strand joint".
- BOTH:
 - The strand joint statement applies to both normal and contra flow.

7.7.5 HolderCategory

Description:

- The form of holder.

Contains Enumeration Literals:

- SLOT:
 - A guided holder with fixed connectors. The guided holder is designed to take a particular form of CIRCUIT_PACK or SMALL_FORMFACTOR_PLUGGABLE

7.7.6 PhysicalRouteState

Description:

- Potential PhysicalRoute states concerning the service support.

Contains Enumeration Literals:

- CURRENT:
 - The PhysicalRoute instance identified is the current PhysicalRoute, i.e., is the one that is active and selected to support service.
- NOT_CURRENT:
 - The PhysicalRoute instance is not the one supporting the service.
- UNKNOWN:
 - The PhysicalRoute state is unknown.

7.8 Primitives

8 Virtual Network Model

TapiVirtualNetwork: This module contains TAPI Virtual Network Model definitions. Source: TapiVirtualNetwork.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

8.1 Diagrams

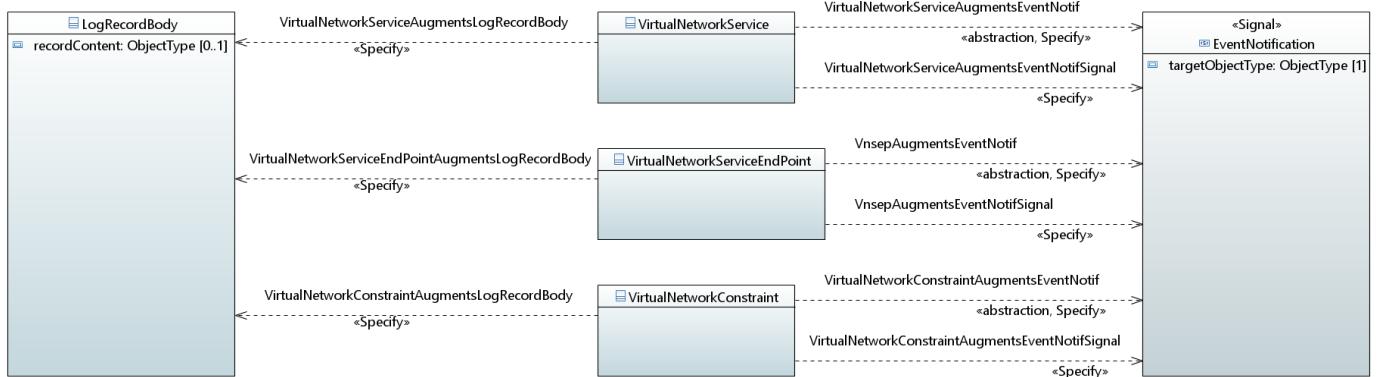


Figure 34 – Diagram *VirtualNetworkNotifAndStream*

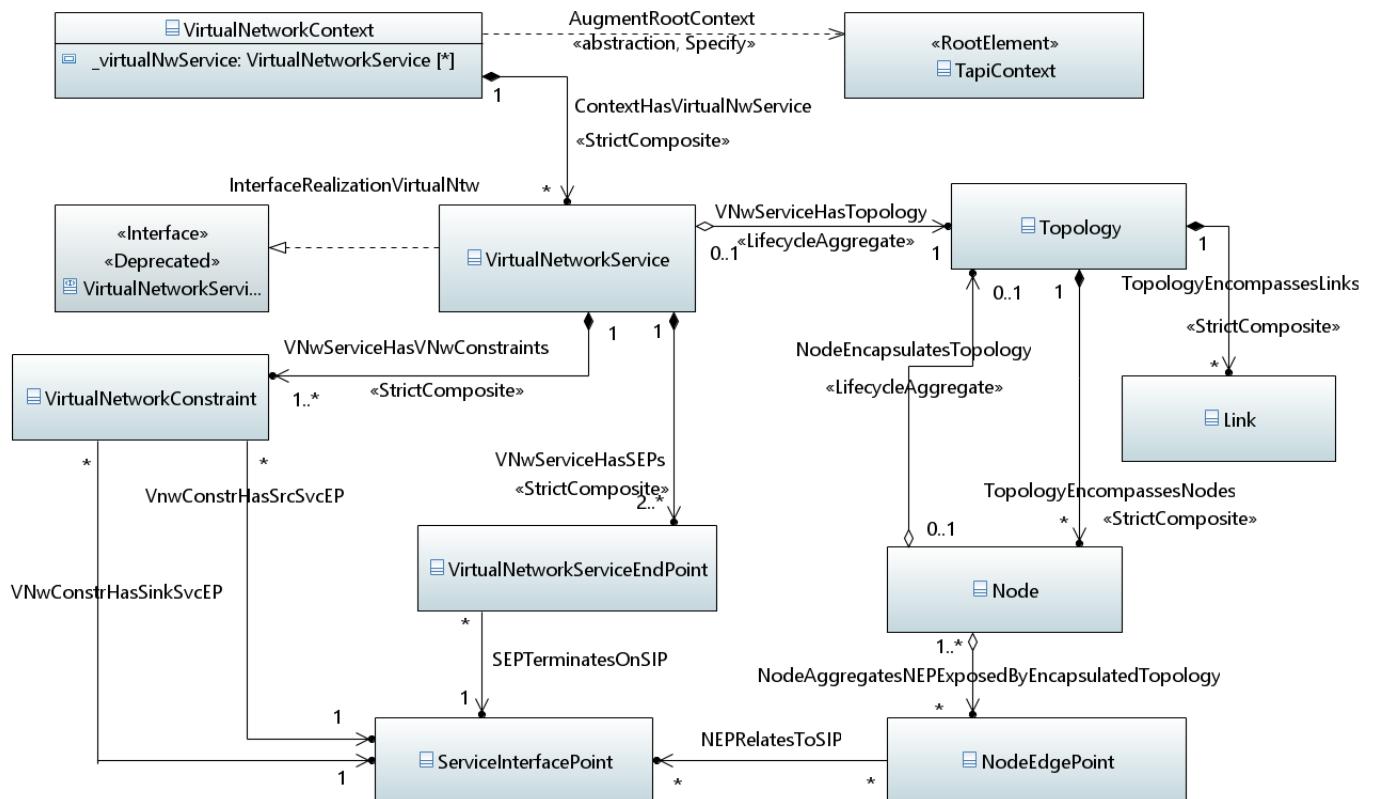
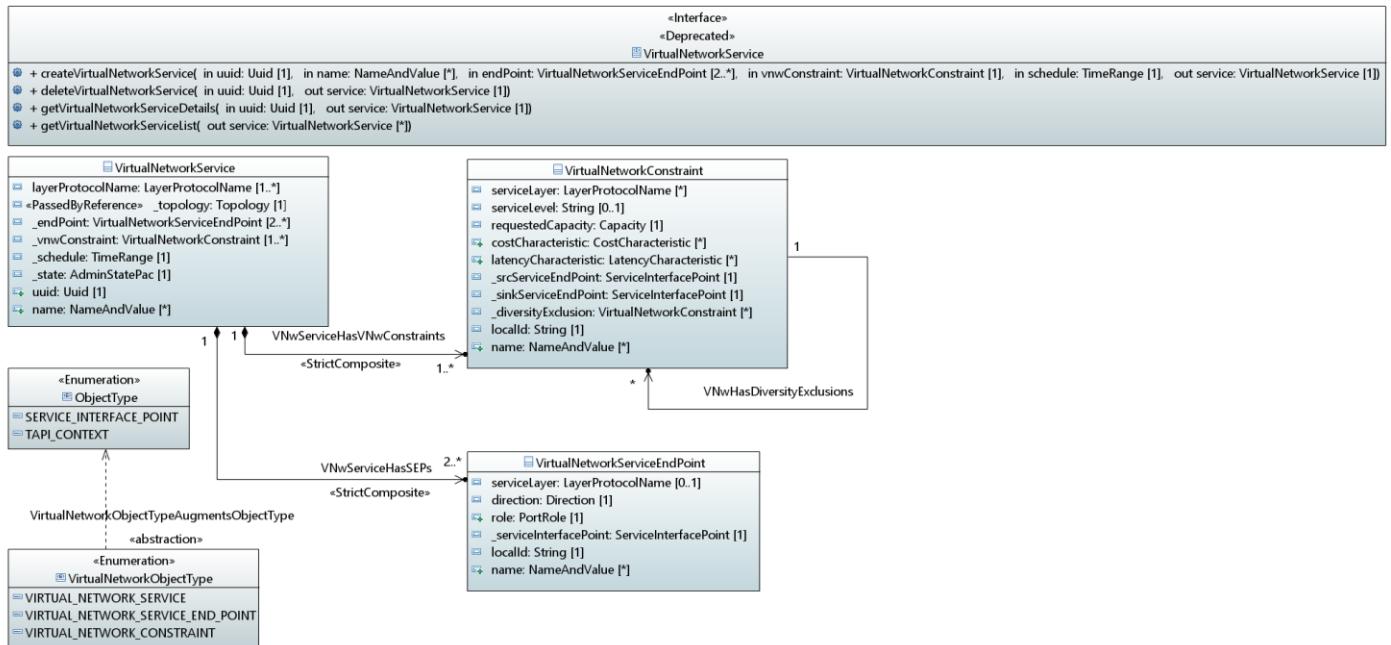


Figure 35 – Diagram *VirtualNetworkService*

Figure 36 – Diagram *VirtualNwDetails*

8.2 Classes

8.2.1 VirtualNetworkConstraint

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
serviceLayer	LayerProtocolName	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
serviceLevel	String	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: An abstract value the meaning of which is mutually agreed – typically represents metrics such as - Class of service, priority, resiliency, availability			
requestedCapacity	Capacity	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
costCharacteristic	CostCharacteristic	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The list of costs where each cost relates to some aspect of the TopologicalEntity.			
latencyCharacteristic	LatencyCharacteristic	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The effect on the latency of a queuing process. This only has significant effect for packet based systems and has a complex characteristic.			
_srcServiceEndPoint	ServiceInterfacePoint	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_sinkServiceEndPoint	ServiceInterfacePoint	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
_diversityExclusion	VirtualNetworkConstraint	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 484 – Attributes for class *VirtualNetworkConstraint*

8.2.2 VirtualNetworkContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the virtual network description. An instance of this class includes its VirtualNetworkService instances.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
_virtualNwService	VirtualNetworkService	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 485 – Attributes for class *VirtualNetworkContext*

8.2.3 VirtualNetworkService

Description:

- The ForwardingConstruct (FC) object class models enabled potential for forwarding between two or more LTPs and like the LTP supports any transport protocol including all circuit and packet forms. At the lowest level of recursion, a FC represents a cross-connection within an NE.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	LayerProtocolName	1..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
_topology	Topology	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA PassedByReference

Attribute Name	Type	Mult.	Access	Stereotypes
_endPoint	VirtualNetworkServiceEndPoint	2..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_vnwConstraint	VirtualNetworkConstraint	1..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_schedule	TimeRange	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_state	AdminStatePac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: true • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 486 – Attributes for class *VirtualNetworkService***8.2.4 VirtualNetworkServiceEndPoint****Description:**

- The association of the FC to LTPs is made via EndPoints. The EndPoint (EP) object class models the access to the FC function. The traffic forwarding between the associated EPs of the FC depends upon the type of FC and may be associated with FcSwitch object instances. In cases where there is resilience the EndPoint may convey the resilience role of the access to the FC. It can represent a protected (resilient/reliable) point or a protecting (unreliable working or protection) point. The EP replaces the Protection Unit of a traditional protection model. The ForwardingConstruct can be considered as a component and the EndPoint as a Port on that component

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
serviceLayer	LayerProtocolName	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
direction	Direction	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
role	PortRole	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The role of the (conceptual) port of the associated VirtualNetworkService.				
_serviceInterfacePoint	ServiceInterfacePoint	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 487 – Attributes for class *VirtualNetworkServiceEndPoint*

8.3 Signals

8.4 Associations

8.4.1 ContextHasVirtualNwService

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_virtualNwService	composite	Yes	VirtualNetworkService	0..*
virtualnetworkcontext	none	No	VirtualNetworkContext	1

Table 488 – Member ends for association *ContextHasVirtualNwService***8.4.2 SEPTerminatesOnSIP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_serviceInterfacePoint	none	Yes	ServiceInterfacePoint	1
_vnwServicePort	none	No	VirtualNetworkServiceEndPoint	0..*

Table 489 – Member ends for association *SEPTerminatesOnSIP***8.4.3 VNwConstrHasSinkSvcEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_sinkServiceEndPoint	none	Yes	ServiceInterfacePoint	1
virtualnetworkconstraint	none	No	VirtualNetworkConstraint	0..*

Table 490 – Member ends for association *VNwConstrHasSinkSvcEP***8.4.4 VNwHasDiversityExclusions**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_diversityExclusion	none	Yes	VirtualNetworkConstraint	0..*
_vnwConstraint	none	No	VirtualNetworkConstraint	1

Table 491 – Member ends for association *VNwHasDiversityExclusions***8.4.5 VNwServiceHasSEPs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_endPoint	composite	Yes	VirtualNetworkServiceEndPoint	2..*
_service	none	No	VirtualNetworkService	1

Table 492 – Member ends for association *VNwServiceHasSEPs***8.4.6 VNwServiceHasTopology**

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_topology	shared	Yes	Topology	1
_vnwService	none	No	VirtualNetworkService	0..1

Table 493 – Member ends for association *VNwServiceHasTopology***8.4.7 VNwServiceHasVNwConstraints**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_vnwConstraint	composite	Yes	VirtualNetworkConstraint	1..*
_service	none	No	VirtualNetworkService	1

Table 494 – Member ends for association *VNwServiceHasVNwConstraints***8.4.8 VnwConstrHasSrcSvcEP**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_srcServiceEndPoint	none	Yes	ServiceInterfacePoint	1
virtualnetworkconstraint	none	No	VirtualNetworkConstraint	0..*

Table 495 – Member ends for association *VnwConstrHasSrcSvcEP***8.5 Abstractions****8.5.1 AugmentRootContext**

Augmenting Class	Augmented Class	Comment
VirtualNetworkContext	TapiContext	Augments the base TAPI Context with VirtualNetworkContext model.
target: "/TapiCommon:Context:_context"		

Table 496 – Member ends for class abstraction *AugmentRootContext***8.5.2 InterfaceRealizationVirtualNtw**

Augmenting Enumeration	Augmented Enumeration
VirtualNetworkService	VirtualNetworkService
Comment	
The Virtual Network Interface Realization.	

Table 497 – Member ends for enum abstraction *InterfaceRealizationVirtualNtw*

8.5.3 VirtualNetworkConstraintAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
VirtualNetworkConstraint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 498 – Member ends for class abstraction *VirtualNetworkConstraintAugmentsEventNotif*

8.5.4 VirtualNetworkConstraintAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
VirtualNetworkConstraint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 499 – Member ends for class abstraction *VirtualNetworkConstraintAugmentsEventNotifSignal*

8.5.5 VirtualNetworkConstraintAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
VirtualNetworkConstraint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 500 – Member ends for class abstraction *VirtualNetworkConstraintAugmentsLogRecordBody*

8.5.6 VirtualNetworkObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
VirtualNetworkObjectType	ObjectType
<ul style="list-style-type: none"> • VIRTUAL_NETWORK_CONSTRAINT • VIRTUAL_NETWORK_SERVICE • VIRTUAL_NETWORK_SERVICE_END_POINT 	
Comment	
Enumeration Augment.	

Table 501 – Member ends for enum abstraction *VirtualNetworkObjectTypeAugmentsObjectType*

8.5.7 VirtualNetworkServiceAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
VirtualNetworkService	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 502 – Member ends for class abstraction *VirtualNetworkServiceAugmentsEventNotif*

8.5.8 VirtualNetworkServiceAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
VirtualNetworkService	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 503 – Member ends for class abstraction *VirtualNetworkServiceAugmentsEventNotifSignal*

8.5.9 VirtualNetworkServiceAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
VirtualNetworkService	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 504 – Member ends for class abstraction *VirtualNetworkServiceAugmentsLogRecordBody*

8.5.10 VirtualNetworkServiceEndPointAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
VirtualNetworkServiceEndPoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 505 – Member ends for class abstraction *VirtualNetworkServiceEndPointAugmentsLogRecordBody*

8.5.11 VnsepAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
VirtualNetworkServiceEndPoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 506 – Member ends for class abstraction *VnsepAugmentsEventNotif*

8.5.12 VnsepAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
VirtualNetworkServiceEndPoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 507 – Member ends for class abstraction *VnsepAugmentsEventNotifSignal*

8.6 Data Types

8.7 Enumerations

8.7.1 VirtualNetworkObjectType

Description:

- The list of TAPI Virtual Network Object types/classes.

Contains Enumeration Literals:

- VIRTUAL_NETWORK_SERVICE:
- VIRTUAL_NETWORK_SERVICE_END_POINT:
- VIRTUAL_NETWORK_CONSTRAINT:
 - The VirtualNetworkConstraint class.

8.8 Primitives

9 Notification Model

TapiNotification: This module contains TAPI Notification Model definitions. Source: TapiNotification.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

9.1 Diagrams

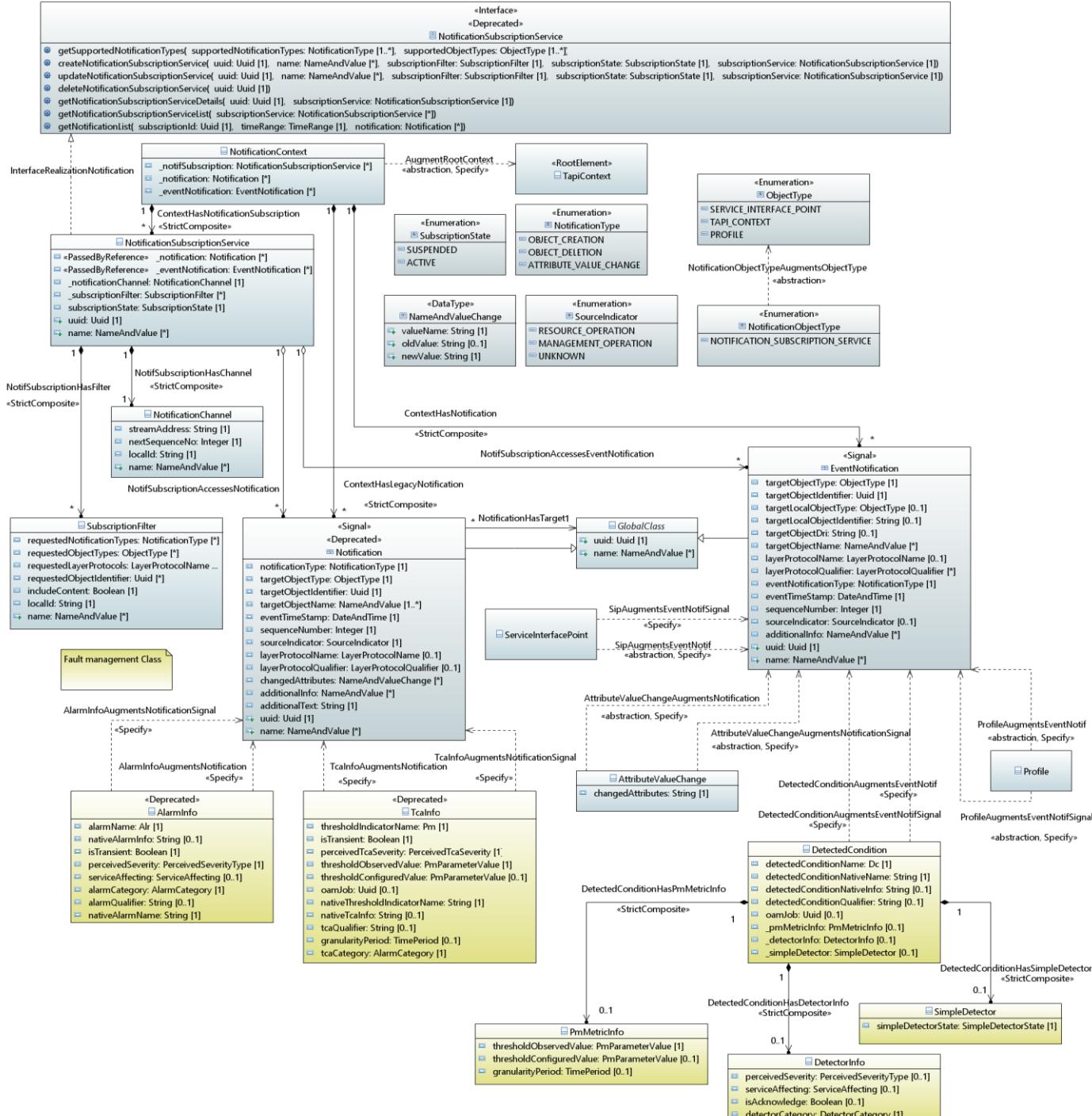


Figure 37 – Diagram *NotificationServiceDetails*

9.2 Classes

9.2.1 AttributeValueChange

Description:

- Object notification related information.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
changedAttributes	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA <p>Description: The list of relevant changed attributes and their values.</p>

Table 508 – Attributes for class *AttributeValueChange*

9.2.2 NotificationChannel

Description:

- The channel/stream to which the subscribed notifications are published.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
streamAddress	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The address/location/URI of the channel/stream to which the subscribed notifications are published. The format is typically dependent on the implementation protocol & mechanism and hence is typed as a string.			
nextSequenceNo	Integer	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The sequence number of the next notification that will be published on the channel.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 509 – Attributes for class *NotificationChannel*

9.2.3 NotificationContext

Description:

- This object class represents the scope of control that a particular SDN controller has with respect to a particular network, specifically regarding the notification description. An instance of this class includes its NotificationSubscriptionService, (legacy) Notification and EventNotification instances.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_notifSubscription	NotificationSubscriptionService	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The included NotificationSubscriptionService instances.			
_notification	Notification	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The included Notification instances.			
_eventNotification	EventNotification	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The included Event Notification instances.			

Table 510 – Attributes for class *NotificationContext*

9.2.4 NotificationSubscriptionService

Description:

- A NotificationSubscriptionService represents an "intent-like" request for the notification subscription. The NotificationSubscriptionService is a container for subscription request details.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_notification	Notification	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA PassedByReference
Description:				
The Notification instances associated to this NotificationSubscriptionService instance.				
_eventNotification	EventNotification	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA PassedByReference
Description:				
The EventNotification instances associated to this NotificationSubscriptionService instance.				
_notificationChannel	NotificationChannel	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The NotificationChannel instance of this NotificationSubscriptionService instance.				
_subscriptionFilter	SubscriptionFilter	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The SubscriptionFilter instance of this NotificationSubscriptionService instance.				
subscriptionState	SubscriptionState	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The SubscriptionState value.				

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 511 – Attributes for class *NotificationSubscriptionService*

9.2.5 SubscriptionFilter

Description:

- A SubscriptionFilter represents an "intent-like" request for the filters of the related notification subscription. The SubscriptionFilter is a container for filter request details.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
requestedNotificationTypes	NotificationType	0..*	RW	OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The requested NotificationType value(s).

Attribute Name	Type	Mult.	Access	Stereotypes
requestedObjectTypes	ObjectType	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The requested ObjectType value(s).			
requestedLayerProtocols	LayerProtocolName	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The requested layer protocol value(s).			
requestedObjectIdentifier	Uuid	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The requested object identifier (UUID) value(s).			
includeContent	Boolean	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Indicates whether the published Notification includes content or just the Notification Id (which enables retrieval of the notification at the later stage).			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	An identifier that is unique in the context of the GlobalClass from which it is inseparable.			

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 512 – Attributes for class *SubscriptionFilter*

9.3 Signals

9.3.1 EventNotification

Description:

- The Notification signal. OMG UML(R) Version 2.5.1: "A Signal is a specification of a kind of communication between objects in which a reaction is asynchronously triggered in the receiver without a reply. The data carried by the communication are represented as attributes of the Signal."

Applied stereotypes:

- OpenModelNotification
 - triggerConditionList: invalid
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
targetObjectType	ObjectType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
targetObjectIdentifier	Uuid	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
targetLocalObjectType	ObjectType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to the object instance of a local class, whose global object has targetObjectType value.			
targetLocalObjectIdentifier	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to the object instance of a local class, whose global object has targetObjectIdentifier value.			
targetObjectDri	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Data Resource Identifier of the target object as per RFC 8040.			
targetObjectName	NameAndValue	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to the object instance with this list of names.			
layerProtocolName	LayerProtocolName	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to a resource with this layer protocol value.			
layerProtocolQualifier	LayerProtocolQualifier	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to a resource with these layer protocol qualifier values.			

Attribute Name	Type	Mult.	Access	Stereotypes
eventNotificationType	NotificationType	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
eventTimeStamp	DateAndTime	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The best knowledge of the time of the event which originated this Notification instance.			
sequenceNumber	Integer	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	A monotonous increasing sequence number associated with the Notification instances. The exact semantics of how this sequence number is assigned (per channel or subscription or source or system) is left undefined.			
sourceIndicator	SourceIndicator	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The possible source of this Notification instance.			
additionalInfo	NameAndValue	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}.'+[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

9.3.2 Notification

Description:

- The Notification signal. OMG UML(R) Version 2.5.1: "A Signal is a specification of a kind of communication between objects in which a reaction is asynchronously triggered in the receiver without a reply. The data carried by the communication are represented as attributes of the Signal."

Applied stereotypes:

- OpenModelNotification
 - triggerConditionList: invalid
 - support: MANDATORY
- Deprecated

Attribute Name	Type	Mult.	Access	Stereotypes
notificationType	NotificationType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA Description: The Notification type.
targetObjectType	ObjectType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA Description: The Notification instance is related to the object instance with this ObjectType value.
targetObjectIdentifier	Uuid	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA Description: The Notification instance is related to the object instance with this UUID value.

Attribute Name	Type	Mult.	Access	Stereotypes
targetObjectName	NameAndValue	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to the object instance with this list of names.			
eventTimeStamp	DateAndTime	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The best knowledge of the time of the event which originated this Notification instance.			
sequenceNumber	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	A monotonous increasing sequence number associated with the Notification instances. The exact semantics of how this sequence number is assigned (per channel or subscription or source or system) is left undefined.			
sourceIndicator	SourceIndicator	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The possible source of this Notification instance.			
layerProtocolName	LayerProtocolName	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to a resource with this layer protocol value.			
layerProtocolQualifier	LayerProtocolQualifier	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The Notification instance is related to a resource with this layer protocol qualifier value.			

Attribute Name	Type	Mult.	Access	Stereotypes
changedAttributes	NameAndValueChange	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The list of relevant changed attributes and their values.			
additionalInfo	NameAndValue	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: Name and value list available for unspecified content.			
additionalText	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: Text available for unspecified content.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

9.4 Associations

9.4.1 ContextHasLegacyNotification

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_notification	composite	Yes	Notification	0..*
notificationcontext	none	No	NotificationContext	1

Table 513 – Member ends for association *ContextHasLegacyNotification*

9.4.2 ContextHasNotification

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_eventNotification	composite	Yes	EventNotification	0..*
notificationcontext	none	No	NotificationContext	1

Table 514 – Member ends for association *ContextHasNotification*

9.4.3 ContextHasNotificationSubscription

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_notifSubscription	composite	Yes	NotificationSubscriptionService	0..*
notificationcontext	none	No	NotificationContext	1

Table 515 – Member ends for association *ContextHasNotificationSubscription*

9.4.4 NotifSubscriptionAccessesEventNotification

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_eventNotification	shared	Yes	EventNotification	0..*
notificationsubscriptionservice	none	No	NotificationSubscriptionService	1

Table 516 – Member ends for association *NotifSubscriptionAccessesEventNotification*

9.4.5 NotifSubscriptionAccessesNotification

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_notification	shared	Yes	Notification	0..*
_notifSubscription	none	No	NotificationSubscriptionService	1

Table 517 – Member ends for association *NotifSubscriptionAccessesNotification*

9.4.6 NotifSubscriptionHasChannel

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_notificationChannel	composite	Yes	NotificationChannel	1
_notifSubscription	none	No	NotificationSubscriptionService	1

Table 518 – Member ends for association *NotifSubscriptionHasChannel*

9.4.7 NotifSubscriptionHasFilter

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_subscriptionFilter	composite	Yes	SubscriptionFilter	0..*
_notifSubscription	none	No	NotificationSubscriptionService	1

Table 519 – Member ends for association *NotifSubscriptionHasFilter*

9.4.8 NotificationHasTarget

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_targetObject	none	Yes	GlobalClass	1
_notification	none	No	Notification	0..*

Table 520 – Member ends for association *NotificationHasTarget*

9.5 Abstractions

9.5.1 AttributeValueChangeAugmentsNotification

Augmenting Class	Augmented Class	Comment
AttributeValueChange	EventNotification	

target:
"/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"

Table 521 – Member ends for class abstraction *AttributeValueChangeAugmentsNotification*

9.5.2 AttributeValueChangeAugmentsNotificationSignal

Augmenting Class	Augmented Class	Comment
AttributeValueChange	EventNotification	

target: "/TapiNotification:Notifications:EventNotification"

Table 522 – Member ends for class abstraction *AttributeValueChangeAugmentsNotificationSignal*

9.5.3 AugmentRootContext

Augmenting Class	Augmented Class	Comment
NotificationContext	TapiContext	Augments the base TAPI Context with NotificationContext model.
target: "/TapiCommon:Context:_context"		

Table 523 – Member ends for class abstraction *AugmentRootContext*

9.5.4 InterfaceRealizationNotification

Augmenting Enumeration	Augmented Enumeration
NotificationSubscriptionService	NotificationSubscriptionService
Comment	
The Notification Interface Realization.	

Table 524 – Member ends for enum abstraction *InterfaceRealizationNotification*

9.5.5 NotificationObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
NotificationObjectType	ObjectType
<ul style="list-style-type: none"> • NOTIFICATION_SUBSCRIPTION_SERVICE 	<ul style="list-style-type: none"> • PROFILE • SERVICE_INTERFACE_POINT • TAPI CONTEXT
Comment	
Enumeration Augment.	

Table 525 – Member ends for enum abstraction *NotificationObjectTypeAugmentsObjectType*

9.5.6 ProfileAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
Profile	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 526 – Member ends for class abstraction *ProfileAugmentsEventNotif*

9.5.7 ProfileAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
Profile	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 527 – Member ends for class abstraction *ProfileAugmentsEventNotifSignal*

9.5.8 SipAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
ServiceInterfacePoint	EventNotification	
target: "/TapiCommon:Context:_context/TapiNotification:NotificationContext:_notificationContext/TapiNotification:NotificationContext:_eventNotification"		

Table 528 – Member ends for class abstraction *SipAugmentsEventNotif*

9.5.9 SipAugmentsEventNotifSignal

Augmenting Class	Augmented Class	Comment
ServiceInterfacePoint	EventNotification	
target: "/TapiNotification:Notifications:EventNotification"		

Table 529 – Member ends for class abstraction *SipAugmentsEventNotifSignal*

9.6 Data Types

9.6.1 NameAndValueChange

Description:

- A scoped name-value triple, including old value and new value.

Attribute Name	Type	Mult.	Access	Stereotypes
valueName	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description: The name of the value. The value need not have a name.				
oldValue	String	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description: The old value.				

Attribute Name	Type	Mult.	Access	Stereotypes
newValue	String	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 530 – Attributes for data type *NameAndValueChange*

9.7 Enumerations

9.7.1 NotificationObjectType

Description:

- The list of TAPI Notification Global Object Class types on which Notification signals can be raised.

Contains Enumeration Literals:

- NOTIFICATION_SUBSCRIPTION_SERVICE:
 - The NotificationSubscriptionService class.

9.7.2 NotificationType

Description:

- List of supported notification types.

Contains Enumeration Literals:

- OBJECT_CREATION:
 - The notification of an object instance creation event.
- OBJECT_DELETION:
 - The notification of an object instance deletion event.
- ATTRIBUTE_VALUE_CHANGE:
 - The notification of an attribute value change event.

9.7.3 SourceIndicator

Description:

- The possible source of the notification.

Contains Enumeration Literals:

- RESOURCE_OPERATION:
 - The notification has been raised as a consequence of a generic state change of resource(s) in the managed network.
- MANAGEMENT_OPERATION:
 - The notification has been raised as a consequence of a management operation.
- UNKNOWN:

- Unknown source of the notification.

9.7.4 SubscriptionState

Description:

- The SubscriptionState types.

Contains Enumeration Literals:

- SUSPENDED:
 - The subscription is suspended.
- ACTIVE:
 - The subscription is active.

9.8 Primitives

10 Streaming Model

TapiStreaming: This module contains TAPI Streaming Model definitions. Source: TapiStreaming.uml
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10.1 Diagrams

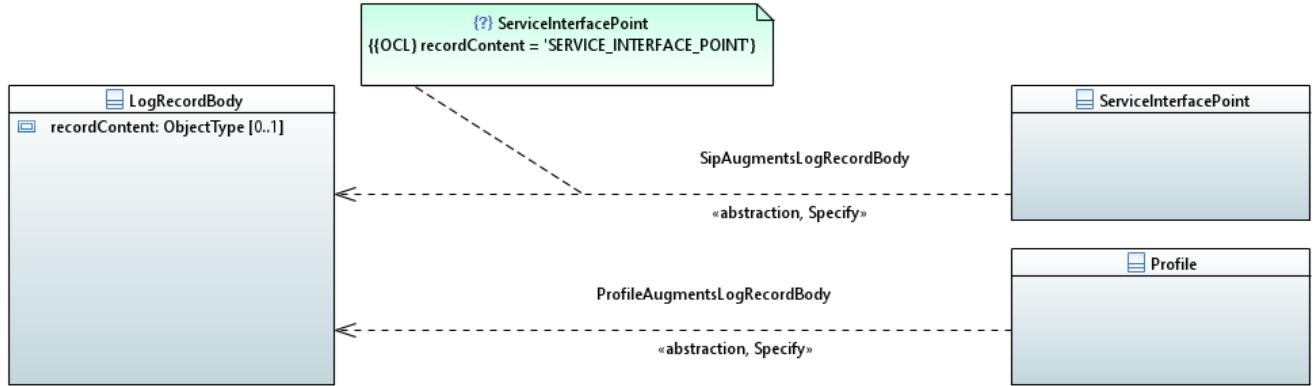


Figure 38 – Diagram *CommonAugmentationForStreaming*

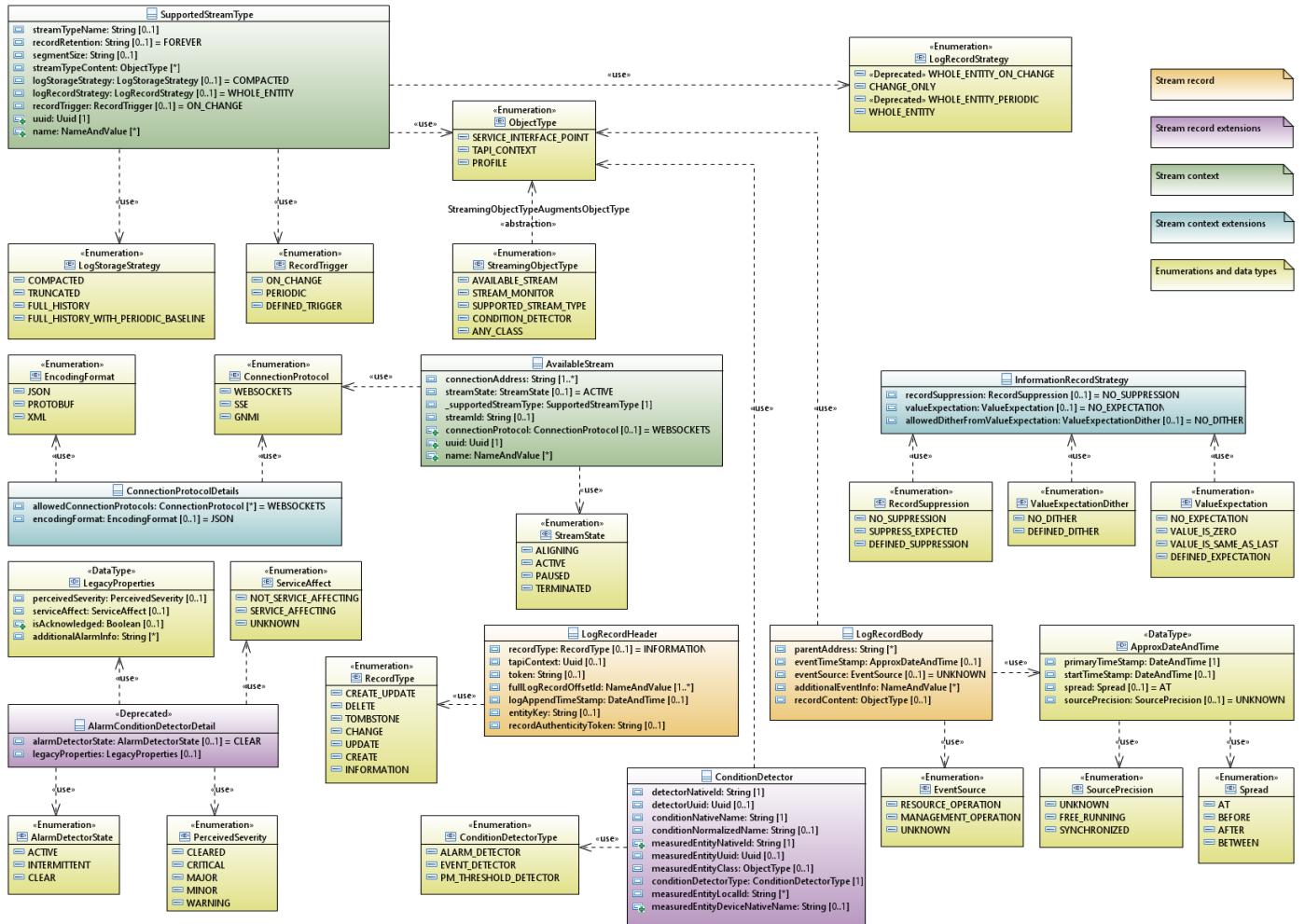


Figure 39 – Diagram StreamDataTypes

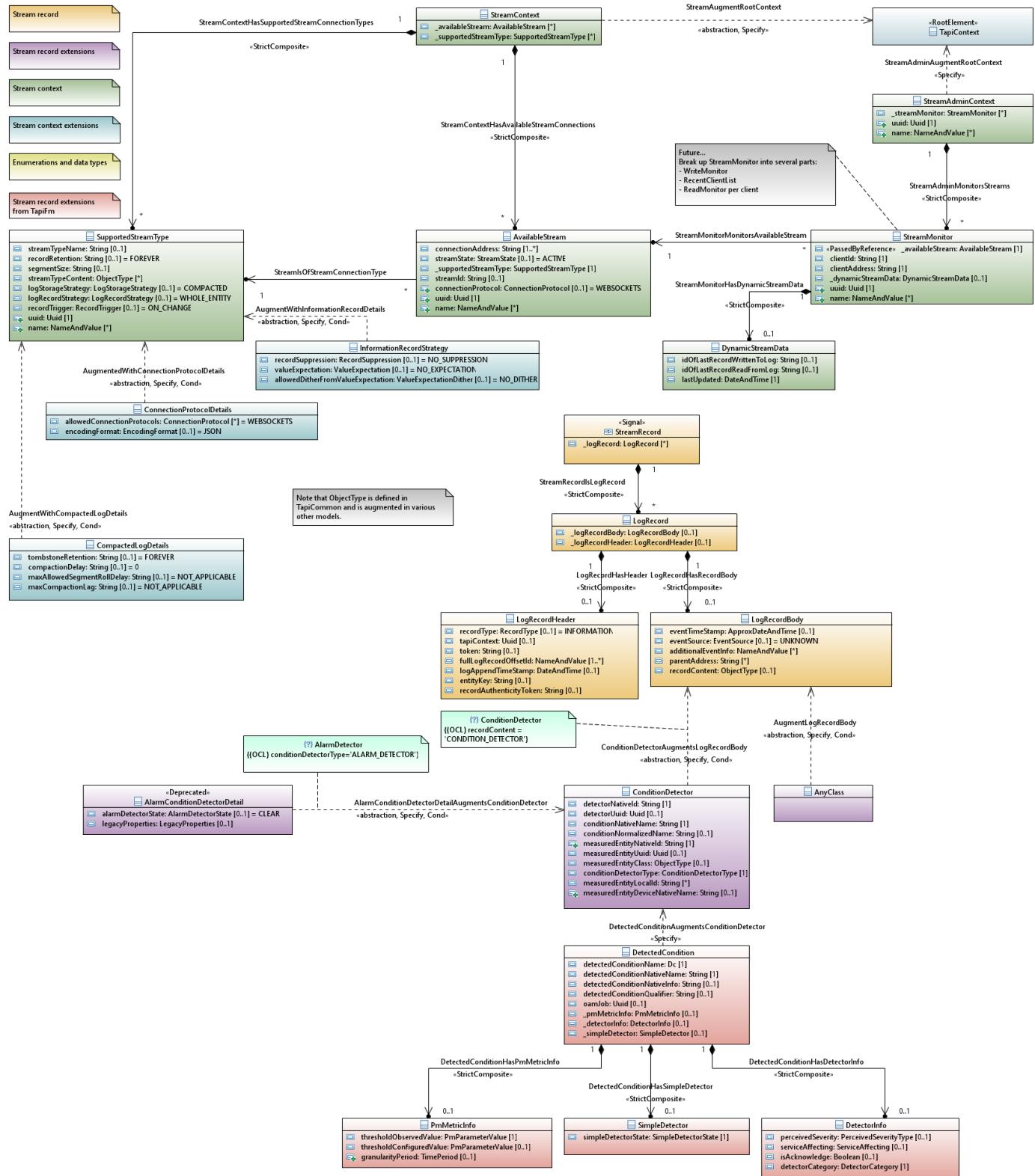
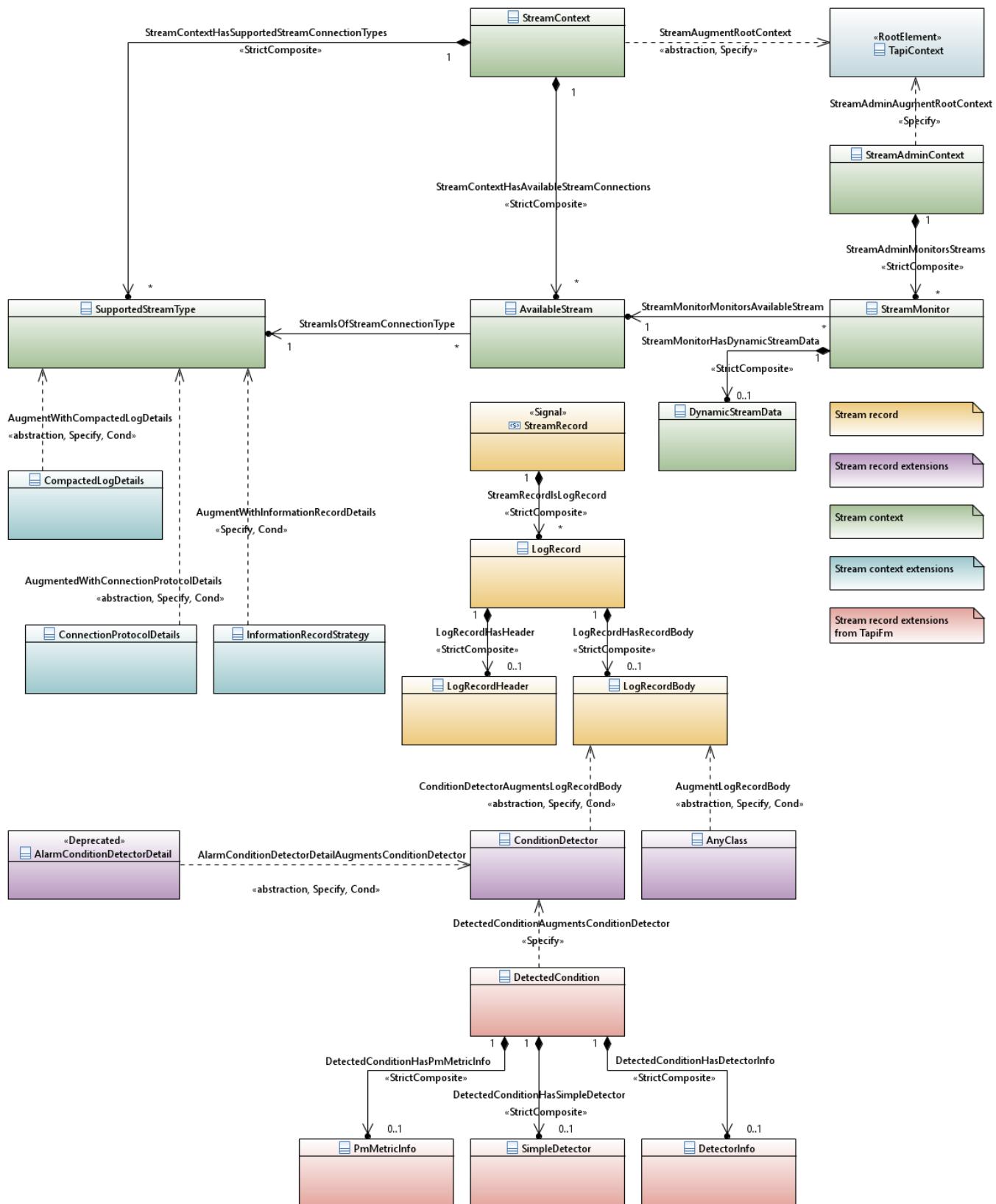
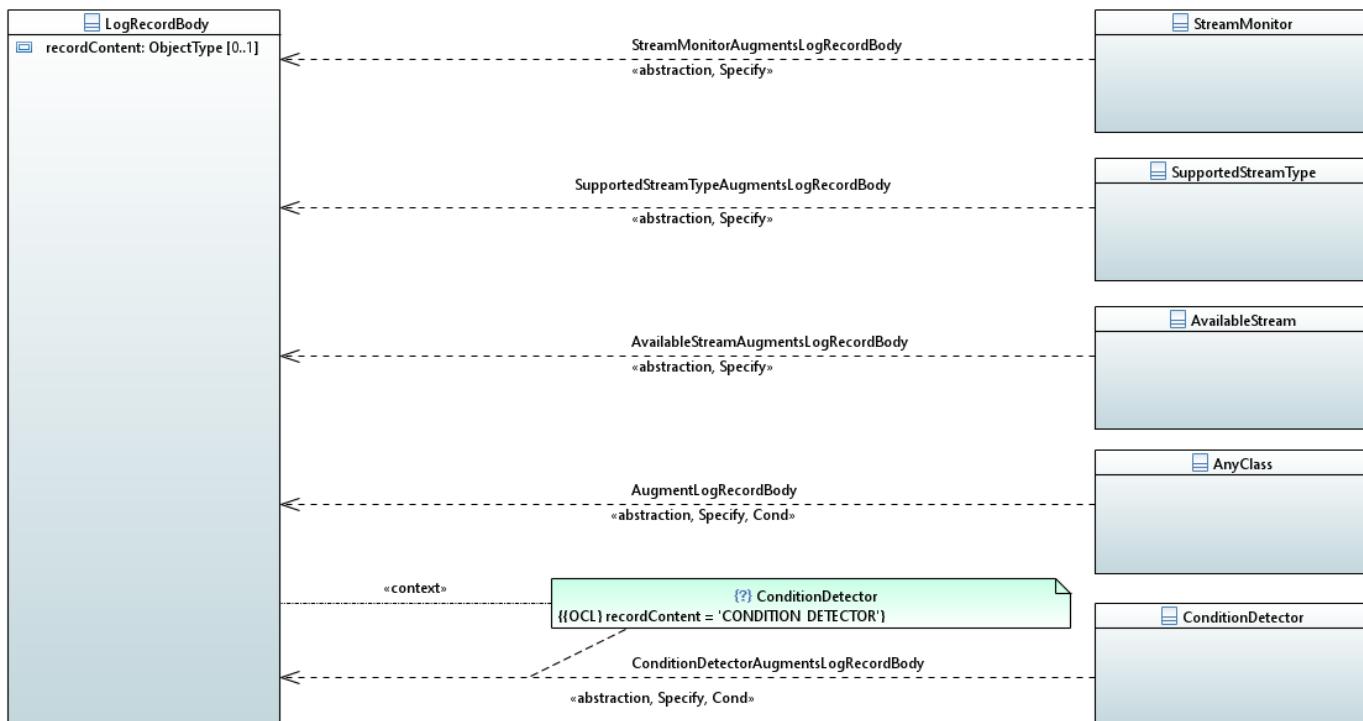


Figure 40 – Diagram StreamDetail

Figure 41 – Diagram *StreamSkeleton*

Figure 42 – Diagram *StreamingAugmentationForStreaming*

10.2 Classes

10.2.1 AlarmConditionDetectorDetail

Description:

- A record of the state of a detector where that detector has two underling states that are of asymmetric importance.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- Deprecated

Attribute Name	Type	Mult.	Access	Stereotypes
alarmDetectorState	AlarmDetectorState Default value: <i>CLEAR</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The state of the detector. The detector state accounts for the time characteristics of the detected condition. CONDITION: Mandatory where the detector state is not default.			
legacyProperties	LegacyProperties	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Alarm systems of the 20th century were based primarily on local lamps (initially filament bulbs) and bells. Lamps can only be on or off, and bells sounding or not sounding, so alarms were Boolean in nature. Where a detector was essentially multi-state it was converted into multiple Boolean statements. The management of the equipments was essentially human only and local only (there were rarely remote systems). The device with the problem was the only possible indicator of importance and it had only three distinct bulbs to illuminate (filament bulbs tend to fail requiring costly replacement). The devices were relatively simple in function and analysis of the detectors was crude. There was only the device to indicate severity. The device also could provide the best view as to whether a service was impacted, although clearly it had almost no knowledge. In a modern solution with well-connected remote systems that increasingly analyze problems and where there is increasingly "lights out" building operation, the device's guess at severity etc. is irrelevant. In addition, with sophisticated resilience mechanisms, the device cannot make any relevant statement on whether the customer service has been impacted. Likewise, in a world where there were no remote systems and local management was the only practice, alarms had to be locally "acknowledged". Where there are remote systems, per alarm acknowledge is burdensome. However, many solutions and operational practices continue to use the historic schemes. On that basis, the schemes are supported but relegated to optional. CONDITION: Mandatory where legacy properties are to be conveyed.			

Table 531 – Attributes for class *AlarmConditionDetectorDetail*

10.2.2 AnyClass

Description:

- Used where the structure to be sent is not a standard TAPI class. It is expected that this structure would be augmented with other defined data.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

10.2.3 AvailableStream

Description:

- Details of a stream that can be connected to by a client application.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
connectionAddress	String	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				Provides the address for the connection. The format of the address and attachment mechanism will depend on the connection protocol defined in another attribute of this class. There may be a sequence of operations required, in which case, these should be listed as separate strings. A string may include wildcard sub-statements. A single string may list alternatives separated by an appropriate delimiter.
Description:				
streamState	StreamState Default value: <i>ACTIVE</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				The state of the stream. CONDITION: Mandatory where stream state is not ALWAYS default.
_supportedStreamType	SupportedStreamType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA PassedByReference
Description:				
				Identifies the type of stream that is available for connection.
streamId	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The id of the stream (alternative to the uuid). CONDITION: Mandatory where an alternative id to the uuid is available.			
connectionProtocol	ConnectionProtocol Default value: <i>WEBSOCKETS</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Names the connection protocol for this particular available stream. The connection protocol is chosen from the list of connection protocols identified in the referenced SupportedStreamType. CONDITION: Mandatory where not default and multiple options offered in the supported stream type.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 532 – Attributes for class *AvailableStream*

10.2.4 CompactedLogDetails

Description:

- Details relevant for a CompactedLog. The essential Compacted Log strategy is to remove historic records about a particular thing such that only the latest record about each thing exists in the log. The essential strategy is refined by the parameters of this structure.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tombstoneRetention	<p>String Default value: <i>FOREVER</i></p>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>Time in minutes. The time period for which a Tombstone record will be held in the log from when it was logged. This provides an adjustment to the essential Compaction strategy such that after the tombstoneRetention period there will be no records about a particular thing that existed but no longer exists. Tombstone retention overrides recordRetention for Tombstones. Key word "FOREVER" means that Tombstone records will never be removed from the log. Can be adjusted by an administrator (via a separate view) through the life of the stream. CONDITION: Mandatory where not default.</p>				
compactionDelay	<p>String Default value: <i>0</i></p>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
<p>Time in minutes. The delay between logging the record and making the record available for compaction. This provides an adjustment to the essential Compaction strategy such that there may be several distinct records for the same thing in the where those records are not older than the Compaction Delay. Can be adjusted by an administrator (via a separate view) through the life of the stream. CONDITION: Mandatory where not default.</p>				
maxAllowedSegmentRollDelay	<p>String Default value: <i>NOT_APPLICABLE</i></p>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The maximum time the log head segment can be allowed to be not made available for compaction. Applicable where the log is segmented, and the head segment is not available for compaction. The setting influences the compaction behavior and may cause a delay before compaction that is much greater than the defined compaction delay. Time in seconds. Can be "FOREVER". Can be "NOT_APPLICABLE" (which indicates that compaction can act on the head segment). CONDITION: Mandatory if log is segmented in such a way that the active head segment is not available for compaction.			
maxCompactionLag	String Default value: NOT_APPLICABLE	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: The maximum delay, in seconds, beyond the defined compaction delay for compaction processing to take place. May be "NOT_APPLICABLE" if compaction is essentially immediate (i.e., there is negligible delay). CONDITION: Mandatory where not default.			

Table 533 – Attributes for class *CompactedLogDetails*

10.2.5 ConditionDetector

Description:

- ConditionDetector represents any monitoring component that assesses properties of something and determines from those properties what conditions are associated with the thing. For example, a thing might be "too hot" or might be "unreliable". The monitor may a multi-state output. The ConditionDetector lifecycle depends upon the lifecycle of the thing it is monitoring (this is a general OAM model consideration). The entityKey in the AppendLogRecordHeader for a ConditionDetector record is the nativeDetector Id which may be derived from other ids (most robustly, nativeOwningEntityName (to which the detector is associated) + nativeConditionName).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
conditionNativeName	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The name used for the Condition by the source of the information.			
measuredEntityUuid	Uuid	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: The uid of the TAPI entity that represents the entity measured at source. If the TAPI entity cannot be identified as it cannot be mapped, then this property can be omitted. If the TAPI entity is a local class, then this is the UUID of the GlobalClass parent of the entity of which this is part. CONDITION: Mandatory where there is a standard TAPI entity (normally the case).			
measuredEntityNativeId	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The identifier (invariant over the life) of the instance of the measured entity at the source.			
measuredEntityDeviceNativeName	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description: The name of the device (as used by the device) that includes the measured entity. CONDITION: Mandatory where the device name is necessary to interpret the detector native id.			
conditionNormalizedName	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: It is often the case that there is a Condition Name that is commonly used or even standardized that has not been used by the source of the condition. If this is the case, then that common/standard name is provided in via this property. CONDITION: Mandatory where the condition has a normalized name.			

Attribute Name	Type	Mult.	Access	Stereotypes
measuredEntityClass	ObjectType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				The TAPI class of the measured entity. If the class cannot be identified as it cannot be mapped, then this property can be omitted. CONDITION: Mandatory where the measured entity class is known.
detectorUuid	Uuid	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				The uuid of the TAPI entity that represents the detector. If the TAPI entity cannot be identified as it cannot be mapped, then this property can be omitted. Where the detector is not modelled independently, but instead is a part of the measured entity such that it is identified by a "local id" built from the UUID of the measured entity and the condition name, then this property may be omitted. CONDITION: Mandatory where the detector has a normalized form with a uuid.
detectorNativeId	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
				The identifier (invariant over the life) of the instance of the detector at the source (e.g. a device). The string reported in this field must include the: - device identifier - one or more resource identifiers including that of the measured entity It need not include the condition name.
conditionDetectorType	ConditionDetectorType	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
				Identifies the type of detector. This drives the conditional augmentation. Some types of detector may not need specific augmentation.

Attribute Name	Type	Mult.	Access	Stereotypes
measuredEntityLocalId	String	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				<p>Where the measured entity is a local class and hence does not have a UUID the local ID is provided in conjunction with the parents ID. The parent may also be a local class in which case its ID is a local ID along with its parent ID. There will be a parent which is a global class which then supplies a UUID. The ID of the entity that is being measured is the combination of the UUID and the ordered list of local IDs. The local ID may not be provided where: - the report about a global class - the report is relying on the detectorNativeId. CONDITION: Mandatory where the measured entity is a local class and hence needs local id as well as parent uuid.</p>

Table 534 – Attributes for class *ConditionDetector*

10.2.6 ConnectionProtocolDetails

Description:

- Details of the connection protocols available for the specific stream.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
allowedConnectionProtocols	ConnectionProtocol Default value: <i>WEBSOCKETS</i>	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				<p>Name of the allowed protocol(s). Where there is a list: - all protocols must use the same encoding format - there will be one or more available streams per connection protocol CONDITION: Mandatory where not default.</p>

Attribute Name	Type	Mult.	Access	Stereotypes
encodingFormat	EncodingFormat Default value: <i>JSON</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				The encoding format of the streamed records. CONDITION: Mandatory where not default.

Table 535 – Attributes for class *ConnectionProtocolDetails***10.2.7 DynamicStreamData****Description:**

- Dynamic information on the monitoring of the use of a specific AvailableStream by a specific TAPI client.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
idOfLastRecordWrittenToLog	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				The id/key of the last (most recent) record written to the log. This is the same value for all clients of the stream. CONDITION: Mandatory where the most recent record written is being recorded.
idOfLastRecordReadFromLog	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The id/key of the last (most recent) record read from the log by the client stream. The analysis of this value needs to account for stream buffering in the comms layer. CONDITION: Mandatory where last record read is being recorded.			
lastUpdated	DateAndTime	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The date/time when the values provided were recorded.			

Table 536 – Attributes for class *DynamicStreamData*

10.2.8 InformationRecordStrategy

Description:

- Properties relevant for a stream that may convey records of INFORMATION record type.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
recordSuppression	RecordSuppression Default value: NO_SUPPRESSION	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Indicates whether records are suppressed and if so, what the suppression strategy is. CONDITION: Mandatory where not default.			
valueExpectation	ValueExpectation Default value: NO_EXPECTATION	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Where there is record suppression this indicates what the relevant expected value is. If the value is as expected the record will be suppressed. CONDITION: Mandatory where not default.			
allowedDitherFromValueExpectation	ValueExpectationDither Default value: NO_DITHER	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Defines the dither in an expected value that is allowed for the value to still be considered as expected. CONDITION: Mandatory where not default.			

Table 537 – Attributes for class *InformationRecordStrategy*

10.2.9 LogRecord

Description:

- A specific atomic entry in a log.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The header of the log record providing general parameters of the record common to all records. CONDITION: Mandatory where log record header properties are to be conveyed.			
_logRecordHeader	LogRecordHeader	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: The header of the log record providing general parameters of the record common to all records. CONDITION: Mandatory where log record header properties are to be conveyed.			

Attribute Name	Type	Mult.	Access	Stereotypes
_logRecordBody	LogRecordBody	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				The body of the log record providing specific logged details. CONDITION: Mandatory where log record body properties are to be conveyed.

Table 538 – Attributes for class *LogRecord***10.2.10 LogRecordBody****Description:**

- The specific details of the Record.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
eventTimeStamp	ApproxDateAndTime	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				Time of the event at the origin of the event that triggered the generation of the record. The structure allows for time uncertainty. CONDITION: Mandatory where event time is not conveyed via another property.
eventSource	EventSource Default value: UNKNOWN	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Indicates whether the source is controlled (under management control) or potentially chaotic (under resource control). The time characteristic of the source may be determined from the metadata describing the resource (e.g., a detector). Where there is an alternative (and probably more detailed) source of information on time characteristic this attribute can be omitted. CONDITION: Mandatory where not default.			
additionalEventInfo	NameAndValue	0..*	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Addition information related to the event such as change reason where changeReason would be the name and the value text would provide information on the reason for change. CONDITION: Mandatory where there is additional info to convey.			
parentAddress	String	0..*	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: Where the entity is a local class this provides the ordered list of ids from the closest global class (a UUID cast as a string) to the direct parent (which may be the global class). The field can include all entities back to the Context and hence can be used for global classes where the tree is being represented in full. Gives the position of the entity in the address tree (usually containment) that is raising the event by providing the name/id values in the address of the parent. Is the sequence of named levels in the tree up to but excluding the entity of the notification. It includes the device id where relevant. CONDITION: Mandatory where the class has a parent, and the parent is not context.			
recordContent	ObjectType	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description: The identifier of the object class in the record body detail. This property is used to control the conditional augmentation of the body with detail. CONDITION: Mandatory where the record content is (the whole of or part of) a standard TAPI object.			

Table 539 – Attributes for class *LogRecordBody*

10.2.11 LogRecordHeader

Description:

- The header of the log record providing general parameters of the record common to all records.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tapiContext	Uuid	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: true valueRange: no range constraint support: CONDITIONAL_MANDATORY condition: OpenInterfaceModelAttribute AVC: NA
Description:				
				The identifier of the context. CONDITION: Mandatory where there is information related to more than one tapi context in the stream.
token	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: true valueRange: no range constraint support: CONDITIONAL_MANDATORY condition: OpenInterfaceModelAttribute AVC: NA
Description:				
				A coded (and compact) form of the fullLogRecordOffsetId. This property is used to request streaming from a particular point (e.g., the last correctly handled record). For a basic log solution this may simply be the sequence number. CONDITION: Mandatory where the stream type is from a compacted log OR it offers an opportunity to recover from a particular record using the token.
fullLogRecordOffsetId	NameAndValue	1..*	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: true valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This property must minimally provide a logging sequence number. Note that when compaction is active, the streamed sequence may not have sequence numbers that simply increment by one. In a complex log solution there may be various parts to the log. The record token is a compressed form of log record reference. This property provides the verbose form. For example, it may include: - stream id - topic - partition - partition offset - sequence number (the offset is essentially the sequence number associated with the partition)			
logAppendTimeStamp	DateAndTime	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: true• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The time when the record was appended to the log. CONDITION: Mandatory where the log is compacted.			
entityKey	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: true• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The identifier of the entity that is used in a Compacted log as the compaction key. The entityKey value, where appropriate, may be based upon the identifiers from the event source. It can be built from some specific detail combination that meets the necessary uniqueness and durability requirements. entityKey is the value used during compaction. Ideally it is a UUID format, if this can be formed from the source identifier. CONDITION: Mandatory where the log is compacted.			
recordType	RecordType Default value: INFORMATION	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: true• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The type of the record. Can be used to understand which elements of the record will be present. CONDITION: Mandatory where not default.			

Attribute Name	Type	Mult.	Access	Stereotypes
recordAuthenticityToken	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				A token generated using a method that allows the client to validate that the record came from the expected provider. CONDITION: Mandatory where authenticity method providing a token is required.

Table 540 – Attributes for class *LogRecordHeader***10.2.12 StreamAdminContext****Description:**

- Context providing access to stream administration.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_streamMonitor	StreamMonitor	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				The list of available stream monitors. Note that this may be an empty list.
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 541 – Attributes for class StreamAdminContext

10.2.13 StreamContext

Description:

- All streams relevant to the specific TapiContext.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_availableStream	AvailableStream	0..*	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: The list of streams that are available for client connection. Note that this may be an empty list.			
_supportedStreamType	SupportedStreamType	0..*	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: The list of stream types supported by the provider. Note that this may be an empty list.				

Table 542 – Attributes for class *StreamContext***10.2.14 StreamMonitor****Description:**

- Information on the monitoring of the use of a specific AvailableStream by a specific TAPI client.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_availableStream	AvailableStream	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA PassedByReference
Description:				
clientId	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
clientAddress	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
The address of the connected client that is being monitored.				

Attribute Name	Type	Mult.	Access	Stereotypes
_dynamicStreamData	DynamicStreamData	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
				Dynamic information on the monitoring of the use of the stream. CONDITION: Mandatory where dynamic data is to be reported.
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
				UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + [0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 543 – Attributes for class StreamMonitor

10.2.15 SupportedStreamType

Description:

- Definition of a type of stream that is supported by the provider.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
streamTypeName	String	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	Name of the stream type. CONDITION: Mandatory where assisted human interpretation is required.			
recordRetention	String Default value: <i>FOREVER</i>	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	Time in minutes. Statement of retention time and/or retention capacity in bytes. Key word "FOREVER" means that records will never be removed from the log. May be overridden for particular cases of specific LogStorageStrategy (via augment). Applies to all record types in the stream unless overridden by another parameter (such as tombstone retention for a compacted log). CONDITION: Mandatory where not default.			
segmentSize	String	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
	Size of sub-structuring of the log. CONDITION: Mandatory where log is segmented and segment size is considered relevant for client application usage.			
streamTypeContent	ObjectType	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Identifies the classes that are supported through the stream. The list may be a subset of the classes within the context. CONDITION: Mandatory if the stream propagates TAPI entities. If not present a separate augment MUST explain stream content.			
logStorageStrategy	LogStorageStrategy Default value: <i>COMPACTED</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: true• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: Indicates the storage characteristics of the log supporting the stream. CONDITION: Mandatory where not default.			
logRecordStrategy	LogRecordStrategy Default value: <i>WHOLE_ENTITY</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: true• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: Indicates the type of content of each log record. CONDITION: Mandatory where not default.			
recordTrigger	RecordTrigger Default value: <i>ON_CHANGE</i>	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: CONDITIONAL_MANDATORY• condition: OpenInterfaceModelAttribute• AVC: NA
	Description: Defines the trigger to log a record. CONDITION: Mandatory where not default.			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	Uuid	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: UUID: An identifier that is universally unique within an identifier space, where the identifier space is itself globally unique, and immutable. An UUID carries no semantics with respect to the purpose or state of the entity. UUID here uses string representation as defined in RFC 4122. The canonical representation uses lowercase characters. Pattern: [0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4} + '[0-9a-fA-F]{4}-[0-9a-fA-F]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 544 – Attributes for class *SupportedStreamType*

10.3 Signals

10.3.1 StreamRecord

Description:

- The stream content.

Applied stereotypes:

- OpenModelNotification
 - triggerConditionList: invalid
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Each stream record may include a number of log records. CONDITION: Mandatory where there is one or more conformant log records to stream.			
_logRecord	LogRecord	0..*	R	OpenModelAttribute • isKey: No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA

10.4 Associations

10.4.1 LogRecordHasHeader

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_logRecordHeader	composite	Yes	LogRecordHeader	0..1
appendlogrecord	none	No	LogRecord	1

Table 545 – Member ends for association *LogRecordHasHeader***10.4.2 LogRecordHasRecordBody**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
logRecordBody	composite	Yes	LogRecordBody	0..1
appendlogrecord	none	No	LogRecord	1

Table 546 – Member ends for association *LogRecordHasRecordBody***10.4.3 StreamAdminMonitorsStreams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_streamMonitor	composite	Yes	StreamMonitor	0..*
streamadmincontext	none	No	StreamAdminContext	1

Table 547 – Member ends for association *StreamAdminMonitorsStreams***10.4.4 StreamContextHasAvailableStreamConnections**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_availableStream	composite	Yes	AvailableStream	0..*
streamcontext	none	No	StreamContext	1

Table 548 – Member ends for association *StreamContextHasAvailableStreamConnections***10.4.5 StreamContextHasSupportedStreamConnectionTypes**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedStreamType	composite	Yes	SupportedStreamType	0..*
streamcontext	none	No	StreamContext	1

Table 549 – Member ends for association *StreamContextHasSupportedStreamConnectionTypes***10.4.6 StreamIsOfStreamConnectionType**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedStreamType	none	Yes	SupportedStreamType	1
activestream	none	No	AvailableStream	0..*

Table 550 – Member ends for association *StreamIsOfStreamConnectionType***10.4.7 StreamMonitorHasDynamicStreamData**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_dynamicStreamData	composite	Yes	DynamicStreamData	0..1
streammonitor	none	No	StreamMonitor	1

Table 551 – Member ends for association *StreamMonitorHasDynamicStreamData***10.4.8 StreamMonitorMonitorsAvailableStream**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_availableStream	none	Yes	AvailableStream	1
streammonitor	none	No	StreamMonitor	0..*

Table 552 – Member ends for association *StreamMonitorMonitorsAvailableStream***10.4.9 StreamRecordIsLogRecord**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_logRecord	composite	Yes	LogRecord	0..*
streamrecord	none	No	StreamRecord	1

Table 553 – Member ends for association *StreamRecordIsLogRecord*

10.5 Abstractions

10.5.1 AlarmConditionDetectorDetailAugmentsConditionDetector

Augmenting Class	Augmented Class	Comment
Diagrams	measuredEntityClass	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody/TapiStreaming:LogRecordBody:_conditionDetector"		

Table 554 – Member ends for class abstraction *AlarmConditionDetectorDetailAugmentsConditionDetector*

10.5.2 AugmentLogRecordBody

Augmenting Class	Augmented Class	Comment
AnyClass	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 555 – Member ends for class abstraction *AugmentLogRecordBody*

10.5.3 AugmentWithCompactedLogDetails

Augmenting Class	Augmented Class	Comment
CompactedLogDetails	SupportedStreamType	
target: "/TapiCommon:Context:_context/TapiStreaming:StreamContext:_streamContext/TapiStreaming:StreamContext:_supportedStreamType"		

Table 556 – Member ends for class abstraction *AugmentWithCompactedLogDetails*

10.5.4 AugmentWithInformationRecordDetails

Augmenting Class	Augmented Class	Comment
InformationRecordStrategy	SupportedStreamType	
target: "/TapiCommon:Context: context/TapiStreaming:StreamContext: streamContext/TapiStreaming:StreamContext: supportedStreamType"		

Table 557 – Member ends for class abstraction *AugmentWithInformationRecordDetails*

10.5.5 AugmentedWithConnectionProtocolDetails

Augmenting Class	Augmented Class	Comment
ConnectionProtocolDetails	SupportedStreamType	
target: "/TapiCommon:Context:_context/TapiStreaming:StreamContext:_streamContext/TapiStreaming:StreamContext:_supportedStreamType"		

Table 558 – Member ends for class abstraction *AugmentedWithConnectionProtocolDetails*

10.5.6 AvailableStreamAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
AvailableStream	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 559 – Member ends for class abstraction *AvailableStreamAugmentsLogRecordBody*

10.5.7 ConditionDetectorAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
ConditionDetector	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 560 – Member ends for class abstraction *ConditionDetectorAugmentsLogRecordBody*

10.5.8 ProfileAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
Profile	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 561 – Member ends for class abstraction *ProfileAugmentsLogRecordBody*

10.5.9 SipAugmentsLogRecordBody

Augmenting Class	Augmented Class	Comment
ServiceInterfacePoint	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 562 – Member ends for class abstraction *SipAugmentsLogRecordBody*

10.5.10 StreamAdminAugmentRootContext

Augmenting Class	Augmented Class	Comment
StreamAdminController	TapiContext	Augments the base TAPI Context with StreamAdminController model.
target: "/TapiCommon:Context:_context"		

Table 563 – Member ends for class abstraction *StreamAdminAugmentRootContext*

10.5.11 StreamAugmentRootContext

Augmenting Class	Augmented Class	Comment
StreamContext	TapiContext	Augments the base TAPI Context with StreamContext model.
target: "/TapiCommon:Context:_context"		

Table 564 – Member ends for class abstraction *StreamAugmentRootContext***10.5.12 StreamMonitorAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
StreamMonitor	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 565 – Member ends for class abstraction *StreamMonitorAugmentsLogRecordBody***10.5.13 StreamingObjectTypeAugmentsObjectType**

Augmenting Enumeration	Augmented Enumeration
StreamingObjectType	DiagramsSERVICE_INTERFACE_POINT
<ul style="list-style-type: none"> • ANY_CLASS • AVAILABLE_STREAM • CONDITION_DETECTOR • STREAM_MONITOR • SUPPORTED_STREAM_TYPE 	
Comment	
Enumeration Augment.	

Table 566 – Member ends for enum abstraction *StreamingObjectTypeAugmentsObjectType***10.5.14 SupportedStreamTypeAugmentsLogRecordBody**

Augmenting Class	Augmented Class	Comment
SupportedStreamType	LogRecordBody	
target: "/TapiStreaming:StreamRecord:_streamRecord/TapiStreaming:StreamRecord:_logRecord/TapiStreaming:LogRecord:_logRecordBody"		

Table 567 – Member ends for class abstraction *SupportedStreamTypeAugmentsLogRecordBody***10.6 Data Types****10.6.1 ApproxDateAndTime****Description:**

- Allows for recording of an aspect of imprecise time.

Attribute Name	Type	Mult.	Access	Stereotypes
primaryTimeStamp	DateAndTime	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Time of the event at the origin where known precisely. Where the event is known to be before particular time, this field records that time. Where the event is known to be after a particular time, this field records that time (this is an unusual case where there is no proposed before time). Where the event is known to have occurred in a time window, this field records the end time (the time before which the event must have occurred).			
startTimeStamp	DateAndTime	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	The time after which the event is known to have occurred when the event is known to have occurred between two times. The primaryTimeStamp provides the end time. CONDITION: Mandatory where the time is only approximately known and where the event is known to have occurred after a particular time.			
spread	Spread Default value: <i>AT</i>	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Indicates the knowledge of the time of occurrence of the event. CONDITION: Mandatory where not default.			
sourcePrecision	SourcePrecision Default value: <i>UNKNOWN</i>	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Indicates how well the source time is synchronized with network time. CONDITION: Mandatory where not default.			

Table 568 – Attributes for data type *ApproxDateAndTime*

10.6.2 LegacyProperties

Description:

- At this point in the evolution of control solutions LegacyProperties are probably mandatory, however, it is anticipated that as control solutions advance the LegacyProperties will become irrelevant.

Attribute Name	Type	Mult.	Access	Stereotypes
perceivedSeverity	PerceivedSeverity	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
A device will provide an indication of importance for each alarm. This property indicates the importance. In some cases, the severity may change through the life of an active alarm. CONDITION: Mandatory where severity is known.				
serviceAffect	ServiceAffect	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Some devices will indicate, from its very narrow viewpoint, whether service has been impacted or not. This property carries this detail. CONDITION: Mandatory where it is known whether the condition detected is service affecting or not.				
isAcknowledged	Boolean	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: CONDITIONAL_MANDATORY • condition: OpenInterfaceModelAttribute • AVC: NA
Description:				
Devices offer a capability to acknowledge alarms (to stop the bells ringing). Often an EMS will offer a similar capability. This property reflects the current acknowledge state. CONDITION: Mandatory where there is a known state related to user acknowledgement of the condition.				

Attribute Name	Type	Mult.	Access	Stereotypes
additionalAlarmInfo	String	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: OPTIONAL OpenInterfaceModelAttribute • AVC: NA
Description: Often, alarms raised by devices have additional information. This property can be used to convey this.				

Table 569 – Attributes for data type *LegacyProperties*

10.7 Enumerations

10.7.1 AlarmDetectorState

Description:

- The state of the processed Boolean alarm detector. The source applies some analysis to the raw detector to determine the state. The processing by the source may vary.

Contains Enumeration Literals:

- ACTIVE:
 - The detector is indicating the operation of the monitored entity is not within acceptable bounds with respect to the specific condition measured. If INTERMITTENT is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE is declared. An alternative may be to declare INTERMITTENT. Where INTERMITTENT is supported, ACTIVE indicates the stable presence of a problem.
- INTERMITTENT:
 - The detector is indicating the operation of the monitored entity is intermittently not within acceptable bounds with respect to the specific condition measured. INTERMITTENT support is optional. Where it is supported there may be a requirement for persisted unacceptable operation after a problem occurs before ACTIVE or INTERMITTENT is declared.
- CLEAR:
 - The detector is indicating the operation of the monitored entity is within acceptable bounds with respect to the specific condition measured. There may be a requirement for persisted acceptable operation after a problem before clear is declared etc. For a Compacted Log solution a CLEAR alarm will be considered as a DELETE ChangeType in the RecordBody. Hence a CLEAR will also cause a Tombstone record in a Compacted Log solution.

10.7.2 ConditionDetectorType

Description:

- The type of condition detector. The type relates to the characteristics of the detection and reporting strategies. This drives the conditional augment.

Contains Enumeration Literals:

- ALARM_DETECTOR:

- A type of detector used for reporting problems. The underlying raw detector is two state from the perspective of the monitored condition. The detector is asymmetric in nature. One state indicates that there is a problem and the other state indicates that there is no problem.
- EVENT_DETECTOR:
 - A type of detector used for reporting events.
- PM_THRESHOLD_DETECTOR:
 - A type of detector used for reporting threshold crossing events related to performance monitoring.

10.7.3 ConnectionProtocol

Description:

- The connection protocols.

Contains Enumeration Literals:

- WEBSOCKETS:
 - WebSockets as defined at <https://datatracker.ietf.org/doc/html/rfc6455>.
- SSE:
 - Server Sent Events as defined at <https://www.w3.org/TR/2015/REC-eventsource-20150203/>.
- GNMI:
 - Google network Management Interface as specified at <https://github.com/openconfig/reference/tree/master/rpc/gnmi>.

10.7.4 EncodingFormat

Description:

- The list of possible encoding formats.

Contains Enumeration Literals:

- JSON:
 - JavaScript Object Notation as defined at <https://www.json.org/json-en.html>.
- PROTOBUF:
 - Protocol Buffers as defined at github.com/protocolbuffers/protobuf.
- XML:
 - eXtensible Markup Language as defined at <https://www.w3.org/standards/xml/>.

10.7.5 EventSource

Description:

- Source of the event. Use to give some idea of the time characteristics of the event source.

Contains Enumeration Literals:

- RESOURCE_OPERATION:
 - The event is from the operation of the network resources. The event source has a relatively fast time characteristic.
- MANAGEMENT_OPERATION:
 - Event is from a Management operation (slow control). The event source has a relatively slow time characteristic.

- UNKNOWN:
 - The origin of the event is not known.

10.7.6 LogRecordStrategy

Description:

- Defines the different approaches for logging information about an event covering the log trigger and the log content.

Contains Enumeration Literals:

- WHOLE_ENTITY_ON_CHANGE:
 - DEPRECATED Replaced by WHOLE_ENTITY with record trigger ON_CHANGE. A record provides a snapshot of a whole entity and a snapshot is taken on each change. The record includes all properties and values whether they have changed or not.
 - Applied stereotype:
 - Deprecated
- CHANGE_ONLY:
 - Each record only provides a view of the changes that have occurred (on a per entity change basis). E.g., the log only includes the attribute that has changed and not other attributes that have not changed.
- WHOLE_ENTITY_PERIODIC:
 - DEPRECATED Replaced by WHOLE_ENTITY with record trigger PERIODIC. A snapshot of an entity is recorded periodically regardless of whether there has been change or not.
 - Applied stereotype:
 - Deprecated
- WHOLE_ENTITY:
 - A record provides a snapshot of a whole entity. The record includes all properties and values whether they have changed or not.

10.7.7 LogStorageStrategy

Description:

- Defines the storage (record retention) approach.

Contains Enumeration Literals:

- COMPACTED:
 - The log uses some mechanism to remove noisy detail whilst enabling the client to achieve eventual consistency (alignment) with current state.
- TRUNCATED:
 - The log only maintains recent records and disposes of old records. This log does not alone enable the client to achieve alignment with current state.
- FULL_HISTORY:
 - Maintains a history from system initiation with no missing records. Provides initial state at the beginning of the history
- FULL_HISTORY_WITH_PERIODIC_BASELINE:
 - Provides a history with initial state and periodic/occasional statements of current state at a particular point in time.

10.7.8 PerceivedSeverity

Description:

- The values for importance of an ACTIVE, INTERMITTENT or CLEAR alarm.

Contains Enumeration Literals:

- CRITICAL:
 - The highest severity of ACTIVE/INTERMITTENT alarm.
- MAJOR:
 - The middle severity of ACTIVE/INTERMITTENT alarm.
- MINOR:
 - The lowest severity of ACTIVE/INTERMITTENT alarm.
- WARNING:
 - An extremely low importance ACTIVE/INTERMITTENT alarm (lower than MINOR).
- CLEARED:
 - The severity of a CLEAR where no other severity information is available.

10.7.9 RecordSuppression

Description:

- Defines the record suppression strategy. Where suppression is applied a record will not be logged if it meets the suppression criteria.

Contains Enumeration Literals:

- NO_SUPPRESSION:
 - There is no record suppression.
- SUPPRESS_EXPECTED:
 - A record will be suppressed if the value of the record is exactly as expected. The absence of a record will convey to the client that the value is as the client expects.
- DEFINED_SUPPRESSION:
 - Suppression will follow a strategy that is complex and specified via additional detail.

10.7.10 RecordTrigger

Description:

- The trigger for logging a record.

Contains Enumeration Literals:

- ON_CHANGE:
 - A record is logged each time the value of the item to be recorded changes.
- PERIODIC:
 - A record is logged for the item on a periodic basis (independent of whether the values have changed or not).
- DEFINED_TRIGGER:
 - The trigger will follow a strategy that is complex and specified via additional detail.

10.7.11 RecordType

Description:

- The type of the record. Used to understand what log content will be present and how to interpret it. For some record types there is special encoding. A ACTIVE alarm and an INTERMITTENT alarm are CREATE_UPDATE. A CLEAR alarm is DELETE with an adjacent TOMBSTONE record.

Contains Enumeration Literals:

- CREATE_UPDATE:
 - The record includes a create or update. Where there is an update in a non-compacted log the information will be sparse (e.g., a single attribute) and about an entity that is already known.
- DELETE:
 - The record is about a delete. The record may have a LogRecordHeader and a LogRecordBody but no augmented content. The entityKey should be sufficient to identify the entity to be deleted. Under certain circumstances there may be class content in the LogRecordBody.
- TOMBSTONE:
 - Used in a Compacted log to remove old records and truncate deletion history. Is only a LogRecordHeader with no LogRecordBody.
- CHANGE:
 - The record includes necessary ids and only the changed parameter/parameters.
- UPDATE:
 - The record is of the whole entity where it is known to have existed before.
- CREATE:
 - The record is of the whole entity where it is known to have not existed before or not known to have existed before (it may have existed but the record has been lost and hence it appears to be new).
- INFORMATION:
 - The record contains some information.

10.7.12 ServiceAffect

Description:

- Indicates whether the device considers the condition to be impacting service. Note that the detected condition along with knowledge of the topology and protection provide a more suitable approach.

Contains Enumeration Literals:

- SERVICE_AFFECTING:
 - The condition is believed to impact service.
- NOT_SERVICE_AFFECTING:
 - The condition is believed to not impact service.
- UNKNOWN:
 - The service impact of the condition is not known.

10.7.13 SourcePrecision

Description:

- Alternative statements about timing precision at the event source.

Contains Enumeration Literals:

- UNKNOWN:
 - The state of the clock at the event source is not known. The view of time of day at the source is suspect.
- FREE_RUNNING:
 - The clock at the event source is free-running. The view of time of day at the source may be significantly different from that at other sources.
- SYNCHRONIZED:
 - The clock at the event source is appropriately synchronized to the timing master. The view of time of day at the source should be essentially the same as that at other time-synchronized sources.

10.7.14 Spread

Description:

- The alternative time of occurrence statements.

Contains Enumeration Literals:

- AT:
 - The event occurred at a particular time.
- BEFORE:
 - The event occurred before a particular time.
- AFTER:
 - The event occurred after a particular time.
- BETWEEN:
 - The event occurred between two stated times.

10.7.15 StreamState

Description:

- The state of the available stream.

Contains Enumeration Literals:

- ALIGNING:
 - The log that underpins the stream is aligning with other backend services and hence may not be providing full service. If events are provided, they will be completely valid.
- ACTIVE:
 - The stream is operating such that if a client connects records will be provided as per back pressure etc.
- PAUSED:
 - Although the stream is available it has been paused by the administrator such that the records are being appended to the log but a new client will not receive any events whilst the stream is paused.
- TERMINATED:
 - The stream is essentially no longer available. It will be removed from the AvailableStreams list shortly.

10.7.16 StreamingObjectType

Description:

- The list of TAPI Streaming Object types/classes.

Contains Enumeration Literals:

- AVAILABLE_STREAM:
- STREAM_MONITOR:
- SUPPORTED_STREAM_TYPE:
- CONDITION_DETECTOR:
- ANY_CLASS:

10.7.17 ValueExpectation

Description:

- Defines the value expectation where record suppression is SUPPRESS_EXPECTED.

Contains Enumeration Literals:

- NO_EXPECTATION:
 - There is no expected value.
- VALUE_IS_ZERO:
 - The expected value (of the relevant parameter or parameters) is (all) zero.
- VALUE_IS_SAME_AS_LAST:
 - The expected value (of the relevant parameter or parameters) is (all) the same as ther were for the last record opportunity.
- DEFINED_EXPECTATION:
 - Value expectation will follow a strategy that is complex and specified via additional detail.

10.7.18 ValueExpectationDither

Description:

- Defines the dither in an expected value that is allowed for the value to still be considered as expected.

Contains Enumeration Literals:

- NO_DITHER:
 - No dither allowed.
- DEFINED_DITHER:
 - Dither will follow a strategy that is complex and specified via additional detail.

10.8 Primitives

11 Digital Signal Rate Model

TapiDsr: This module contains TAPI Digital Signal Rate Model definitions. Source: TapiDsr.uml
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11.1 Diagrams



Figure 43 – Diagram *DsrTypes*

11.2 Classes

11.3 Signals

11.4 Associations

11.5 Abstractions

11.5.1 *DSTypeAugmentsLayerProtocolQualifier*

Augmenting Enumeration	Augmented Enumeration
<p>DigitalSignalType</p> <ul style="list-style-type: none"> • 100_GigE • 10_GigE_LAN • 10_GigE_WAN • 200_GigE • 400_GigE • 40_GigE • DVB_ASI • FC_100 • FC_1200 • FC_1600 • FC_200 • FC_3200 • FC_400 • FC_800 • GPON • GigE • IB_DDR • IB_QDR • IB_SDR • OC_12 • OC_192 • OC_3 • OC_48 • OC_768 • OTU_1 • OTU_2 • OTU_2E • OTU_3 • OTU_4 • SBCON_ESCON • SDI • SDI_1G5 • SDI_3G • STM_1 • STM_16 • STM_256 • STM_4 • STM_64 • XGPON 	<p>LayerProtocolQualifier</p> <ul style="list-style-type: none"> • UNSPECIFIED
Comment Enumeration Augment.	

Table 570 – Member ends for enum abstraction *DSTypeAugmentsLayerProtocolQualifier*

11.6 Data Types

11.7 Enumerations

11.7.1 DigitalSignalType

Contains Enumeration Literals:

- GigE:
- 10_GigE_LAN:
- 10_GigE_WAN:
- 40_GigE:
- 100_GigE:
- 200_GigE:
- 400_GigE:
- FC_100:
- FC_200:
- FC_400:
- FC_800:
- FC_1200:
- FC_1600:
- FC_3200:
- STM_1:
- STM_4:
- STM_16:
- STM_64:
- STM_256:
- OC_3:
- OC_12:
- OC_48:
- OC_192:
- OC_768:
- OTU_1:
- OTU_2:
- OTU_2E:
- OTU_3:
- OTU_4:
- GPON:
- XGPON:
- IB_SDR:
- IB_DDR:
- IB_QDR:
- SBCON_ESCON:
- DVB_ASI:
- SDI:
- SDI_1G5:
- SDI_3G:

11.8 Primitives

12 Photonic Model

TapiPhotonicMedia: This module contains TAPI Photonic Media Model definitions. Source: TapiPhotonicMedia.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

Comments: OtsiaConnectivityServiceEndPointSpec could augment a DSR CEP in case of direct photonic to DSR adaptation (i.e. no OTN layer network).

Comments: All the other OTSi relevant parameters are provisioned either - by reference to an instance of Transceiver Profile (the reference (by name) is defined in the CSEP) or - by explicit parameters ("integrated" provisioning), which can be useful when there is not an Transceiver Profile instance matching the intent. The server controller may or may not instantiate the equivalent Transceiver Profile as provisioning result.

Comments: oms-general-optical-params configuration shall be allowed on NEP base?

Comments: min/max central freq. and freq. step shall be mapped to SIP/CSEP/CEP spectrum/central freq. Could we use the same datatype, i.e. SpectrumBand?

Comments: otsi-group is the "list of OTSi contained in 1 OTSiG", each one described by common-transceiver-configured-param: otsi-carrier-frequency, tx-channel-power, rx-channel-power, rx-total-power.

Comments: ietf-layer0-types-ext.yang grouping common-transceiver-configured-param { description "Capability of an optical transceiver"; leaf otsi-carrier-frequency { type frequency-thz; description "OTSi carrier frequency, equivalent to the actual configured transmitter frequency"; } leaf tx-channel-power { type dbm-t; description "The current channel transmit power"; } leaf rx-channel-power { type dbm-t; config false; description "The current channel received power "; } leaf rx-total-power { type dbm-t; config false; description "Current total received power"; } } // grouping for configured attributes out of mode

Comments: Note that also Booster/Preamplifier could be listed

Comments: Attribute which can be covered by termination type and node rule group

Comments: ITU-T G.694.1 For the flexible DWDM grid, the allowed frequency slots have a - nominal central frequency (in THz) defined by: $193.1 + n \times 0.00625$ where n is a positive or negative integer including 0 and 0.00625 is the nominal central frequency granularity in THz - and a slot width defined by: $12.5 \times m$ where m is a positive integer and 12.5 is the slot width granularity in GHz.

Comments: ITU-T G.sup39 2016/02: NRZ-DPSK RZ-DPSK NRZ-DQPSK RZ-DQPSK DP-QPSK PDM-BPSK PDM-16QAM

Comments: media-channel-groups / delta-power (Deviation from the reference carrier power defined for the OMS) could be added to MC CEP. Note that 10-types:flexi-grid-frequency-slot (RFC 9093) is equivalent to "central frequency + width".

Comments: IETF augments "/nw:networks/nw:network/nw:node" with - transponder list / transceiver list - regen-group, which is "List of 3R groups. Any 3R group represent a group of transponder in which an electrical connectivity is either in place or could be dynamically provided, to associated transponders used for 3R regeneration."

Comments: GNPy Transceiver data type includes the tx_osnr, which represents the transceiver SNR penalty, in analogy with the ROADM add/drop OSNR.

Comments: OTSiMCG CSEP is provisioned also in case OTSiMC layer is not explicitly represented on Resource side

Comments: IETF model foresees a "list of optical impairments on a ROADM express/add/drop path for different frequency ranges". TAPI ConnectivityImpairmentProfile is defined per "frequency-range", because the functional model (of the ROADM) is not supported in TAPI.

Comments: IETF foresees a choice based on equalization-mode enum {power-spectral-density; carrier-power}. TAPI could simplify with just the applicable packages, which package is present indicates the equalization mode.

Comments: IETF model foresees a single amplifier-params grouping listing the "parallel amplifier elements within an amplifier used to amplify different frequency ranges." TAPI Amplifier Profile is defined per "frequency-range", because the functional model (of the amplifier) is not supported in TAPI. Note that the OMS CEP defines a frequency range which could include more frequency sub-ranges separately amplified.

Comments: CCAMP rfc9093-bis identity modulation: DPSK (Differential Phase Shift Keying) modulation QPSK (Quadrature Phase Shift Keying) modulation DP-QPSK (Dual Polarization Quadrature Phase Shift Keying) modulation QAM8 (8-State Quadrature Amplitude Modulation) DP-QAM8 (8 symbols Dual Polarization Quadrature Amplitude Modulation) DC-DP-QAM8 (8 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation) QAM16 (16 symbols Quadrature Amplitude Modulation) DP-QAM16 (16 symbols Dual Polarization Quadrature Amplitude Modulation) DC-DP-QAM16 (16 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation) QAM32 (32 symbols Quadrature Amplitude Modulation) DP-QAM32 (32 symbols Dual Polarization Quadrature Amplitude Modulation) QAM64 (64 symbols Quadrature Amplitude Modulation) DP-QAM64 (64 symbols Dual Polarization Quadrature Amplitude Modulation)

Comments: IETF model foresees a transponder grouping, which is the "list of transceiver related to a transponder". TAPI Transceiver Profile is defined to specify both the capabilities (PHOT/OTSi NEP) and the configuration/state (OTSi CSEP/CEP) of transceivers.

Comments: equalization-mode is defined in oms-general-optical-param. To be verified whether necessary or implicit in the choice of the PowerParams packages.

Comments: regen-metric can augment the OTSiMC NEP of transponders, meaningful in case the transponder node is used as 3R.

Comments: Shall we consider also the "fiber impairments" between ROADM and its Booster/Preampli?

Comments: Amplification configuration shall be allowed on OMS CEP base. For further development.

Comments: TapiDigitalOtn:OtsiaMep composed by OtuMep augmenting ConnectivityOamServicePoint. Define OtsiaMep also in TapiPhotonic, to directly augment ConnectivityOamServicePoint, and move the power thresholds there. This implies the import of TapiOam.

Comments: It is assumed that MC CEP does not appear on transponder side, hence no reference from MC CEP to OtsiTerminationPac.

Comments: min-carrier-spacing has only the capability role, not provisionable.

Comments: Evaluate adding "bit stuffing" to OtsiConfig. ietf-optical-impairment-topology.yang grouping 10-tunnel-attributes { description "Parameters for Layer0 (WSON or Flexi-Grid) Tunnels."; leaf fec-type { type identityref { base fec-type; } description "FEC type."; } leaf termination-type { type identityref { base term-type; } description "Termination type."; } leaf bit-stuffing { type boolean; description "Bit stuffing enabled/disabled."; } }

12.1 Diagrams

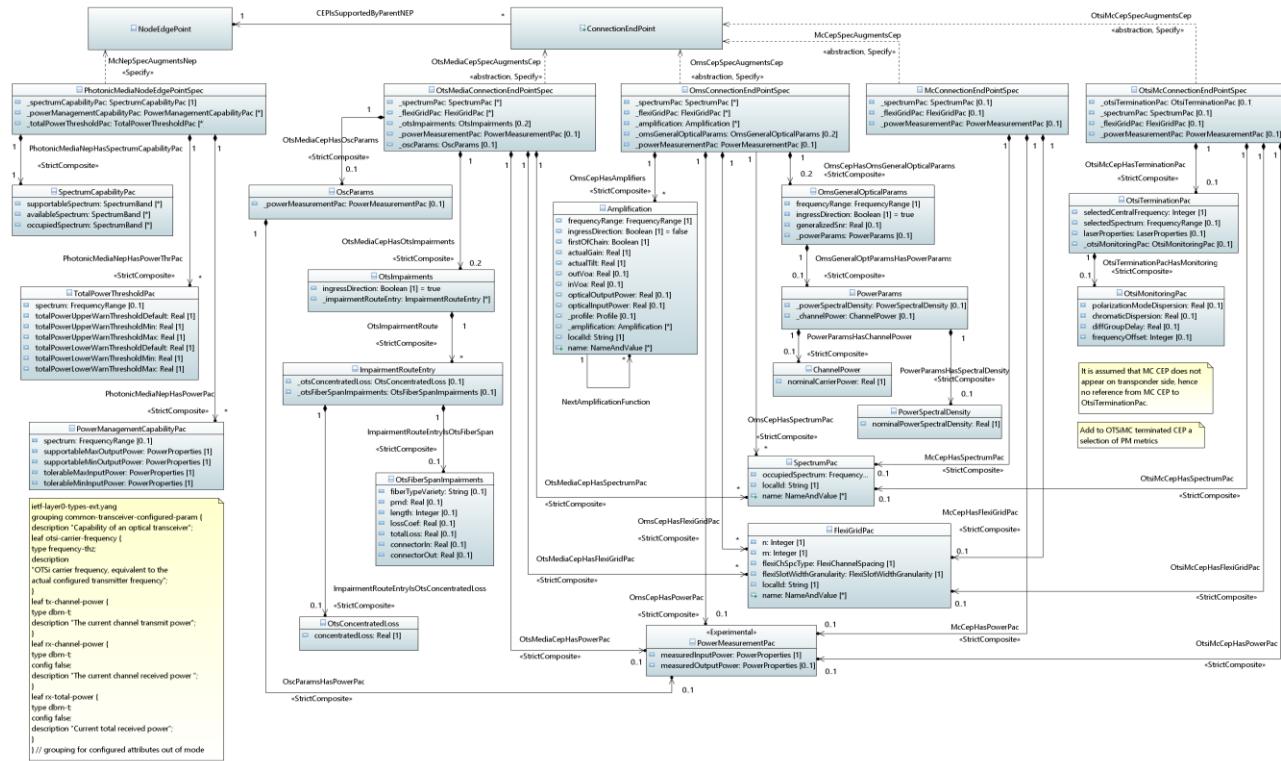


Figure 44 – Diagram *McResourceSpec*

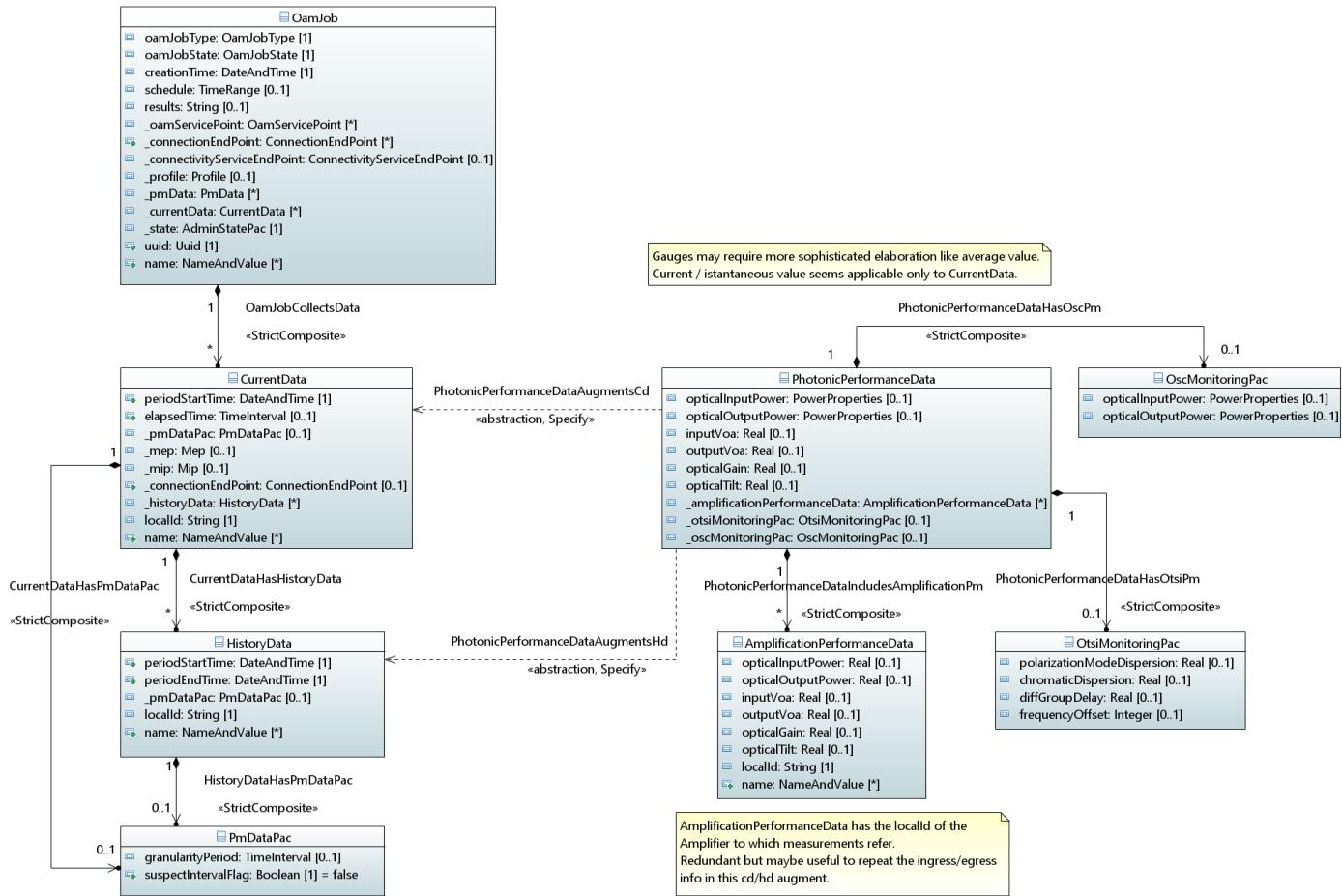


Figure 45 – Diagram PhotonicPm

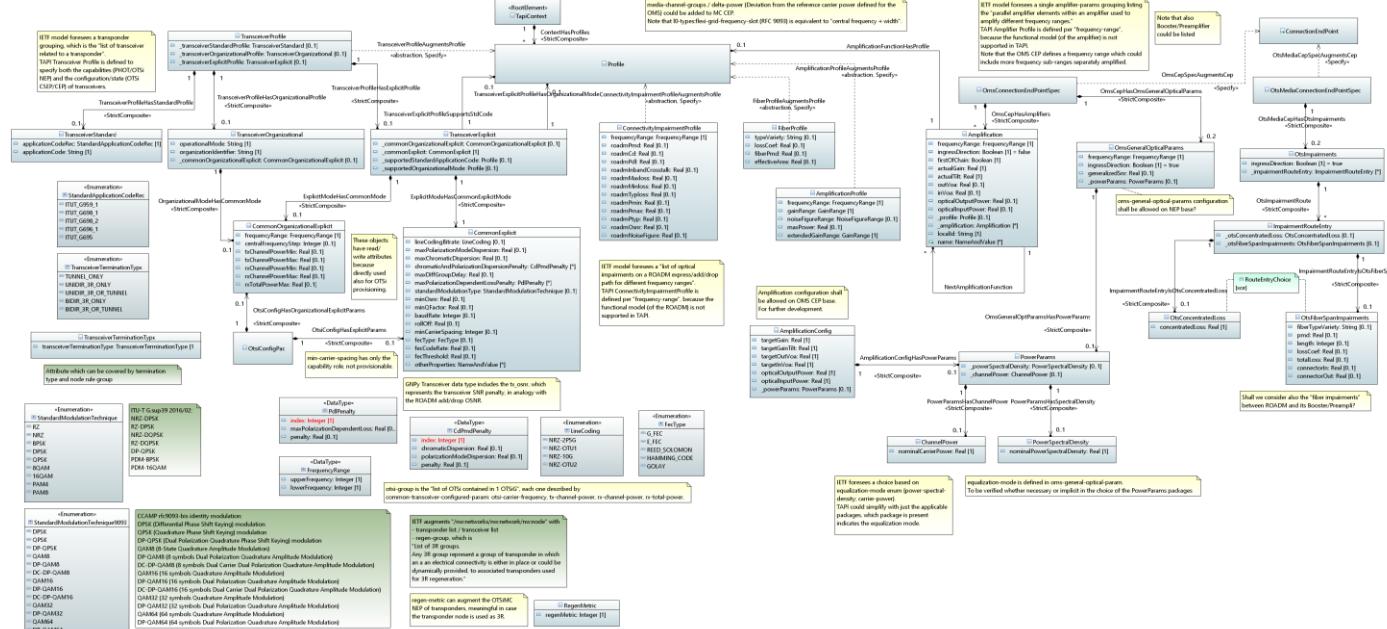


Figure 46 – Diagram *PhotonicProfiles*

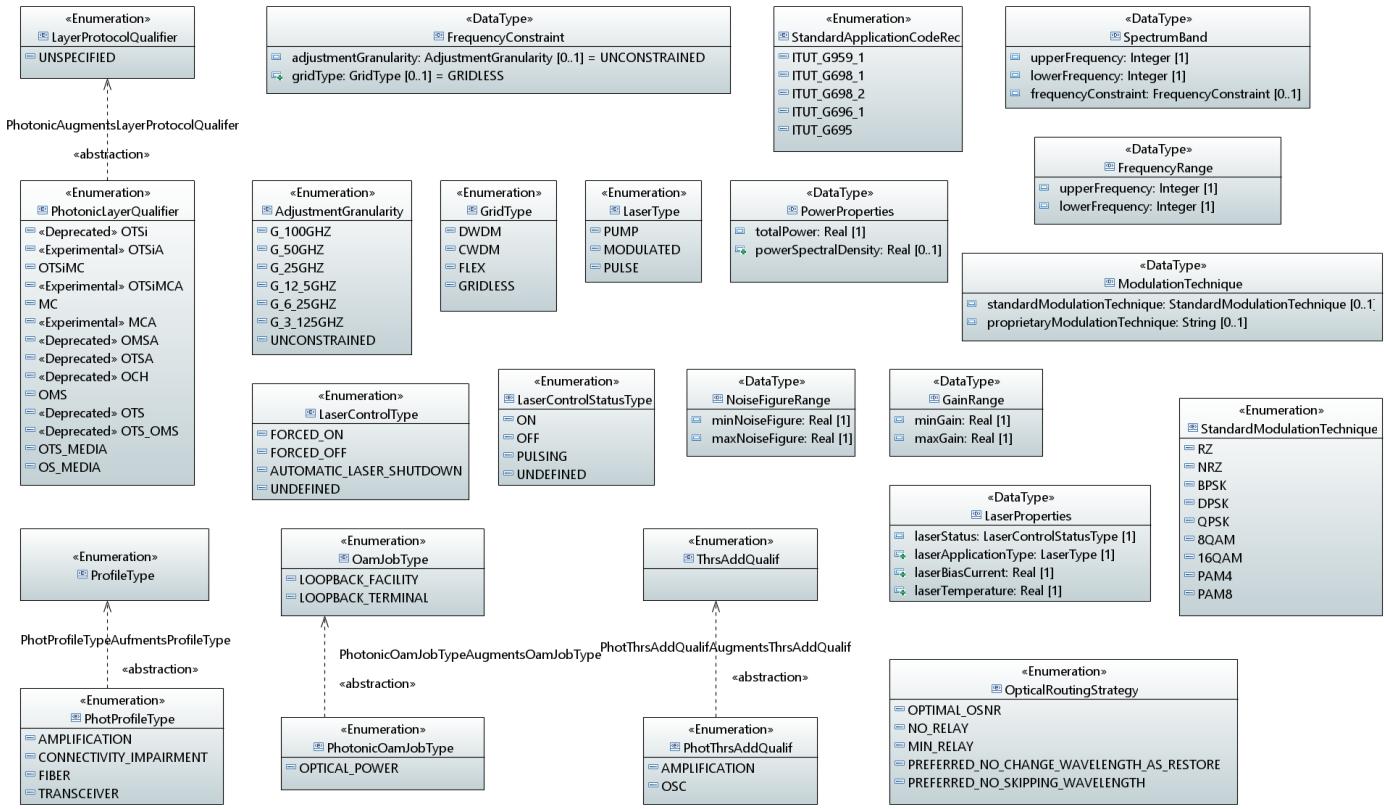


Figure 47 – Diagram PhotonicTypes

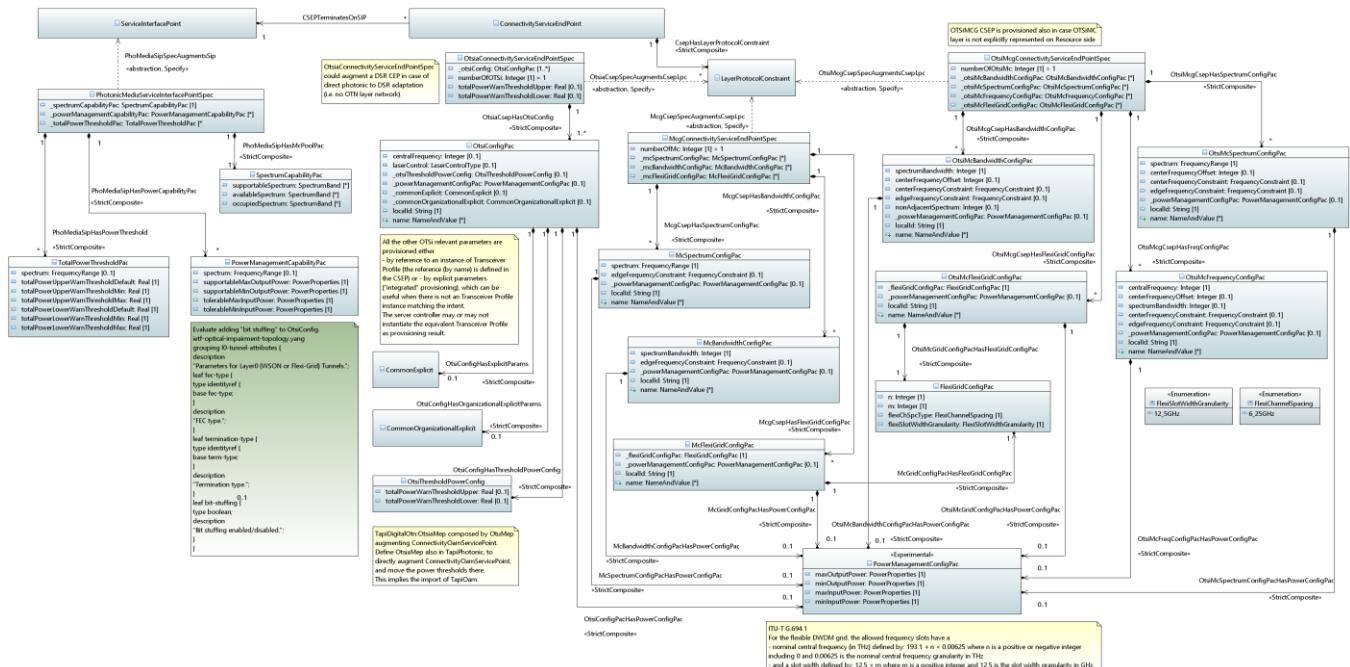


Figure 48 – Diagram ServiceSpec

12.2 Classes

12.2.1 Amplification

Description:

- The CEP which includes the Amplification impairments is the CEP which better approximates the output of the amplification function.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
frequencyRange	FrequencyRange	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
ingressDirection	Boolean Default value: <i>false</i>	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
firstOfChain	Boolean	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
actualGain	Real	1	R	OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Actual gain in dB.			
actualTilt	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Actual tilt in dB.			
outVoa	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: In dB.			
inVoa	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: In dB.			
opticalOutputPower	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: In dBm.			
opticalInputPower	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: In dBm.			

Attribute Name	Type	Mult.	Access	Stereotypes
_profile	Profile	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_amplification	Amplification	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 571 – Attributes for class *Amplification*

12.2.2 AmplificationConfig

Description:

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
targetGain	Real	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
targetGainTilt	Real	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
targetOutVoa	Real	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
In dB.				
targetInVoa	Real	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
In dB.				
opticalOutputPower	Real	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
opticalInputPower	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_powerParams	PowerParams	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 572 – Attributes for class *AmplificationConfig*

12.2.3 AmplificationPerformanceData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
opticalInputPower	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
opticalOutputPower	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
inputVoa	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
outputVoa	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
opticalGain	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
opticalTilt	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 573 – Attributes for class *AmplificationPerformanceData***12.2.4 AmplificationProfile**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
frequencyRange	FrequencyRange	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
gainRange	GainRange	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
noiseFigureRange	NoiseFigureRange	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
maxPower	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Maximum output power. Measured in dBm.			
extendedGainRange	GainRange	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 574 – Attributes for class *AmplificationProfile*

12.2.5 ChannelPower

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
nominalCarrierPower	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Reference channel power. OMS power after the ROADM (input of the OMS) or after the out-voa of each amplifier. Measured in dBm.			

Table 575 – Attributes for class *ChannelPower*

12.2.6 CommonExplicit

Description:

- Attributes capabilities related to explicit mode of an optical transceiver.

Applied stereotypes:

- OpenModelClass

- support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
lineCodingBitrate	LineCoding	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
Bit rate/line coding of optical tributary signal.				
maxPolarizationModeDispersion	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
Maximum acceptable accumulated polarization mode dispersion on the receiver. Measured in picoseconds per square root kilometer.				
maxChromaticDispersion	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
Maximum acceptable accumulated chromatic dispersion on the receiver. Measured in ps/nm (picoseconds per nanometer).				
chromaticAndPolarizationDispersionPenalty	CdPmdPenalty	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
Optional penalty associated with a given accumulated CD and PMD. This list of triplet cd, pmd, penalty can be used to sample the function $\text{penalty} = f(\text{CD}, \text{PMD})$.				
maxDiffGroupDelay	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Maximum Differential group delay of this mode for this lane. Measured in picoseconds.			
maxPolarizationDependentLossPenalty	PdlPenalty	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Optional penalty associated with the maximum acceptable accumulated polarization dependent loss. This list of pair pdl and penalty can be used to sample the function pdl = f(penalty).			
standardModulationType	StandardModulationTechnique	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Modulation type this transceiver profile can support.			
minOsnr	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Min OSNR: if received OSNR at minimum Rx-power is lower than MIN-OSNR, an increased level of bit-errors post-FEC needs to be expected. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth).			
minQFactor	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Min Qfactor at FEC threshold. Measured in dB.			
baudRate	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Baud-rate the specific transceiver in the list can support. Baud-rate is the unit for symbol rate or modulation rate in symbols per second or pulses per second. It is the number of distinct symbol changes (signal events) made to the transmission medium per second in a digitally modulated signal or a line code. Measured in Bd.			
rollOff	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The roll-off factor (beta with values from 0 to 1) identifies how the real signal shape exceed the baud rate. If=0 it is exactly matching the baud rate. If=1 the signal exceeds the 50% of the baud rate at each side.			
minCarrierSpacing	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: This attribute specifies the minimum nominal difference between the carrier frequencies of two homogeneous OTSis (which have the same optical characteristics but the central frequencies) such that if they are placed next to each other the interference due to spectrum overlap between them can be considered negligible. In case of heterogeneous OTSi it is up to path computation engine to determine the minimum distance between the carrier frequency of the two adjacent OTSi. Measured in Hz.			
fecType	FecType	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Available FEC.			
fecCodeRate	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: FEC code rate.			

Attribute Name	Type	Mult.	Access	Stereotypes
fecThreshold	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	Threshold on the BER, for which FEC is able to correct errors.			
otherProperties	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 576 – Attributes for class *CommonExplicit*

12.2.7 CommonOrganizationalExplicit

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
frequencyRange	FrequencyRange	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	This parameter indicates the minimum and maximum frequency for the transmitter tuning range.			
centralFrequencyStep	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This parameter indicates the transmitter tunability grid as the distance between two adjacent carrier frequencies of the transmitter tuning range. Measured in Hz.			
txChannelPowerMin	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The minimum output power. Measured in dBm.			
txChannelPowerMax	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The maximum output power. Measured in dBm.			
rxChannelPowerMin	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The minimum input power. Measured in dBm.			
rxChannelPowerMax	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The maximum input power. Measured in dBm.			
rxTotalPowerMax	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Maximum rx optical power for all the channels received at the interface. Measured in dBm.			

Table 577 – Attributes for class *CommonOrganizationalExplicit*

12.2.8 ConnectivityImpairmentProfile

Description:

- This profile centralizes all the parameters of CCAMP ROADM add/drop/express path impairment profiles.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
frequencyRange	FrequencyRange	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
roadmPmd	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description: Polarization Mode Dispersion, in picoseconds per square root kilometer.				
roadmCd	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description: Chromatic Dispersion in ps/nm (picoseconds per nanometer).				
roadmPdl	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description: Polarization Dependent Loss, in dB.				

Attribute Name	Type	Mult.	Access	Stereotypes
roADMInbandCrosstalk	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			In-band crosstalk, or coherent crosstalk, can occur in components that can have multiple same wavelength inputs, with the inputs either routed to different output ports,or all but 1 blocked. In the case of drop path it is the total of the ingress to drop e.g. WSS and drop block crosstalk contributions. Measured in dB.
roADMMaxloss	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			Add path / Sink direction: This is the maximum expected add path loss from the add/drop port input to the ROADM egress, assuming no additional add path loss is added. This is used to establish the minimum required transponder output power required to hit the ROADM egress target power levels and preventing to hit the WSS attenuation limits. If the add path contains an internal amplifier this loss value should be based on worst case expected amplifier gain due to ripple or gain uncertainty. Drop path / Source direction: The net loss from the ROADM input,to the output of the drop block. If ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power contraints. The max value correspond to worst case expected loss, including amplifier gain ripple or uncertainty. It is the maximum output power of the drop amplifier. Measured in dB.
roADMMinloss	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			The net loss from the ROADM input, to the output of the drop block. If this ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power contraints. The min value correspond to best case expected loss, including amplifier gain ripple or uncertainty. Measured in dB.
roADMTyploss	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The net loss from the ROADM input, to the output of the drop block. If this ROADM ingress to drop path includes an amplifier, the amplifier gain reduces the net loss. This is before any additional drop path attenuation that may be required due to drop amplifier power contraints. The typ value correspond to typical case expected loss. Measured in dB.			
roadmPmin	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple, for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the min per carrier power levels expected at the output of the drop block. Measured in dBm.			
roadmPmax	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Add path / Sink direction: This is the maximum (per carrier) power level permitted at the add block input ports, that can be handled by the ROADM node. This may reflect either add amplifier power contraints or WSS adjustment limits. Higher power transponders would need to have their launch power reduced to this value or lower. Drop pah / Source direction: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple,for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the best case per carrier power levels expected at the output of the drop block. Measured in dBm.			
roadmPtyp	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: If the drop path has additional loss that is added, for example, to hit target power levels into a drop path amplifier, or simply, to reduce the power of a strong carrier (due to ripple, for example), then the use of the ROADM input power levels and the above drop losses is not appropriate. This parameter corresponds to the typical case per carrier power levels expected at the output of the drop block. Measured in dBm.			

Attribute Name	Type	Mult.	Access	Stereotypes
roadmOsnr	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Optical Signal-to-Noise Ratio (OSNR). Add path / Sink direction: If the add path contains the ability to adjust the carrier power levels into an add path amplifier (if present) to a target value, this reflects the OSNR contribution of the add amplifier assuming this target value is obtained. The worst case OSNR based on the input power and NF calculation method, and this value, should be used (if both are defined). Drop path / Source direction: Expected OSNR contribution of the drop path amplifier (if present) for the case of additional drop path loss (before this amplifier) in order to hit a target power level (per carrier). If both, - the OSNR based on the ROADM input power level ($P_{carrier} = Pref + 10\log(carrier-baudrate/ref-baud) + \text{delta-power}$) and the input inferred NF(NF.drop), and - this OSNR value, are defined, the minimum value between these two should be used. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth).
roadmNoiseFigure	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Add path / Sink direction: If the add path contains an amplifier, this is the noise figure of that amplifier inferred to the add port. This permits add path OSNR calculation based on the input power levels to the add block without knowing the ROADM path losses to the add amplifier. Drop path / Source direction: If the drop path contains an amplifier, this is the noise figure of that amplifier, inferred to the ROADM ingress port. This permits to determine amplifier OSNR contribution without having to specify the ROADM node's losses to that amplifier. This applies for the case of no additional drop path loss, before the amplifier, in order to reduce the power of the carriers to a target value. Measured in dB.

Table 578 – Attributes for class *ConnectivityImpairmentProfile*

12.2.9 FiberProfile

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
typeVariety	String	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
lossCoef	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Loss coefficient of the fiber in dB/Km.
fiberPmd	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Polarization Mode Dispersion, in picoseconds per square root kilometer.
effectiveArea	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Effective area of the fiber, in square meters.

Table 579 – Attributes for class *FiberProfile***12.2.10 FlexiGridConfigPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
n	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				RFC 9093: The given value 'N' is used to determine the nominal central frequency. The nominal central frequency, 'f', is defined by: - $f = 193100.000 \text{ GHz} + N \times \text{channel spacing}$ (measured in GHz), where 193100.000 GHz (193.10000 THz) is the ITU-T 'anchor frequency' for transmission over the DWDM grid, and where 'channel spacing' is defined by the flexi-ch-spc-type. Note that the term 'channel spacing' can be substituted by the term 'nominal central frequency granularity' defined in clause 8 of ITU-T G.694.1. Signed.
m	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
				RFC 9093: The given value 'M' is used to determine the slot width. A slot width is defined by: - slot width = M x SWG (measured in GHz), where SWG (Slot Width Granularity) is defined by the flexi-slot-width-granularity.
flexiChSpcType	FlexiChannelSpacing	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
flexiSlotWidthGranularity	FlexiSlotWidthGranularity	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 580 – Attributes for class *FlexiGridConfigPac*

12.2.11 FlexiGridPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
n	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
RFC 9093: The given value 'N' is used to determine the nominal central frequency. The nominal central frequency, 'f', is defined by: - $f = 193100.000 \text{ GHz} + N \times \text{channel spacing}$ (measured in GHz), where 193100.000 GHz (193.10000 THz) is the ITU-T 'anchor frequency' for transmission over the DWDM grid, and where 'channel spacing' is defined by the flexi-ch-spc-type. Note that the term 'channel spacing' can be substituted by the term 'nominal central frequency granularity' defined in clause 8 of ITU-T G.694.1. Signed.				
m	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
RFC 9093: The given value 'M' is used to determine the slot width. A slot width is defined by: - slot width = M x SWG (measured in GHz), where SWG (Slot Width Granularity) is defined by the flexi-slot-width-granularity.				
flexiChSpcType	FlexiChannelSpacing	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
flexiSlotWidthGranularity	FlexiSlotWidthGranularity	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 581 – Attributes for class *FlexiGridPac*

12.2.12 ImpairmentRouteEntry

Description:

- An ImpairmentRouteEntry can be exclusively either an OtsConcentratedLoss or an OtsFiberSpanImpairments.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otsConcentratedLoss	OtsConcentratedLoss	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_otsFiberSpanImpairments	OtsFiberSpanImpairments	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 582 – Attributes for class *ImpairmentRouteEntry***12.2.13 McBandwidthConfigPac****Description:**

- MC configuration based on bandwidth, with the actual position in the spectrum is delegated to the server controller.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrumBandwidth	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
edgeFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 583 – Attributes for class *McBandwidthConfigPac*

12.2.14 McConnectionEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_spectrumPac	SpectrumPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_flexiGridPac	FlexiGridPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
_powerMeasurementPac	PowerMeasurementPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 584 – Attributes for class *McConnectionEndPointSpec***12.2.15 McFlexiGridConfigPac****Description:**

- ITU-T G.694.1 Spectral grids for WDM applications: DWDM frequency grid. The flexi-grid-frequency-slot (RFC 9093) defines the nominal central frequency and its slot width in terms of N, M.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_flexiGridConfigPac	FlexiGridConfigPac	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: true• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 585 – Attributes for class *McFlexiGridConfigPac*

12.2.16 McSpectrumConfigPac

Description:

- MC configuration based on spectrum specification.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrum	FrequencyRange	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
Description:				
edgeFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey: No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.			

Table 586 – Attributes for class *McSpectrumConfigPac*

12.2.17 *McConnectivityServiceEndPointSpec*

Description:

- MCG provisioning scenarios: 1) In case of MCG provisioning based on multiple SIPs (e.g. more add/drop ports each one potentially supporting a single OTSi), then a unique/top CSEP instance (not referring to any SIP, with a MC LPC including *McConnectivityServiceEndPointSpec* with specified only the number of MCs) refers to the CSEP instances (one per each MEDIA Link, each one referring to one SIP, each one with a MC LPC including *McConnectivityServiceEndPointSpec* composing only one MC config pac), through the *CSEPHasAssembledCSEPs* association. 2) In case of MCG provisioning based on single SIP, then the model is compacted into only one CSEP instance, with a MC LPC including *McConnectivityServiceEndPointSpec*, which composes one or more MC config pacs).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
numberOfMc	Integer Default value: 1	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_mcSpectrumConfigPac	McSpectrumConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_mcBandwidthConfigPac	McBandwidthConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_mcFlexiGridConfigPac	McFlexiGridConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 587 – Attributes for class *McgConnectivityServiceEndPointSpec*

12.2.18 OmsConnectionEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_spectrumPac	SpectrumPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
_flexiGridPac	FlexiGridPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
_amplification	Amplification	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
_omsGeneralOpticalParams	OmsGeneralOpticalParams	0..2	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
_powerMeasurementPac	PowerMeasurementPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				

Table 588 – Attributes for class *OmsConnectionEndPointSpec*

12.2.19 OmsGeneralOpticalParams

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
frequencyRange	FrequencyRange	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
ingressDirection	Boolean Default value: <i>true</i>	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
For unidirectional CEPs there may be at most one oms general optical params. The ingress direction is true for a SINK CEP and false for a SOURCE CEP. For bidirectional CEPs there may be at most two oms general optical parms. If there are two one must have the ingress direction set to true and the other must have the ingress direction set to false. If the ingress direction is true the params correspond to the SINK function of the CEP and if it is false they correspond to the SOURCE function of the CEP.				
generalizedSnr	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
Generalized SNR. Measured in dB@0.1nm (over 0.1 nm resolution bandwidth).				
_powerParams	PowerParams	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Table 589 – Attributes for class *OmsGeneralOpticalParams***12.2.20 OscMonitoringPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
opticalInputPower	PowerProperties	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
opticalOutputPower	PowerProperties	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 590 – Attributes for class *OscMonitoringPac***12.2.21 OscParams**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_powerMeasurementPac	PowerMeasurementPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			

Table 591 – Attributes for class *OscParams***12.2.22 OtsConcentratedLoss**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
concentratedLoss	Real	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:		Concentrated loss, in dB.		

Table 592 – Attributes for class *OtsConcentratedLoss***12.2.23 OtsFiberSpanImpairments**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
fiberTypeVariety	String	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:		Fiber type.		

Attribute Name	Type	Mult.	Access	Stereotypes
pmd	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Polarization Mode Dispersion in picoseconds per square root kilometer.			
length	Integer	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Length of the fiber in Km.			
lossCoef	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Loss coefficient of the fiber in dB/Km.			
totalLoss	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Includes all losses: Fiber loss and connector in and connector out losses, in dB.			
connectorIn	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Loss by the input connector, in dB.			

Attribute Name	Type	Mult.	Access	Stereotypes
connectorOut	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Loss by the output connector, in dB.

Table 593 – Attributes for class *OtsFiberSpanImpairments***12.2.24 OtsImpairments**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
ingressDirection	Boolean Default value: <i>true</i>	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				For unidirectional CEPs there may be at most one ots impairments. The ingress direction is true for a SINK CEP and false for a SOURCE CEP. For bidirectional CEPs there may be at most two ots impairments. If there are two one must have the ingress direction set to true and the other must have the ingress direction set to false. If the ingress direction is true the params correspond to the SINK function of the CEP and if it is false they correspond to the SOURCE function of the CEP.
_impairmentRouteEntry	ImpairmentRouteEntry	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 594 – Attributes for class *OtsImpairments***12.2.25 OtsMediaConnectionEndPointSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_spectrumPac	SpectrumPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_flexiGridPac	FlexiGridPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_otsImpairments	OtsImpairments	0..2	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_powerMeasurementPac	PowerMeasurementPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_oscParams	OscParams	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			

Table 595 – Attributes for class *OtsMediaConnectionEndPointSpec***12.2.26 OtsiConfigPac****Description:**

- Configuration parameters regarding the single O/E/O transmission function.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
centralFrequency	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				The central frequency of the laser. It is the oscillation frequency of the corresponding electromagnetic wave. Measured in Hz.
laserControl	LaserControlType	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_otsiThresholdPowerConfig	OtsiThresholdPowerConfig	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_commonExplicit	CommonExplicit	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_commonOrganizationalExplicit	CommonOrganizationalExplicit	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
An identifier that is unique in the context of the GlobalClass from which it is inseparable.				
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.				

Table 596 – Attributes for class *OtsiConfigPac*

12.2.27 OtsiMcBandwidthConfigPac

Description:

- OTSiMC configuration based on bandwidth, with the actual position in the spectrum is delegated to the server controller.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrumBandwidth	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				Unidimensional in Hz.
centerFrequencyOffset	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				Offset where it is expected to find the signal in the MC. (unidimensional in Hz).
centerFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
edgeFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
nonAdjacentSpectrum	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 597 – Attributes for class *OtsiMcBandwidthConfigPac*

12.2.28 OtsiMcConnectionEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otsiTerminationPac	OtsiTerminationPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_spectrumPac	SpectrumPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Mandatory if the CEP is not terminated, optional if terminated.
_flexiGridPac	FlexiGridPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_powerMeasurementPac	PowerMeasurementPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 598 – Attributes for class *OtsiMcConnectionEndPointSpec*

12.2.29 OtsiMcFlexiGridConfigPac

Description:

- ITU-T G.694.1 Spectral grids for WDM applications: DWDM frequency grid. The flexi-grid-frequency-slot (RFC 9093) defines the nominal central frequency and its slot width in terms of N, M.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_flexiGridConfigPac	FlexiGridConfigPac	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 599 – Attributes for class *OtsiMcFlexiGridConfigPac*

12.2.30 OtsiMcFrequencyConfigPac

Description:

- OTSiMC configuration based on central frequency specification.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
centralFrequency	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
centerFrequencyOffset	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Offset where it is expected to find the signal in the MC. (unidimensional in Hz, signed).				
spectrumBandwidth	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Unidimensional in Hz				
centerFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
edgeFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				An identifier that is unique in the context of the GlobalClass from which it is inseparable.
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				List of names. This value is unique in some namespace but may change during the life of the entity. A name carries no semantics with respect to the purpose of the entity.

Table 600 – Attributes for class *OtsiMcFrequencyConfigPac*

12.2.31 OtsiMcSpectrumConfigPac

Description:

- OTSiMC configuration based on spectrum specification.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrum	FrequencyRange	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
centerFrequencyOffset	Integer	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Offset where it is expected to find the signal in the MC. (unidimensional in Hz).			
centerFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
edgeFrequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_powerManagementConfigPac	PowerManagementConfigPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalCl ass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	An identifier that is unique in the context of the GlobalClass from which it is inseparable.			

Attribute Name	Type	Mult.	Access	Stereotypes
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 601 – Attributes for class *OtsiMcSpectrumConfigPac***12.2.32 OtsiMcConnectivityServiceEndPointSpec****Description:**

- OTSiMCG CSEP is provisioned also in case OTSiMC layer is not explicitly represented on Resource side, i.e. no OTSiMC Connections and CEPs are instantiated. OTSiMCG provisioning scenarios: are analogous to MCG provisioning scenarios. OtsiMcBandwidthConfigPac, OtsiMcSpectrumConfigPac and OtsiMcFrequencyConfigPac are mutually exclusive.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
numberOfOtsiMc	Integer Default value: 1	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
_otsiMcBandwidthConfigPac	OtsiMcBandwidthConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otsiMcSpectrumConfigPac	OtsiMcSpectrumConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_otsiMcFrequencyConfigPac	OtsiMcFrequencyConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_otsiMcFlexiGridConfigPac	OtsiMcFlexiGridConfigPac	0..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 602 – Attributes for class *OtsiMcgConnectivityServiceEndPointSpec*

12.2.33 OtsiMonitoringPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
polarizationModeDispersion	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
Polarization mode dispersion on the receiver. Measured in picoseconds per square root kilometer.				

Attribute Name	Type	Mult.	Access	Stereotypes
chromaticDispersion	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Chromatic dispersion on the receiver. Measured in ps/nm (picoseconds per nanometer).				
diffGroupDelay	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Differential group delay of this mode for this lane. Measured in picoseconds.				
frequencyOffset	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Frequency offset measured in Hz.				

Table 603 – Attributes for class *OtsiMonitoringPac***12.2.34 OtsiRoutingSpec****Description:**

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- Experimental
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
opticalRoutingStrategy	OpticalRoutingStrategy	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			

Table 604 – Attributes for class *OtsiRoutingSpec***12.2.35 OtsiTerminationPac****Description:**

- Present in case of terminated OTSiMC CEP, i.e. including O/E/O function.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
selectedCentralFrequency	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: YES
Description:				
				The central frequency of the laser. It is the oscillation frequency of the corresponding electromagnetic wave. Measured in Hz.
selectedSpectrum	FrequencyRange	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
laserProperties	LaserProperties	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				Laser properties.

Attribute Name	Type	Mult.	Access	Stereotypes
_otsiMonitoringPac	OtsiMonitoringPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 605 – Attributes for class *OtsiTerminationPac***12.2.36 OtsiThresholdPowerConfig****Description:**

- This pac includes power management constraints.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
totalPowerWarnThresholdUpper	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
totalPowerWarnThresholdLower	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 606 – Attributes for class *OtsiThresholdPowerConfig***12.2.37 OtsiaConnectivityServiceEndPointSpec****Description:**

- OTU/OTSiG provisioning scenarios: 1) In case of ODU/OTU/OTSiG provisioning based on multiple SIPs (e.g. more line ports each one potentially supporting a single OTSi), then the unique/top CSEP instance (not referring to any SIP, with an OTSiMC LPC including OtsiaCsepTtpSpec with specified only the number of OTSis) refers to the CSEP instances (one per each MEDIA Link, each one referring to one SIP, each one with an OTSiMC LPC including OtsiaCsepTtpSpec composing only one OTSi config pac), through the CSEPHasAssembledCSEPs association. 2) In case of ODU/OTU/OTSiG provisioning based on single SIP, then the model is compacted into only one CSEP instance, with an OTSiMC LPC including OtsiaCsepTtpSpec which composes one or more OTSi config pacs).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otsiConfig	OtsiConfigPac	1..*	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
numberOfOTSi	Integer Default value: 1	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
totalPowerWarnThresholdUpper	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
Allows to configure the upper power threshold on whole Assembly scope.				

Attribute Name	Type	Mult.	Access	Stereotypes
totalPowerWarnThresholdLower	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Allows to configure the lower power threshold on whole Assembly scope.

Table 607 – Attributes for class *OtsiaConnectivityServiceEndPointSpec***12.2.38 PhotonicMediaNodeEdgePointSpec**

Applied stereotypes:

- OpenModelClass
 - support: CONDITIONAL_MANDATORY
 - condition: OTSiA
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_spectrumCapabilityPac	SpectrumCapabilityPac	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_powerManagementCapabilityPac	PowerManagementCapabilityPac	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_totalPowerThresholdPac	TotalPowerThresholdPac	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			

Table 608 – Attributes for class *PhotonicMediaNodeEdgePointSpec***12.2.39 PhotonicMediaServiceInterfacePointSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_spectrumCapabilityPac	SpectrumCapabilityPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_powerManagementCapabilityPac	PowerManagementCapabilityPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_totalPowerThresholdPac	TotalPowerThresholdPac	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Table 609 – Attributes for class *PhotonicMediaServiceInterfacePointSpec***12.2.40 PhotonicPerformanceData**

Applied stereotypes:

- OpenModelClass

- support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
opticalInputPower	PowerProperties	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
opticalOutputPower	PowerProperties	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
inputVoa	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
outputVoa	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
opticalGain	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
opticalTilt	Real	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_amplificationPerformanceData	AmplificationPerformanceData	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_otsiMonitoringPac	OtsiMonitoringPac	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_oscMonitoringPac	OscMonitoringPac	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 610 – Attributes for class *PhotonicPerformanceData*

12.2.41 PowerManagementCapabilityPac

Description:

- This pac includes power management capabilities.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrum	FrequencyRange	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
supportableMaxOutputPower	PowerProperties	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This parameter exposes the maximum output power supported.				
supportableMinOutputPower	PowerProperties	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This parameter exposes the minimum output power supported.				
tolerableMaxInputPower	PowerProperties	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This parameter exposes the maximum input power tolerated.				
tolerableMinInputPower	PowerProperties	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This parameter exposes the minimum input power tolerated.				

Table 611 – Attributes for class *PowerManagementCapabilityPac*

12.2.42 PowerManagementConfigPac

Description:

- This pac includes power management constraints.

Applied stereotypes:

- Experimental
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
maxOutputPower	PowerProperties	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
Add/drop ROADM port: This parameter shall be used to specify the maximum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver max launch (TX) power. This specifies constraints related to power that the transceiver should guarantee.				
minOutputPower	PowerProperties	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
Add/drop ROADM port: This parameter shall be used to specify the minimum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver min launch (TX) power. This specifies constraints related to power that the transceiver should guarantee.				
maxInputPower	PowerProperties	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
Add/drop ROADM port: This parameter shall be used to specify the maximum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver max launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. This parameter conveys the attached transceiver max launch (TX) power (expected from the transceiver). This specifies constraints related to power tolerance at the input.				

Attribute Name	Type	Mult.	Access	Stereotypes
minInputPower	PowerProperties	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA <p>Description:</p> <p>Add/drop ROADM port: This parameter shall be used to specify the minimum power to be delivered to the local transceiver i.e., after the signal has crossed the amplification/attenuation of the optical line system. This specifies constraints related to power that the OLS should guarantee. Transceiver: the transceiver min launch (TX) power. This specifies constraints related to power that the transceiver should guarantee. This parameter conveys the attached transceiver min launch (TX) power (expected from the transceiver). This specifies constraints related to power tolerance at the input.</p>

Table 612 – Attributes for class *PowerManagementConfigPac***12.2.43 PowerMeasurementPac**

Applied stereotypes:

- Experimental
- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
measuredInputPower	PowerProperties	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA <p>Description:</p>

measuredOutputPower	PowerProperties	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA <p>Description:</p>
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Table 613 – Attributes for class *PowerMeasurementPac*

12.2.44 PowerParams

Description:

- Optical power or PSD after the ROADM or after the out-voa.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_powerSpectralDensity	PowerSpectralDensity	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_channelPower	ChannelPower	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 614 – Attributes for class *PowerParams*

12.2.45 PowerSpectralDensity

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
nominalPowerSpectralDensity	Real	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: Reference power spectral density after the ROADM or after the out-voa. Typical value : 3.9 E-14, resolution 0.1nW/MHz Measured in W/Hz.				

Table 615 – Attributes for class *PowerSpectralDensity***12.2.46 RegenMetric****Description:**

- This structure is for further development and is NOT used in this version.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
regenMetric	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
	Description:			

Table 616 – Attributes for class *RegenMetric***12.2.47 SpectrumCapabilityPac****Applied stereotypes:**

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
supportableSpectrum	SpectrumBand	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
availableSpectrum	SpectrumBand	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
occupiedSpectrum	SpectrumBand	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 617 – Attributes for class *SpectrumCapabilityPac*

12.2.48 SpectrumPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
occupiedSpectrum	FrequencyRange	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	String	1	RW	OpenModelAttribute • isKey: yes – part: true • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: An identifier that is unique in the context of the GlobalClass from which it is inseparable.			
name Inherited: <i>TapiCommon::ObjectClasses::LocalClass::name</i>	NameAndValue	0..*	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 618 – Attributes for class *SpectrumPac*

12.2.49 TotalPowerThresholdPac

Description:

- Indication with severity warning raised when a total power value measured is above the threshold.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
spectrum	FrequencyRange	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
totalPowerUpperWarnThresholdDefault	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
	Description: Can read the value of the default threshold that was set			

Attribute Name	Type	Mult.	Access	Stereotypes
totalPowerUpperWarnThresholdMin	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Can read the value of the lower threshold that was set				
totalPowerUpperWarnThresholdMax	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Can read the value of the upper threshold that was set				
totalPowerLowerWarnThresholdDefault	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
Description:				
Can read the value of the default threshold that was set				
totalPowerLowerWarnThresholdMin	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Can read the value of the lower threshold that was set				
totalPowerLowerWarnThresholdMax	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
Can read the value of the upper threshold that was set				

Table 619 – Attributes for class *TotalPowerThresholdPac*

12.2.50 TransceiverExplicit

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_commonOrganizationalExplicit	CommonOrganizationalExplicit	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_commonExplicit	CommonExplicit	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_supportedStandardApplicationCode	Profile	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_supportedOrganizationalMode	Profile	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 620 – Attributes for class *TransceiverExplicit*

12.2.51 TransceiverOrganizational

Applied stereotypes:

- OpenModelClass

- support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
operationalMode	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY OpenInterfaceModelAttribute ● AVC: NA
				Description: Organization/vendor specific mode that guarantees interoperability, reference ITU-T G.698.2 (11/2018).
organizationIdentifier	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY OpenInterfaceModelAttribute ● AVC: NA
				Description: Vendor/organization identifier that uses a private mode out of already defined in G.698.2 ITU-T application-code (RFC 7581).
_commonOrganizationalExplicit	CommonOrganizationalExplicit	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY OpenInterfaceModelAttribute ● AVC: NA
				Description:

Table 621 – Attributes for class *TransceiverOrganizational*

12.2.52 TransceiverProfile

Description:

- The referenced specific profiles are mutually exclusive.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_transceiverStandardProfile	TransceiverStandard	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_transceiverOrganizationalProfile	TransceiverOrganizational	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_transceiverExplicitProfile	TransceiverExplicit	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 622 – Attributes for class *TransceiverProfile*

12.2.53 TransceiverStandard

Description:

- The standard application identifier.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
applicationCodeRec	StandardApplicationCodeRec	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The ITU-T recommendation which defines the application code format.			
applicationCode	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The standard application code as defined in the ITU-T Recommendation referenced in application code rec.			

Table 623 – Attributes for class *TransceiverStandard***12.2.54 TransceiverTerminationType****Description:**

- Describes whether the transponder can be used in an Optical Tunnel termination configuration or in a 3R configuration (or both).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
transceiverTerminationType	TransceiverTerminationType	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 624 – Attributes for class *TransceiverTerminationType***12.3 Signals****12.4 Associations****12.4.1 AmplificationConfigHasPowerParams****Applied stereotype:**

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerParams	composite	Yes	PowerParams	0..1
amplificationconfig	none	No	AmplificationConfig	1

Table 625 – Member ends for association *AmplificationConfigHasPowerParams***12.4.2 AmplificationFunctionHasProfile**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_profile	none	Yes	Profile	0..1
amplification	none	No	Amplification	1

Table 626 – Member ends for association *AmplificationFunctionHasProfile***12.4.3 ExplicitModeHasCommonExplicitMode**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_commonExplicit	composite	Yes	CommonExplicit	1
explicitmode	none	No	TransceiverExplicit	1

Table 627 – Member ends for association *ExplicitModeHasCommonExplicitMode***12.4.4 ExplicitModeHasCommonMode**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_commonOrganizationalExplicit	composite	Yes	CommonOrganizationalExplicit	0..1
explicitmode	none	No	TransceiverExplicit	1

Table 628 – Member ends for association *ExplicitModeHasCommonMode***12.4.5 ImpairmentRouteEntryIsOtsConcentratedLoss**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsConcentratedLoss	composite	Yes	OtsConcentratedLoss	0..1
impairmentcontribution	none	No	ImpairmentRouteEntry	1

Table 629 – Member ends for association *ImpairmentRouteEntryIsOtsConcentratedLoss*

12.4.6 ImpairmentRouteEntryIsOtsFiberSpan

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsFiberSpanImpairments	composite	Yes	OtsFiberSpanImpairments	0..1
impairmentrouteentry	none	No	ImpairmentRouteEntry	1

Table 630 – Member ends for association *ImpairmentRouteEntryIsOtsFiberSpan*

12.4.7 McBandwidthConfigPacHasPowerConfigPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
mediachannelbwconfigpac	none	No	McBandwidthConfigPac	1

Table 631 – Member ends for association *McBandwidthConfigPacHasPowerConfigPac*

12.4.8 McCepHasFlexiGridPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridPac	composite	Yes	FlexiGridPac	0..1
mcconnectionendpointspec	none	No	McConnectionEndPointSpec	1

Table 632 – Member ends for association *McCepHasFlexiGridPac*

12.4.9 McCepHasPowerPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerMeasurementPac	composite	Yes	PowerMeasurementPac	0..1
mcconnectionendpointspec	none	No	McConnectionEndPointSpec	1

Table 633 – Member ends for association *McCepHasPowerPac*

12.4.10 McCepHasSpectrumPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumPac	composite	Yes	SpectrumPac	0..1
mcconnectionendpointspec	none	No	McConnectionEndPointSpec	1

Table 634 – Member ends for association *McCepHasSpectrumPac*

12.4.11 **McGridConfigPacHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridConfigPac	composite	Yes	FlexiGridConfigPac	1
mcgridconfigpac	none	No	McFlexiGridConfigPac	1

Table 635 – Member ends for association *McGridConfigPacHasFlexiGridConfigPac*

12.4.12 **McGridConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
mcgridconfigpac	none	No	McFlexiGridConfigPac	1

Table 636 – Member ends for association *McGridConfigPacHasPowerConfigPac*

12.4.13 **McSpectrumConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
mediachannelconfigpac	none	No	McSpectrumConfigPac	1

Table 637 – Member ends for association *McSpectrumConfigPacHasPowerConfigPac*

12.4.14 **McCsepHasBandwidthConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mcBandwidthConfigPac	composite	Yes	McBandwidthConfigPac	0..*
mcconnectivityserviceendpointspec	none	No	McgConnectivityServiceEndPointSpec	1

Table 638 – Member ends for association *McgCsepHasBandwidthConfigPac***12.4.15 McgCsepHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mcFlexiGridConfigPac	composite	Yes	McFlexiGridConfigPac	0..*
mcconnectivityserviceendpointspec	none	No	McgConnectivityServiceEndPointSpec	1

Table 639 – Member ends for association *McgCsepHasFlexiGridConfigPac***12.4.16 McgCsepHasSpectrumConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_mcSpectrumConfigPac	composite	Yes	McSpectrumConfigPac	0..*
mcconnectivityserviceendpointspec	none	No	McgConnectivityServiceEndPointSpec	1

Table 640 – Member ends for association *McgCsepHasSpectrumConfigPac***12.4.17 NextAmplificationFunction**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_amplification	none	Yes	Amplification	0..*
amplification	none	No	Amplification	1

Table 641 – Member ends for association *NextAmplificationFunction***12.4.18 OmsCepHasAmplifiers**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_amplification	composite	Yes	Amplification	0..*
omsconnectionendpointspec	none	No	OmsConnectionEndPointSpec	1

Table 642 – Member ends for association *OmsCepHasAmplifiers***12.4.19 OmsCepHasFlexiGridPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridPac	composite	Yes	FlexiGridPac	0..*
omsconnectionendpointspec	none	No	OmsConnectionEndPointSpec	1

Table 643 – Member ends for association *OmsCepHasFlexiGridPac***12.4.20 OmsCepHasOmsGeneralOpticalParams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_omsGeneralOpticalParams	composite	Yes	OmsGeneralOpticalParams	0..2
omsconnectionendpointspec	none	No	OmsConnectionEndPointSpec	1

Table 644 – Member ends for association *OmsCepHasOmsGeneralOpticalParams***12.4.21 OmsCepHasPowerPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerMeasurementPac	composite	Yes	PowerMeasurementPac	0..1
omsconnectionendpointspec	none	No	OmsConnectionEndPointSpec	1

Table 645 – Member ends for association *OmsCepHasPowerPac***12.4.22 OmsCepHasSpectrumPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumPac	none	Yes	SpectrumPac	0..*
omsconnectionendpointspec	none	No	OmsConnectionEndPointSpec	1

Table 646 – Member ends for association *OmsCepHasSpectrumPac***12.4.23 OmsGeneralOptParamsHasPowerParams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerParams	composite	Yes	PowerParams	0..1
omsgeneralopticalparams	none	No	OmsGeneralOpticalParams	1

Table 647 – Member ends for association *OmsGeneralOptParamsHasPowerParams***12.4.24 OrganizationalModeHasCommonMode**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_commonOrganizationalExplicit	composite	Yes	CommonOrganizationalExplicit	0..1
organizationalmode	none	No	TransceiverOrganizational	1

Table 648 – Member ends for association *OrganizationalModeHasCommonMode***12.4.25 OscParamsHasPowerPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerMeasurementPac	composite	Yes	PowerMeasurementPac	0..1
oscparams	none	No	OscParams	1

Table 649 – Member ends for association *OscParamsHasPowerPac***12.4.26 OtsImpairmentRoute**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_impairmentRouteEntry	composite	Yes	ImpairmentRouteEntry	0..*
otsimpairments	none	No	OtsImpairments	1

Table 650 – Member ends for association *OtsImpairmentRoute***12.4.27 OtsMediaCepHasFlexiGridPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridPac	composite	Yes	FlexiGridPac	0..*
otsmediaconnectionendpointspec	none	No	OtsMediaConnectionEndPointSpec	1

Table 651 – Member ends for association *OtsMediaCepHasFlexiGridPac***12.4.28 OtsMediaCepHasOscParams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oscParams	composite	Yes	OscParams	0..1
otsmediaconnectionendpointspec	none	No	OtsMediaConnectionEndPointSpec	1

Table 652 – Member ends for association *OtsMediaCepHasOscParams***12.4.29 OtsMediaCepHasOtsImpairments**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsImpairments	composite	Yes	OtsImpairments	0..2
otsmediaconnectionendpointspec	none	No	OtsMediaConnectionEndPointSpec	1

Table 653 – Member ends for association *OtsMediaCepHasOtsImpairments***12.4.30 OtsMediaCepHasPowerPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerMeasurementPac	composite	Yes	PowerMeasurementPac	0..1
otsmediaconnectionendpointspec	none	No	OtsMediaConnectionEndPointSpec	1

Table 654 – Member ends for association *OtsMediaCepHasPowerPac***12.4.31 OtsMediaCepHasSpectrumPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumPac	composite	Yes	SpectrumPac	0..*
otsmediaconnectionendpointspec	none	No	OtsMediaConnectionEndPointSpec	1

Table 655 – Member ends for association *OtsMediaCepHasSpectrumPac***12.4.32 OtsiConfigHasExplicitParams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_commonExplicit	composite	Yes	CommonExplicit	0..1
otsiconfigpac	none	No	OtsiConfigPac	1

Table 656 – Member ends for association *OtsiConfigHasExplicitParams***12.4.33 OtsiConfigHasOrganizationalExplicitParams**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_commonOrganizationalExplicit	composite	Yes	CommonOrganizationalExplicit	0..1
otsiconfigpac	none	No	OtsiConfigPac	1

Table 657 – Member ends for association *OtsiConfigHasOrganizationalExplicitParams***12.4.34 OtsiConfigHasThresholdPowerConfig**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiThresholdPowerConfig	composite	Yes	OtsiThresholdPowerConfig	0..1
otsiconfig	none	No	OtsiConfigPac	1

Table 658 – Member ends for association *OtsiConfigHasThresholdPowerConfig***12.4.35 OtsiConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
otsiconfigpac	none	No	OtsiConfigPac	1

Table 659 – Member ends for association *OtsiConfigPacHasPowerConfigPac***12.4.36 OtsiMcBandwidthConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
otsimcbwconfigpac	none	No	OtsiMcBandwidthConfigPac	1

Table 660 – Member ends for association *OtsiMcBandwidthConfigPacHasPowerConfigPac***12.4.37 OtsiMcCepHasFlexiGridPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridPac	composite	Yes	FlexiGridPac	0..1
otsimconnectionendpointspec	none	No	OtsiMcConnectionEndPointSpec	1

Table 661 – Member ends for association *OtsiMcCepHasFlexiGridPac***12.4.38 OtsiMcCepHasPowerPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerMeasurementPac	composite	Yes	PowerMeasurementPac	0..1
otsimconnectionendpointspec	none	No	OtsiMcConnectionEndPointSpec	1

Table 662 – Member ends for association *OtsiMcCepHasPowerPac***12.4.39 OtsiMcCepHasSpectrumPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumPac	composite	Yes	SpectrumPac	0..1
otsimconnectionendpointspec	none	No	OtsiMcConnectionEndPointSpec	1

Table 663 – Member ends for association *OtsiMcCepHasSpectrumPac***12.4.40 OtsiMcCepHasTerminationPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiTerminationPac	composite	Yes	OtsiTerminationPac	0..1
otsimconnectionendpointspec	none	No	OtsiMcConnectionEndPointSpec	1

Table 664 – Member ends for association *OtsiMcCepHasTerminationPac***12.4.41 OtsiMcFreqConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
otsimcfreqconfigpac	none	No	OtsiMcFrequencyConfigPac	1

Table 665 – Member ends for association *OtsiMcFreqConfigPacHasPowerConfigPac***12.4.42 OtsiMcGridConfigPacHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_flexiGridConfigPac	composite	Yes	FlexiGridConfigPac	1
otsimcgridconfigpac	none	No	OtsiMcFlexiGridConfigPac	1

Table 666 – Member ends for association *OtsiMcGridConfigPacHasFlexiGridConfigPac***12.4.43 OtsiMcGridConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
otsimcgridconfigpac	none	No	OtsiMcFlexiGridConfigPac	1

Table 667 – Member ends for association *OtsiMcGridConfigPacHasPowerConfigPac***12.4.44 OtsiMcSpectrumConfigPacHasPowerConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementConfigPac	composite	Yes	PowerManagementConfigPac	0..1
otsimcconfigpac	none	No	OtsiMcSpectrumConfigPac	1

Table 668 – Member ends for association *OtsiMcSpectrumConfigPacHasPowerConfigPac***12.4.45 OtsiMcgCsepHasBandwidthConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMcBandwidthConfigPac	composite	Yes	OtsiMcBandwidthConfigPac	0..*
otsimcgconnectivityserviceendpointspec	none	No	OtsiMcgConnectivityServiceEndPointSpec	1

Table 669 – Member ends for association *OtsiMcgCsepHasBandwidthConfigPac***12.4.46 OtsiMcgCsepHasFlexiGridConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMcFlexiGridConfigPac	composite	Yes	OtsiMcFlexiGridConfigPac	0..*
otsimcgconnectivityserviceendpointspec	none	No	OtsiMcgConnectivityServiceEndPointSpec	1

Table 670 – Member ends for association *OtsiMcgCsepHasFlexiGridConfigPac***12.4.47 OtsiMcgCsepHasFreqConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMcFrequencyConfigPac	composite	Yes	OtsiMcFrequencyConfigPac	0..*
otsimcgconnectivityserviceendpointspec	none	No	OtsiMcgConnectivityServiceEndPointSpec	1

Table 671 – Member ends for association *OtsiMcgCsepHasFreqConfigPac***12.4.48 OtsiMcgCsepHasSpectrumConfigPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMcSpectrumConfigPac	composite	Yes	OtsiMcSpectrumConfigPac	0..*
otsimcgconnectivityserviceendpointspec	none	No	OtsiMcgConnectivityServiceEndPointSpec	1

Table 672 – Member ends for association *OtsiMcgCsepHasSpectrumConfigPac***12.4.49 OtsiTerminationPacHasMonitoring**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMonitoringPac	composite	Yes	OtsiMonitoringPac	0..1
otsiterminationpac	none	No	OtsiTerminationPac	1

Table 673 – Member ends for association *OtsiTerminationPacHasMonitoring***12.4.50 OtsiaCsepHasOtsiConfig**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiConfig	composite	Yes	OtsiConfigPac	1..*
otsiacseptpppac	none	No	OtsiaConnectivityServiceEndPointSpec	1

Table 674 – Member ends for association *OtsiaCsepHasOtsiConfig***12.4.51 PhoMediaSipHasMcPoolPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumCapabilityPac	composite	Yes	SpectrumCapabilityPac	1
smcserviceinterfacepoint	none	No	PhotonicMediaServiceInterfacePointSpec	1

Table 675 – Member ends for association *PhoMediaSipHasMcPoolPac***12.4.52 PhoMediaSipHasPowerCapabilityPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementCapabilityPac	composite	Yes	PowerManagementCapabilityPac	0..*
mediachannelpoolcapabilitypac	none	No	PhotonicMediaServiceInterfacePointSpec	1

Table 676 – Member ends for association *PhoMediaSipHasPowerCapabilityPac***12.4.53 PhoMediaSipHasPowerThreshold**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_totalPowerThresholdPac	composite	Yes	TotalPowerThresholdPac	0..*
photonicmediaserviceinterfacepointspec	none	No	PhotonicMediaServiceInterfacePointSpec	1

Table 677 – Member ends for association *PhoMediaSipHasPowerThreshold***12.4.54 PhotonicMediaNepHasPowerPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerManagementCapabilityPac	composite	Yes	PowerManagementCapabilityPac	0..*
photonicmedianodeedgepointspec	none	No	PhotonicMediaNodeEdgePointSpec	1

Table 678 – Member ends for association *PhotonicMediaNepHasPowerPac***12.4.55 PhotonicMediaNepHasPowerThrPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_totalPowerThresholdPac	composite	Yes	TotalPowerThresholdPac	0..*
photonicmedianodeedgepointspec	none	No	PhotonicMediaNodeEdgePointSpec	1

Table 679 – Member ends for association *PhotonicMediaNepHasPowerThrPac***12.4.56 PhotonicMediaNepHasSpectrumCapabilityPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_spectrumCapabilityPac	composite	Yes	SpectrumCapabilityPac	1
photonicmedianodeedgepointspec	none	No	PhotonicMediaNodeEdgePointSpec	1

Table 680 – Member ends for association *PhotonicMediaNepHasSpectrumCapabilityPac***12.4.57 PhotonicPerformanceDataHasOscPm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oscMonitoringPac	composite	Yes	OscMonitoringPac	0..1
photonicperformancedata	none	No	PhotonicPerformanceData	1

Table 681 – Member ends for association *PhotonicPerformanceDataHasOscPm***12.4.58 PhotonicPerformanceDataHasOtsiPm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiMonitoringPac	composite	Yes	OtsiMonitoringPac	0..1
photonicperformancedata	none	No	PhotonicPerformanceData	1

Table 682 – Member ends for association *PhotonicPerformanceDataHasOtsiPm***12.4.59 PhotonicPerformanceDataIncludesAmplificationPm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_amplificationPerformanceData	composite	Yes	AmplificationPerformanceData	0..*
photonicperformancedata	none	No	PhotonicPerformanceData	1

Table 683 – Member ends for association *PhotonicPerformanceDataIncludesAmplificationPm***12.4.60 PowerParamsHasChannelPower**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_channelPower	composite	Yes	ChannelPower	0..1
powerparams	none	No	PowerParams	1

Table 684 – Member ends for association *PowerParamsHasChannelPower***12.4.61 PowerParamsHasSpectralDensity**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_powerSpectralDensity	composite	Yes	PowerSpectralDensity	0..1
powerparams	none	No	PowerParams	1

Table 685 – Member ends for association *PowerParamsHasSpectralDensity***12.4.62 TransceiverExplicitProfileHasOrganizationalMode**

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedOrganizationalMode	none	Yes	Profile	0..1
transceiverexplicitprofile	none	No	TransceiverExplicit	1

Table 686 – Member ends for association *TransceiverExplicitProfileHasOrganizationalMode*

12.4.63 TransceiverExplicitProfileSupportsStdCode

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_supportedStandardApplicationCode	none	Yes	Profile	0..1
transceiverexplicitprofile	none	No	TransceiverExplicit	1

Table 687 – Member ends for association *TransceiverExplicitProfileSupportsStdCode*

12.4.64 TransceiverProfileHasExplicitProfile

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transceiverExplicitProfile	composite	Yes	TransceiverExplicit	0..1
transceiverprofile	none	No	TransceiverProfile	1

Table 688 – Member ends for association *TransceiverProfileHasExplicitProfile*

12.4.65 TransceiverProfileHasOrganizationalProfile

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transceiverOrganizationalProfile	composite	Yes	TransceiverOrganizational	0..1
transceiverprofile	none	No	TransceiverProfile	1

Table 689 – Member ends for association *TransceiverProfileHasOrganizationalProfile*

12.4.66 TransceiverProfileHasStandardProfile

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_transceiverStandardProfile	composite	Yes	TransceiverStandard	0..1
transceiverprofile	none	No	TransceiverProfile	1

Table 690 – Member ends for association *TransceiverProfileHasStandardProfile*

12.5 Abstractions

12.5.1 AmplificationProfileAugmentsProfile

Augmenting Class	Augmented Class	Comment
AmplificationProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 691 – Member ends for class abstraction *AmplificationProfileAugmentsProfile***12.5.2 ConnectivityImpairmentProfileAugmentsProfile**

Augmenting Class	Augmented Class	Comment
ConnectivityImpairmentProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 692 – Member ends for class abstraction *ConnectivityImpairmentProfileAugmentsProfile***12.5.3 FiberProfileAugmentsProfile**

Augmenting Class	Augmented Class	Comment
FiberProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 693 – Member ends for class abstraction *FiberProfileAugmentsProfile***12.5.4 McCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
McConnectionEndPointSpec	ConnectionEndPoint	
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"		

Table 694 – Member ends for class abstraction *McCepSpecAugmentsCep***12.5.5 McNepSpecAugmentsNep**

Augmenting Class	Augmented Class	Comment
PhotonicMediaNodeEdgePointSpec	NodeEdgePoint	Augments the base NEP with MC specific information.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint"		

Table 695 – Member ends for class abstraction *McNepSpecAugmentsNep***12.5.6 MegCsepSpecAugmentsCsepLpc**

Augmenting Class	Augmented Class	Comment
McgConnectivityServiceEndPointSpec	LayerProtocolConstraint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint" "		

Table 696 – Member ends for class abstraction *McgCsepSpecAugmentsCsepLpc***12.5.7 OmsCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
OmsConnectionEndPointSpec	ConnectionEndPoint	
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"		

Table 697 – Member ends for class abstraction *OmsCepSpecAugmentsCep***12.5.8 OtsMediaCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
OtsMediaConnectionEndPointSpec	ConnectionEndPoint	
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"		

Table 698 – Member ends for class abstraction *OtsMediaCepSpecAugmentsCep***12.5.9 OtsiMcCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
OtsiMcConnectionEndPointSpec	ConnectionEndPoint	Augments the base CEP with OTSiMC specific information.
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"		

Table 699 – Member ends for class abstraction *OtsiMcCepSpecAugmentsCep***12.5.10 OtsiMcgCsepSpecAugmentsCsepLpc**

Augmenting Class	Augmented Class	Comment
OtsiMcgConnectivityServiceEndPointSpec	LayerProtocolConstraint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint" "		

Table 700 – Member ends for class abstraction *OtsiMcgCsepSpecAugmentsCsepLpc***12.5.11 OtsiaCsepSpecAugmentsCsepLpc**

Augmenting Class	Augmented Class	Comment
OtsiaConnectivityServiceEndPointSpec	LayerProtocolConstraint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint" "		

Table 701 – Member ends for class abstraction *OtsiaCsepSpecAugmentsCsepLpc***12.5.12 PhoMediaSipSpecAugmentsSip**

Augmenting Class	Augmented Class	Comment
PhotonicMediaServiceInterfacePointSpec	ServiceInterfacePoint	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_serviceInterfacePoint"		

Table 702 – Member ends for class abstraction *PhoMediaSipSpecAugmentsSip***12.5.13 PhotProfileTypeAufmentsProfileType**

Augmenting Enumeration	Augmented Enumeration
PhotProfileType	ProfileType
<ul style="list-style-type: none"> AMPLIFICATION CONNECTIVITY IMPAIRMENT FIBER TRANSCEIVER 	
Comment Enumeration Augment.	

Table 703 – Member ends for enum abstraction *PhotProfileTypeAufmentsProfileType***12.5.14 PhotThrsAddQualifAugmentsThrsAddQualif**

Augmenting Enumeration	Augmented Enumeration
PhotThrsAddQualif	ThrsAddQualif
<ul style="list-style-type: none"> AMPLIFICATION OSC 	
Comment Enumeration Augment.	

Table 704 – Member ends for enum abstraction *PhotThrsAddQualifAugmentsThrsAddQualif***12.5.15 PhotonicAugmentsLayerProtocolQualifier**

Augmenting Enumeration	Augmented Enumeration
<p>PhotonicLayerQualifier</p> <ul style="list-style-type: none"> • MC • MCA • OCH • OMS • OMSA • OS_MEDIA • OTS • OTSA • OTS_MEDIA • OTS_OMS • OTSi • OTSiA • OTSiMC • OTSiMCA 	<p>LayerProtocolQualifier</p> <ul style="list-style-type: none"> • UNSPECIFIED
Comment	
Enumeration Augment.	

Table 705 – Member ends for enum abstraction *PhotonicAugmentsLayerProtocolQualifer***12.5.16 PhotonicOamJobTypeAugmentsOamJobType**

Augmenting Enumeration	Augmented Enumeration
<p>PhotonicOamJobType</p> <ul style="list-style-type: none"> • OPTICAL POWER 	<p>OamJobType</p> <ul style="list-style-type: none"> • LOOPBACK FACILITY • LOOPBACK_TERMINAL
Comment	
Enumeration Augment.	

Table 706 – Member ends for enum abstraction *PhotonicOamJobTypeAugmentsOamJobType***12.5.17 PhotonicPerformanceDataAugmentsCd**

Augmenting Class	Augmented Class	Comment
PhotonicPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 707 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsCd***12.5.18 PhotonicPerformanceDataAugmentsHd**

Augmenting Class	Augmented Class	Comment
PhotonicPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:CurrentData:_historyData"		

Table 708 – Member ends for class abstraction *PhotonicPerformanceDataAugmentsHd*

12.5.19 TransceiverProfileAugmentsProfile

Augmenting Class	Augmented Class	Comment
TransceiverProfile	Profile	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_profile"		

Table 709 – Member ends for class abstraction *TransceiverProfileAugmentsProfile*

12.6 Data Types

12.6.1 CdPmdPenalty

Description:

- Entries of table; triplet chromatic dispersion, polarization mode dispersion and associated penalty.

Attribute Name	Type	Mult.	Access	Stereotypes
index	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: yes – part: 1 isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description:				
chromaticDispersion	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description: Chromatic dispersion. Measured in ps/nm (picoseconds per nanometer).				
polarizationModeDispersion	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA
Description: Polarization mode dispersion. Measured in picoseconds per square root kilometer.				
penalty	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> isKey: No isInvariant: false valueRange: no range constraint support: MANDATORY OpenInterfaceModelAttribute AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: Associated penalty on the receiver. Measured in dB.				

Table 710 – Attributes for data type *CdPmdPenalty***12.6.2 FrequencyConstraint****Description:**

- This data-type holds the frequency constraint information in terms of GridType (FIXED grid (DWDM or CWDM) or FLEX grid) and AdjustmentGranularity.

Attribute Name	Type	Mult.	Access	Stereotypes
adjustmentGranularity	AdjustmentGranularity Default value: <i>UNCONSTRAINED</i>	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: Adjustment granularity in Gigahertz. As per ITU-T G.694.1, it is used to calculate nominal central frequency (in THz)				
gridType	GridType Default value: <i>GRIDLESS</i>	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: Specifies the frequency grid standard used to determine the nominal central frequency and frequency slot width				

Table 711 – Attributes for data type *FrequencyConstraint***12.6.3 FrequencyRange**

Attribute Name	Type	Mult.	Access	Stereotypes
upperFrequency	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: The upper frequency bound of the frequency range specified in Hz.				

Attribute Name	Type	Mult.	Access	Stereotypes
lowerFrequency	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The lower frequency bound of the frequency range specified in Hz.

Table 712 – Attributes for data type *FrequencyRange***12.6.4 GainRange**

Attribute Name	Type	Mult.	Access	Stereotypes
minGain	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				In dB.
maxGain	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				In dB.

Table 713 – Attributes for data type *GainRange***12.6.5 LaserProperties**

Attribute Name	Type	Mult.	Access	Stereotypes
laserStatus	LaserControlStatusType	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
laserApplicationType	LaserType	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
Description:				
The type of laser, its operational wavelengths, and its applications. String size 255.				
laserBiasCurrent	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
Description:				
The Bias current of the laser that is the medium polarization current of the laser.				
laserTemperature	Real	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NO
Description:				
The temperature of the laser				

Table 714 – Attributes for data type *LaserProperties*

12.6.6 ModulationTechnique

Description:

- The standardModulationTechnique and proprietaryModulationTechnique attributes are mutually exclusive.

Attribute Name	Type	Mult.	Access	Stereotypes
standardModulationTechnique	StandardModulationTechnique	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
proprietaryModulationTechnique	String	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 715 – Attributes for data type *ModulationTechnique***12.6.7 NoiseFigureRange**

Attribute Name	Type	Mult.	Access	Stereotypes
minNoiseFigure	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
maxNoiseFigure	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 716 – Attributes for data type *NoiseFigureRange***12.6.8 PdlPenalty****Description:**

- Entries of table; pair of values polarization dependent loss and associated penalty.

Attribute Name	Type	Mult.	Access	Stereotypes
index	Integer	1	RW	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
maxPolarizationDependentLoss	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Maximum acceptable accumulate polarization dependent loss. Measured in dB.			
penalty	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	Associated penalty on the receiver. Measured in dB.			

Table 717 – Attributes for data type *PdlPenalty***12.6.9 PowerProperties**

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
totalPower	Real	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
	Description:			
	The total power at any point in a channel specified in dBm.			
powerSpectralDensity	Real	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: • support: MANDATORY OpenInterfaceModelAttribute • AVC: YES
	Description:			
	This describes how power of a signal is distributed over frequency specified in nW/MHz			

Table 718 – Attributes for data type *PowerProperties***12.6.10 SpectrumBand**

Description:

- This data-type holds the spectrum information in terms of upper/lower frequency and optionally the information of frequency constraints.

Attribute Name	Type	Mult.	Access	Stereotypes
upperFrequency	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The upper frequency bound of the spectrum specified in Hz.				
lowerFrequency	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 2 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The lower frequency bound of the spectrum specified in Hz.				
frequencyConstraint	FrequencyConstraint	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The combination of adjustment granularity and grid type informs about either ITU-T fixed or flexible grid capability. E.g. if grid type = DWDM then the adjustment granularity informs about the fixed slot width. E.g. if grid type = FLEX then the adjustment granularity informs about the minimum slot width (two times the adjustment granularity value).				

Table 719 – Attributes for data type *SpectrumBand*

12.7 Enumerations

12.7.1 AdjustmentGranularity

Description:

- Adjustment granularity in Gigahertz. As per ITU-T G.694.1, it is used to calculate nominal central frequency

Contains Enumeration Literals:

- G_100GHZ:
 - 100000 MHz
- G_50GHZ:
 - 50000 MHz
- G_25GHZ:
 - 25000 MHz

- G_12_5GHZ:
 - 12500 MHz
- G_6_25GHZ:
 - 6250 MHz
- G_3_125GHZ:
 - 3125 MHz
- UNCONSTRAINED:

12.7.2 FecType

Contains Enumeration Literals:

- G_FEC:
 - Generic FEC.
- E_FEC:
 - Enhanced FEC.
- REED_SOLOMON:
 - Reed-Solomon error correction.
- HAMMING_CODE:
 - Hamming Code error correction.
- GOLAY:
 - Golay error correction.

12.7.3 FlexiChannelSpacing

Contains Enumeration Literals:

- 6_25GHz:

12.7.4 FlexiSlotWidthGranularity

Contains Enumeration Literals:

- 12_5GHz:

12.7.5 GridType

Description:

- The frequency grid standard that specify reference set of frequencies used to denote allowed nominal central frequencies that may be used for defining applications.

Contains Enumeration Literals:

- DWDM:
 - Fixed frequency grid in C & L bands as specified in ITU-T G.694.1
- CWDM:
 - Fixed frequency grid as specified in ITU-T G.694.2
- FLEX:
 - Flexible frequency grid as specified in ITU-T G.694.1. In this case, - the allowed frequency slots have a nominal central frequency (in THz) defined by: $193.1 + n \times 0.00625$ where n is a positive or negative integer including 0 and 0.00625 is the nominal central frequency

granularity in THz - and a slot width defined by: $12.5 \times m$ where m is a positive integer and 12.5 is the slot width granularity in GHz. Any combination of frequency slots is allowed as long as no two frequency slots overlap.

- GRIDLESS:

12.7.6 LaserControlStatusType

Contains Enumeration Literals:

- ON:
- OFF:
- PULSING:
- UNDEFINED:

12.7.7 LaserControlType

Contains Enumeration Literals:

- FORCED_ON:
- FORCED_OFF:
- AUTOMATIC_LASER_SHUTDOWN:
- UNDEFINED:

12.7.8 LaserType

Contains Enumeration Literals:

- PUMP:
- MODULATED:
- PULSE:

12.7.9 LineCoding

Description:

- ITU-T G.698.2-201811 section 7.

Contains Enumeration Literals:

- NRZ-2P5G:
 - ITU-T G.698.2-201811 section 7 table 8-1
- NRZ-OTU1:
 - ITU-T G.698.2-201811 section 7 table 8-2
- NRZ-10G:
 - ITU-T G.698.2-201811 section 7 table 8-3/8-5
- NRZ-OTU2:
 - ITU-T G.698.2-201811 section 7 table 8-4/8-6

12.7.10 OpticalRoutingStrategy

Contains Enumeration Literals:

- OPTIMAL_OSNR:
- NO_RELAY:
- MIN_RELAY:
- PREFERRED_NO_CHANGE_WAVELENGTH_AS_RESTORE:
- PREFERRED_NO_SKIPPING_WAVELENGTH:

12.7.11 PhotProfileType

Contains Enumeration Literals:

- AMPLIFICATION:
- CONNECTIVITY_IMPAIRMENT:
- FIBER:
- TRANSCEIVER:

12.7.12 PhotThrsAddQualif

Contains Enumeration Literals:

- AMPLIFICATION:
- OSC:

12.7.13 PhotonicLayerQualifier

Contains Enumeration Literals:

- OTSi:
 - Applied stereotype:
 - Deprecated
- OTSiA:
 - Applied stereotype:
 - Experimental
- OTSiMC:
 - OTSiMC represents the bw portion dedicated to an OTSi.
- OTSiMCA:
 - OTSiMCA is the set of OTSiMC supporting an OTSiA.
 - Applied stereotype:
 - Experimental
- MC:
 - The continuous optical spectrum between end points in the photonic layer obtained through optical filter configurations where it is expected one (or more – super channel case) OTSi(s).
- MCA:
 - Media Channel Assembly: the set of one or more MCs supporting one (or more) OTSiA(s).
 - Applied stereotype:
 - Experimental
- OMSA:

- Applied stereotype:
 - Deprecated
- OTSA:
 - Applied stereotype:
 - Deprecated
- OCH:
 - Applied stereotype:
 - Deprecated
- OMS:
- OTS:
 - Applied stereotype:
 - Deprecated
- OTS_OMS:
 - Applied stereotype:
 - Deprecated
- OTS_MEDIA:
- OS_MEDIA:

12.7.14 PhotonicOamJobType

Contains Enumeration Literals:

- OPTICAL_POWER:

12.7.15 StandardApplicationCodeRec

Description:

- The list of ITU-T Recommendations etc. that define application code format.

Contains Enumeration Literals:

- ITUT_G959_1:
 - G959.1 Optical transport network physical layer interfaces Application code notation [PnWx-ytz] This Recommendation provides physical layer inter-domain interface (IrDI) specifications for optical networks that may employ wavelength division multiplexing (WDM). The IrDI may be realized as either a single-channel interface or a multichannel interface.
- ITUT_G698_1:
 - G698.1 Multichannel DWDM applications with single-channel optical interfaces Application code notation [DScW-ytz(v)] This Recommendation defines and provides values for single-channel optical interface parameters of physical point-to-point and ring DWDM applications (with transmission distance in the range of about 30 km to about 80 km) on single-mode optical fibres through the use of the "black link" approach.
- ITUT_G698_2:
 - G698.2 Amplified multichannel DWDM applications with single channel optical interfaces Application code notation [DScW-ytz(v)] This Recommendation defines and provides values for single-channel optical interface parameters of physical point-to-point and ring DWDM

applications on single-mode optical fibres through the use of the 'black link' approach. The black links covered by this Recommendation may contain optical amplifiers.

- ITUT_G696_1:
 - G696.1 Longitudinally compatible intra-domain DWDM applications Application code notation [n.B-xWF(s)] This Recommendation provides physical layer specifications for intra-domain (IaD) DWDM optical networking applications. These specifications are provided for point-to-point, multichannel line systems with or without line amplifiers.
- ITUT_G695:
 - G695 Optical interfaces for coarse wavelength division multiplexing applications Application code notation [CnWx-ytz] This Recommendation applies to optical interfaces for coarse wavelength division multiplexing (CWDM) optical line systems for network applications using single-mode optical fibres.

12.7.16 StandardModulationTechnique

Contains Enumeration Literals:

- RZ:
- NRZ:
- BPSK:
- DPSK:
- QPSK:
- 8QAM:
- 16QAM:
- PAM4:
- PAM8:

12.7.17 StandardModulationTechnique9093

Contains Enumeration Literals:

- DPSK:
 - DPSK (Differential Phase Shift Keying) modulation.
- QPSK:
 - QPSK (Quadrature Phase Shift Keying) modulation.
- DP-QPSK:
 - DP-QPSK (Dual Polarization Quadrature Phase Shift Keying) modulation.
- QAM8:
 - QAM8 (8-State Quadrature Amplitude Modulation).
- DP-QAM8:
 - DP-QAM8 (8 symbols Dual Polarization Quadrature Amplitude Modulation).
- DC-DP-QAM8:
 - DC-DP-QAM8 (8 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation).
- QAM16:
 - QAM16 (16 symbols Quadrature Amplitude Modulation).
- DP-QAM16:
 - DP-QAM16 (16 symbols Dual Polarization Quadrature Amplitude Modulation).
- DC-DP-QAM16:

- DC-DP-QAM16 (16 symbols Dual Carrier Dual Polarization Quadrature Amplitude Modulation).
- QAM32:
 - QAM32 (32 symbols Quadrature Amplitude Modulation).
- DP-QAM32:
 - DP-QAM32 (32 symbols Dual Polarization Quadrature Amplitude Modulation).
- QAM64:
 - QAM64 (64 symbols Quadrature Amplitude Modulation).
- DP-QAM64:
 - DP-QAM64 (64 symbols Dual Polarization Quadrature Amplitude Modulation).

12.7.18 TransceiverTerminationType

Contains Enumeration Literals:

- TUNNEL_ONLY:
 - The transponder can only be used in an Optical Tunnel termination configuration.
- UNIDIR_3R_ONLY:
 - The transponder can only be used in a 3R configuration, unidirectional.
- UNIDIR_3R_OR_TUNNEL:
 - The transponder can be configured to be used either in an Optical Tunnel termination configuration or in a 3R configuration, unidirectional.
- BIDIR_3R_ONLY:
 - The transponder can only be used in a 3R configuration, bidirectional.
- BIDIR_3R_OR_TUNNEL:
 - The transponder can be configured to be used either in an Optical Tunnel termination configuration or in a 3R configuration, bidirectional.

12.8 Primitives

13 Digital OTN Model

TapiDigitalOtn: This module contains TAPI Digital OTN Model definitions. Source: TapiDigitalOtn.uml
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13.1 Diagrams

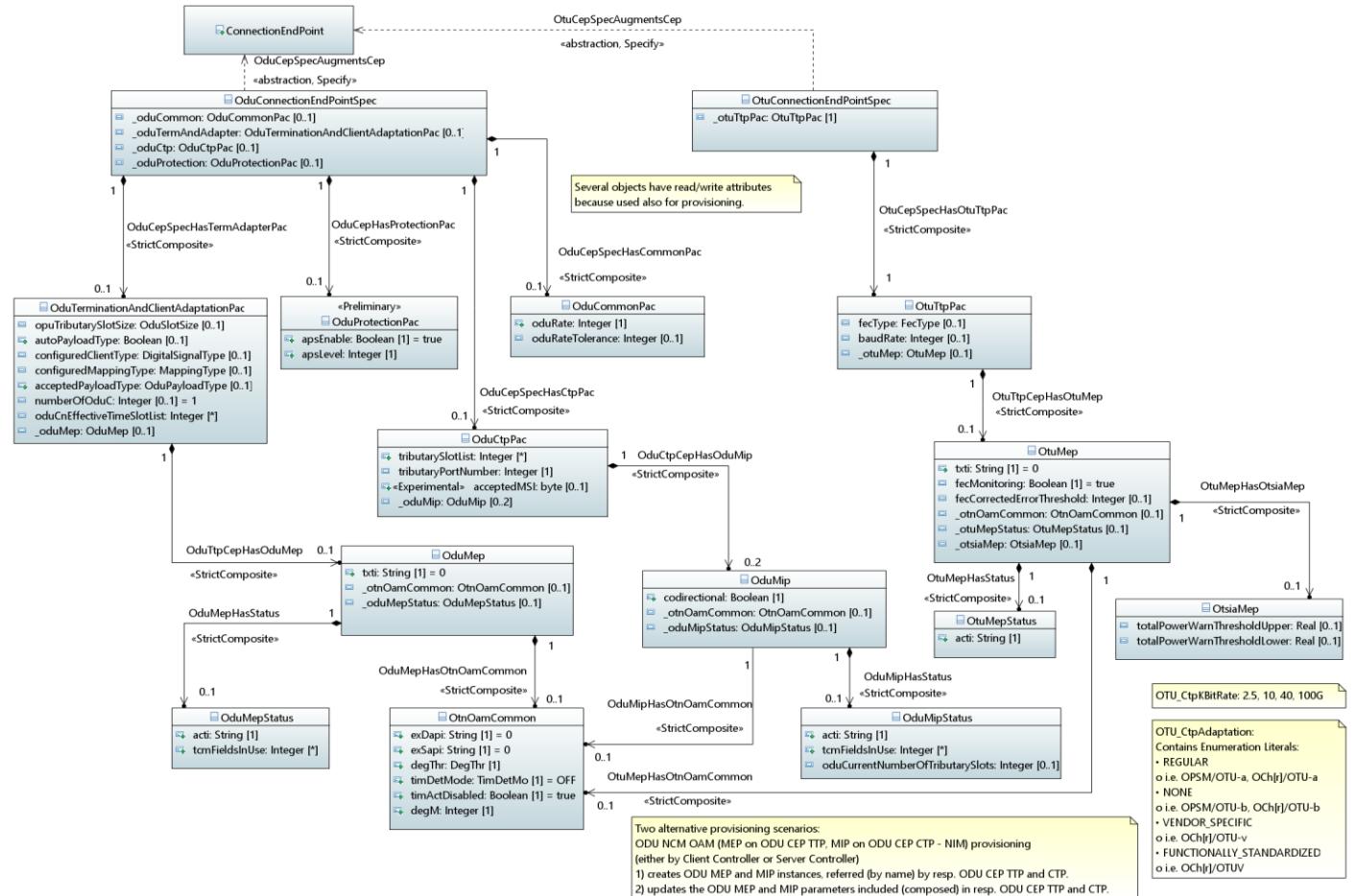
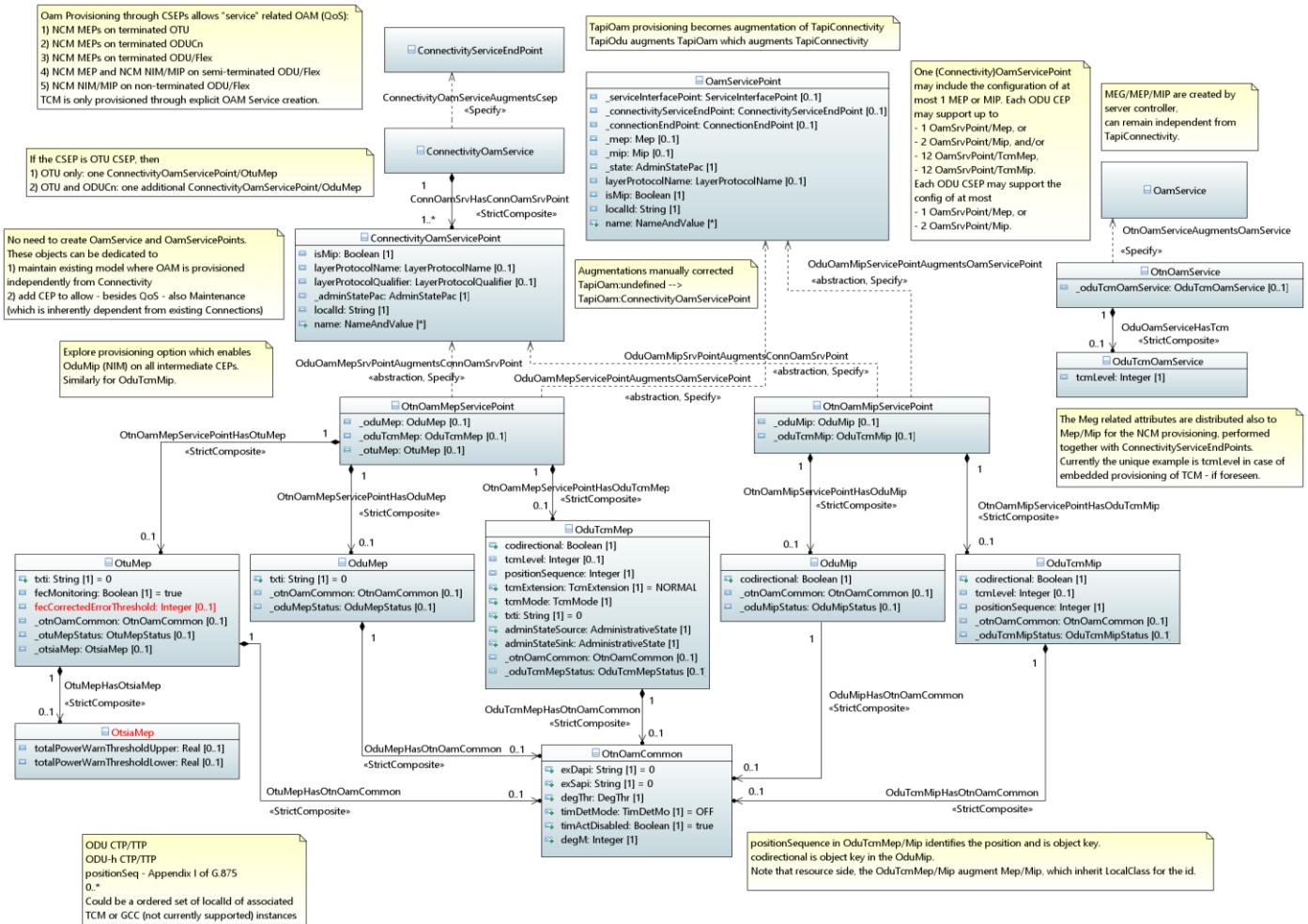
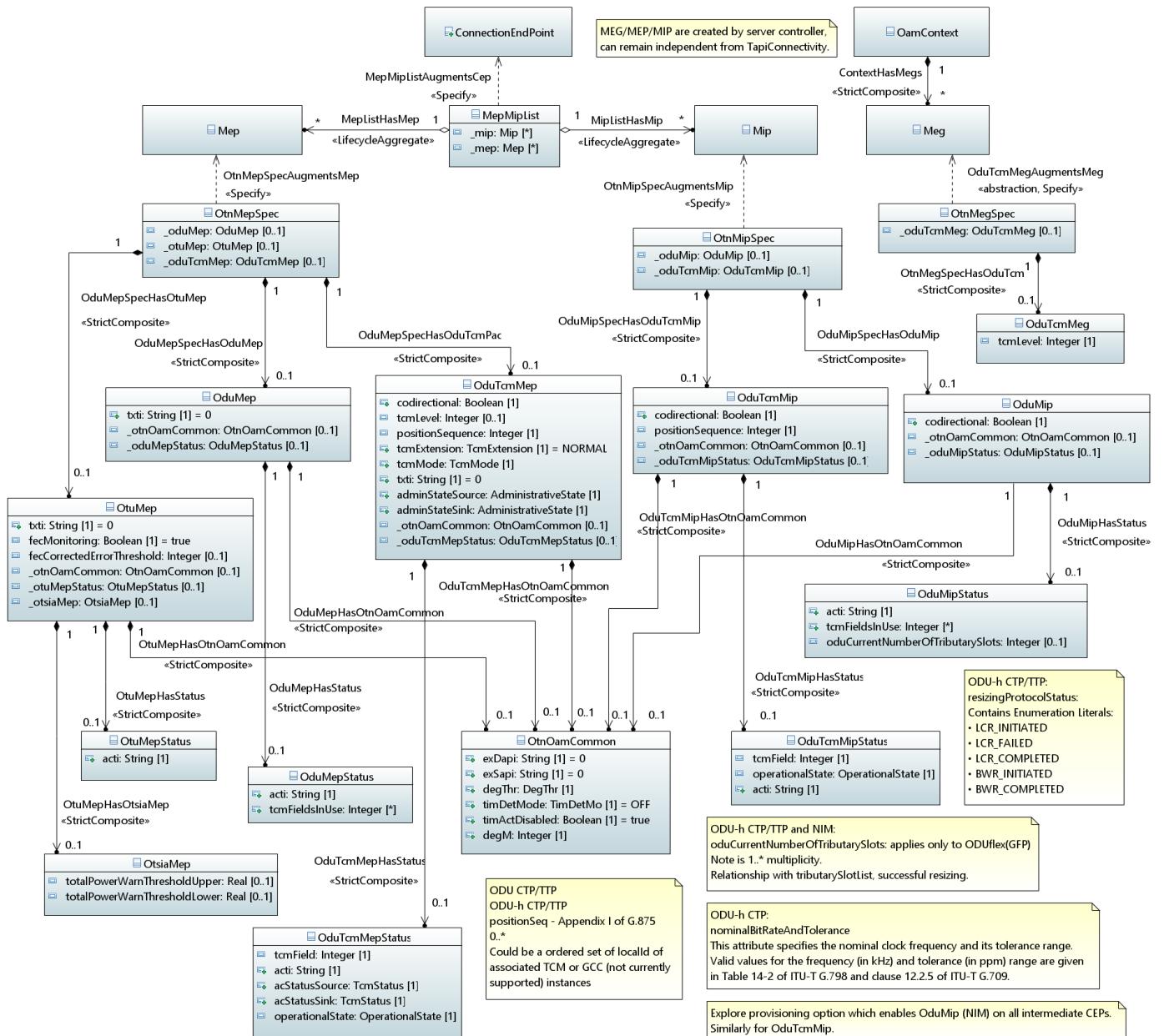
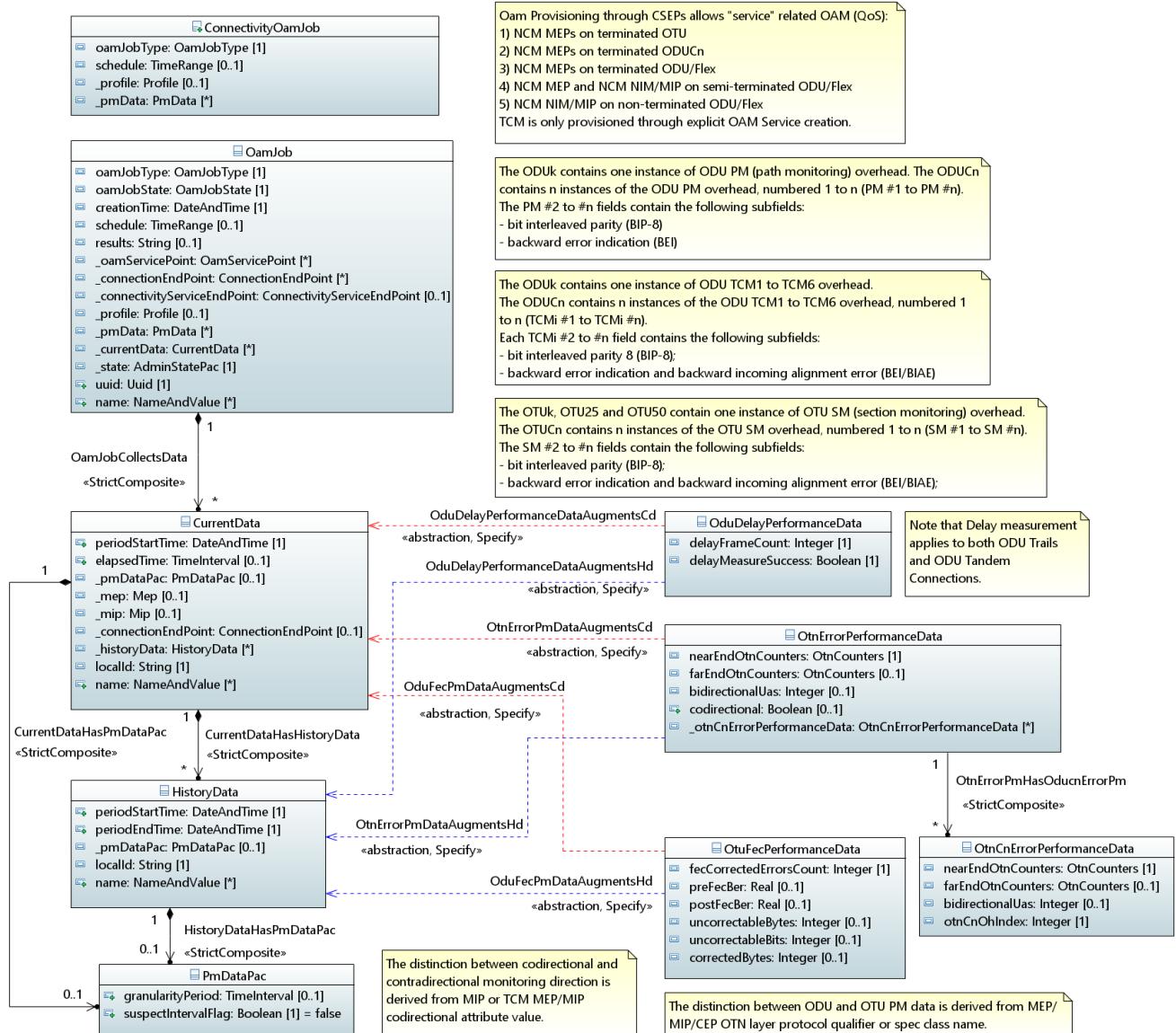
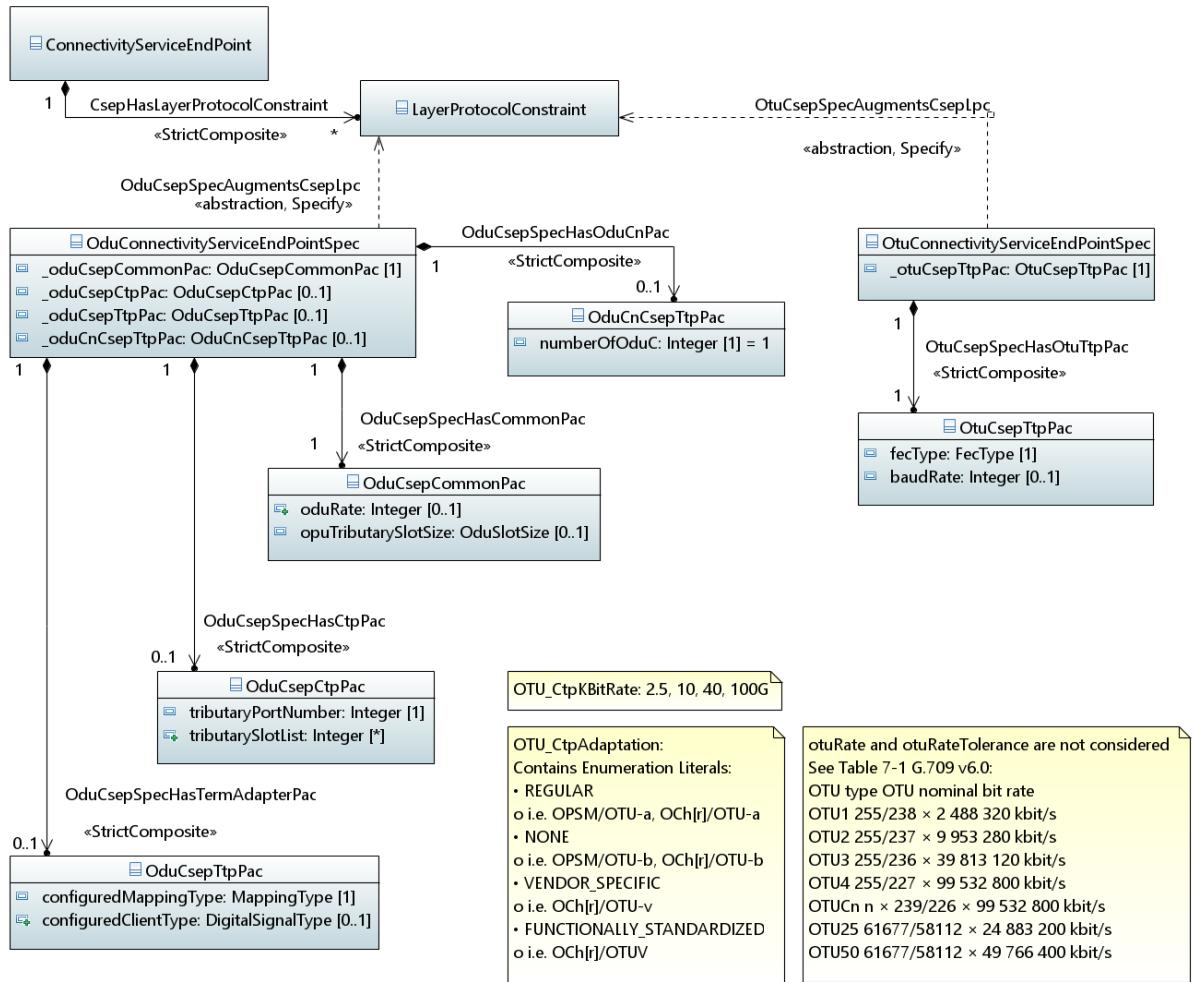


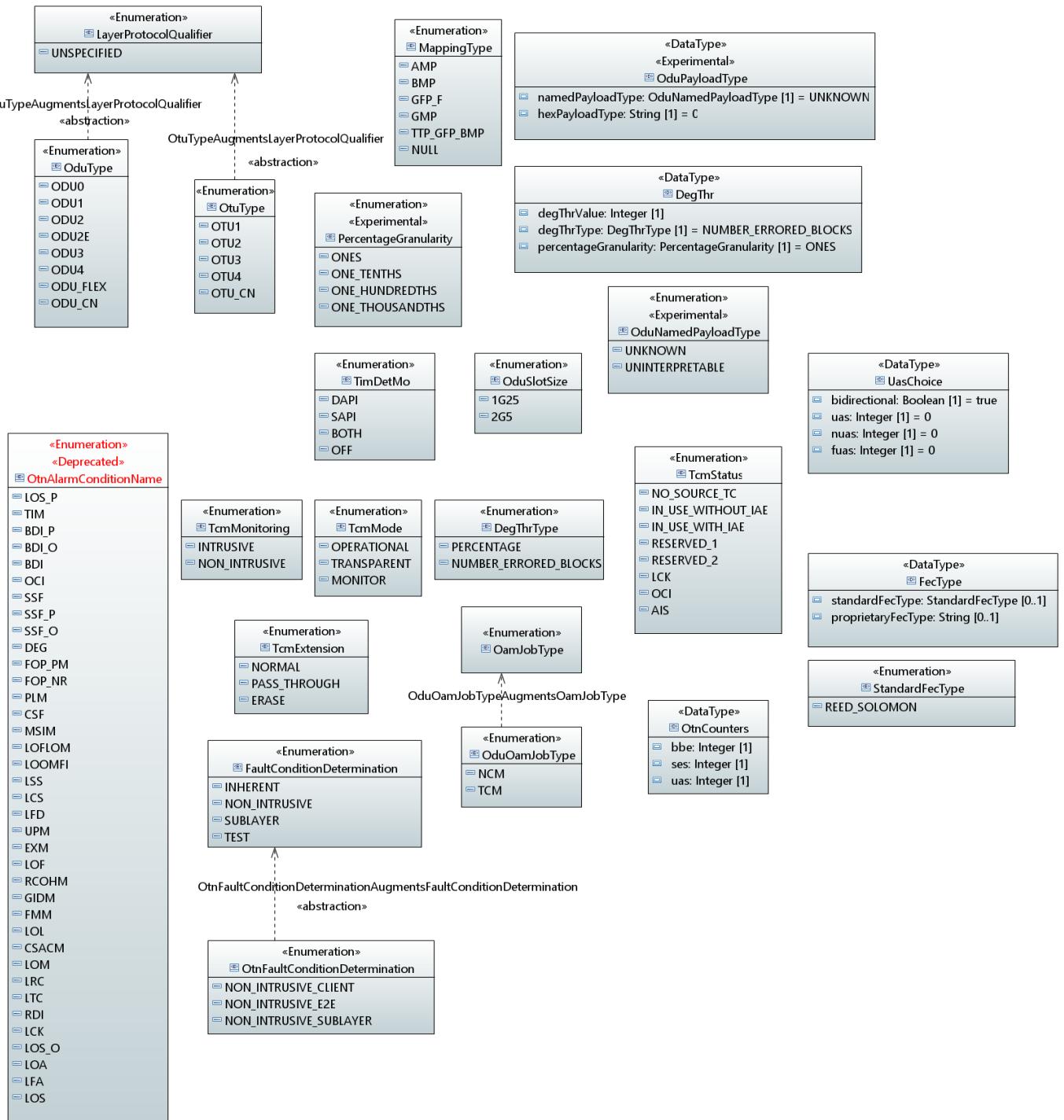
Figure 49 – Diagram **OtnEndPointSpec**

Figure 50 – Diagram *OtnOamServiceSpec*

Figure 51 – Diagram *OtnOamSpec*

Figure 52 – Diagram *OtnPmSpec*

Figure 53 – Diagram *OtnServiceSpec*

Figure 54 – Diagram *OtnTypes*

13.2 Classes

13.2.1 OduCnCsepTtpPac

Description:

- When otuType=OTU_CN then OduCnCsepTtpPac must be instantiated.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
numberOfOduC	<p>Integer Default value: <i>I</i></p> <p>Description: This attribute specifies the number of ODUC instances of the ODUCn.</p>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 720 – Attributes for class *OduCnCsepTtpPac***13.2.2 OduCommonPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
oduRate	<p>Integer</p> <p>Description: This attribute indicates the rate of the ODU termination point in Kbits/s. This attribute is Set at create; i.e., once created it cannot be changed directly. In case of resizable ODU flex, its value can be changed via HAO (not directly on the attribute). This attribute indicates the rate of the ODU termination point. Valid values shall be consistent with the oduType configuration as shown in Table 7-2/G.709 v5. Setting this value for fixed-rate ODUk types (e.g., ODU0), is optional. The default value is derived from the configured oduType, as defined in Table 7-2/G.709 v5. Setting this value for ODUCn type is optional. The default value is derived from the configured n of the ODUCn as defined in Table 7-2/G.709 v5.</p>	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
oduRateTolerance	<p>Integer</p>	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	<p>Description:</p> <p>This attribute indicates the rate tolerance of the ODU termination point. Valid values are real value in the unit of ppm. Standardized values are defined in Table 7-2/G.709.</p>				

Table 721 – Attributes for class *OduCommonPac***13.2.3 OduConnectionEndPointSpec**

Applied stereotypes:

- OpenModelClass
 - support: CONDITIONAL_MANDATORY
 - condition: ODU
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduCommon	OduCommonPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_oduTermAndAdapter	OduTerminationAndClientAdaptationPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				
_oduCtp	OduCtpPac	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_oduProtection	OduProtectionPac	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 722 – Attributes for class *OduConnectionEndPointSpec*

13.2.4 OduConnectivityServiceEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduCsepCommonPac	OduCsepCommonPac	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
_oduCsepCtpPac	OduCsepCtpPac	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
_oduCsepTtpPac	OduCsepTtpPac	0..1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduCnCsepTtpPac	OduCnCsepTtpPac	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 723 – Attributes for class *OduConnectivityServiceEndPointSpec*

13.2.5 OduCsepCommonPac

Description:

- Note that the OduType ODU_CN does not apply to OduCsepCommonPac package, as ODUCn is always and only defined within OTU CSEP.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
oduRate	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: true • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
opuTributarySlotSize	OduSlotSize	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 724 – Attributes for class *OduCsepCommonPac***13.2.6 OduCsepCtpPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tributaryPortNumber	Integer	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: The value range depends on the size of the Tributary Port Number (TPN) field used which depends on the server-layer ODU or OTU. In case of ODUk mapping into OTUk, there is no TPN field, so the tributaryPortNumber shall be zero. In case of LO ODUj mapping over ODU1, ODU2 or ODU3, the TPN is encoded in a 6-bit field so the value range is 0-63. See clause 14.4.1/G.709-2016. In case of LO ODUj mapping over ODU4, the TPN is encoded in a 7-bit field so the value range is 0-127. See clause 14.4.1.4/G.709-2016. In case of ODUk mapping over ODUCn, the TPN is encoded in a 14-bit field so the value range is 0-16383. See clause 20.4.1.1/G.709-2016. • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
tributarySlotList	Integer	0..*	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	<p>Description:</p> <p>ITU-T G.875 (v5) This attribute contains a set of distinct (i.e. unique) integers (e.g. 2, 3, 5, 9, 15 representing the tributary slots TS#2, TS#3, TS#5, TS#9 and TS#15) which represents the resources occupied by the ODUk CTP (e.g. an ODUflex with a bit rate of 6.25G setup over an HO-ODUk). This attribute applies when the ODUk CTP is carried by a sever layer ODU TTP object. It will not apply if this ODUk CTP object is directly carried by an OTUk TTP object (i.e. OTUk has no tributary slots). The upper bound of the integer allowed in this set and its relationship with the tributary slots are a function of the ODU server layer to which the ODUk CTP is carried over. In case the ODU server layer is an HO-ODUk, each entry in the list is an integer value (i) representing the tributary slot name TS#i and the upper bound is the maximum number of tributary slots within the HO-ODUk (see ITU-T Recommendation G.709 (v5) clause 19). Thus, for example, M=8/32/80 for ODU2/ODU3/ODU4 server layers (respectively) using 1.25G slot size. In case the ODU server layer is an ODUcn, each entry in the list is an integer value (P) representing the time slot name TS#A.B (e.g. 2, 3, 5, 9, 15, 34 representing the tributary slots TS#1.2, TS#1.3, TS#1.5, TS#1.9, TS#1.15, and TS#2.14) and the upper bound is 20*n (see ITU-T Recommendation G.709 (v5) Clause 20.1). The mapping between P and A & B is: A = [P/20] + 1; B = P - (P/20)*20; where the square bracket represents the whole integer. Note that the value of this attribute can be changed only in the case of ODUflex and has to be through specific operations (i.e. not be changing the attribute tributarySlotList directly).</p>			

Table 725 – Attributes for class *OduCsepCtpPac*

13.2.7 *OduCsepTtpPac*

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
configuredMappingType	MappingType	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
<p>Description:</p> <p>This attribute indicates the configured mapping type.</p>				
configuredClientType	DigitalSignalType	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
<p>Description:</p> <p>This attribute configures the type of the client CTP of the server ODU TTP.</p>				

Table 726 – Attributes for class *OduCsepTtpPac*

13.2.8 OduCtpPac

Description:

- This Pac contains the attributes associated with the CTP It is present only if the CEP contains a CTP

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tributarySlotList	Integer	0..*	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA <p>Description:</p> <p>ITU-T G.875 (v5) This attribute contains a set of distinct (i.e. unique) integers (e.g. 2, 3, 5, 9, 15 representing the tributary slots TS#2, TS#3, TS#5, TS#9 and TS#15) which represents the resources occupied by the ODUk CTP (e.g. an ODUflex with a bit rate of 6.25G setup over an HO-ODUk). This attribute applies when the ODUk CTP is carried by a sever layer ODU TTP object. It will not apply if this ODUk CTP object is directly carried by an OTUk TTP object (i.e. OTUk has no tributary slots). The upper bound of the integer allowed in this set and its relationship with the tributary slots are a function of the ODU server layer to which the ODUk CTP is carried over. In case the ODU server layer is an HO-ODUk, each entry in the list is an integer value (i) representing the tributary slot name TS#i and the upper bound is the maximum number of tributary slots within the HO-ODUk (see ITU-T Recommendation G.709 (v5) clause 19). Thus, for example, M=8/32/80 for ODU2/ODU3/ODU4 server layers (respectively) using 1.25G slot size. In case the ODU server layer is an ODUcn, each entry in the list is an integer value (P) representing the time slot name TS#A.B (e.g. 2, 3, 5, 9, 15, 34 representing the tributary slots TS#1.2, TS#1.3, TS#1.5, TS#1.9, TS#1.15, and TS#2.14) and the upper bound is 20*n (see ITU-T Recommendation G.709 (v5) Clause 20.1). The mapping between P and A & B is: A = [P/20] + 1; B = P - (P/20)*20; where the square bracket represents the whole integer. Note that the value of this attribute can be changed only in the case of ODUflex and has to be through specific operations (i.e. not be changing the attribute tributarySlotList directly).</p>

Attribute Name	Type	Mult.	Access	Stereotypes
tributaryPortNumber	Integer	1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: The value range depends on the size of the Tributary Port Number (TPN) field used which depends on the server-layer ODU or OTU. In case of ODUk mapping into OTUk, there is no TPN field, so the tributaryPortNumber shall be zero. In case of LO ODUj mapping over ODU1, ODU2 or ODU3, the TPN is encoded in a 6-bit field so the value range is 0-63. See clause 14.4.1/G.709-2016. In case of LO ODUj mapping over ODU4, the TPN is encoded in a 7-bit field so the value range is 0-127. See clause 14.4.1.4/G.709-2016. In case of ODUk mapping over ODUCn, the TPN is encoded in a 14-bit field so the value range is 0-16383. See clause 20.4.1.1/G.709-2016. • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
acceptedMSI	byte	0..1	R	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • Experimental • OpenInterfaceModelAttribute • AVC: NA
				<p>Description:</p> <p>This attribute identifies the tributary port number that is associated with the ODUk CTP. This attribute applies when the ODUk CTP is multiplexed into a server layer ODU TTP object. It will not apply if this ODUk CTP object is directly mapped into an OTUk TTP object (i.e. OTUk has no tributary slots). The upper bound of the integer allowed in this set is a function of the ODU server layer into which the ODUk CTP is multiplexed. In case the ODU server layer is an HO-ODUk, the upper bound is the maximum number of tributary slots within the HO-ODUk (see ITU-T Recommendation G.709 (v5) clause 19.4.1). Thus, for example, M=8/32/80 for ODU2/ODU3/ODU4 server layers (respectively) using 1.25G slot size. In case the ODU server layer is an ODUCn, the upper bound is M=10*n (see ITU-T Recommendation G.709 (v5) Clause 20.4.1).</p> <p>Description:</p> <p>This attribute is applicable when the ODU CTP object instance represents a lower order ODU1 or ODU2 CTP Sink at the client layer of the ODU3P/ODU12 adaptation function or represents a lower order ODUj CTP Sink at the client layer of the ODUP/ODUj-21 adaptation function. This attribute is a 1-byte field that represents the accepted multiplex structure of the adaptation function.</p>

Attribute Name	Type	Mult.	Access	Stereotypes
_oduMip	OduMip	0..2	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 727 – Attributes for class *OduCtpPac***13.2.9 OduDelayPerformanceData**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
delayFrameCount	Integer	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Summation of the number of frames between the DMValue toggle event and the received DMp signal value toggle event. This value is a snapshot value.
delayMeasureSuccess	Boolean	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 728 – Attributes for class *OduDelayPerformanceData***13.2.10 OduMep**

Description:

- If the CSEP is OTU CSEP, then 1) OTU only: OtuMep, 2) OTU and ODUCn: both OtuCep and OduMep.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
txti	String Default value: 0	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
				The Trail Trace Identifier (TTI) information, provisioned by the managing system at the termination source, to be placed in the TTI overhead position of the source of a trail for transmission.
_otnOamCommon	OtnOamCommon	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_oduMepStatus	OduMepStatus	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Table 729 – Attributes for class *OduMep*

13.2.11 OduMepStatus

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
acti	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	The Trail Trace Identifier (TTI) information recovered (Accepted) from the TTI overhead position at the sink of a trail.			
tcmFieldsInUse	Integer	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	This attribute indicates the used TCM fields of the ODU OH.			

Table 730 – Attributes for class *OduMepStatus*

13.2.12 OduMip

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
codirectional	Boolean	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
	This attribute specifies the directionality of the ODU MIP with respect to the associated ODU CEP. The value of TRUE means that the (half MIP/sink part of the) ODU MIP receives the same signal direction as the sink part of the ODU CEP. The Source part behaves similarly. This attribute is meaningful only on objects instantiated under ODU CEP, and at least one among ODU CEP and the subordinate object is bidirectional.			

Attribute Name	Type	Mult.	Access	Stereotypes
_otnOamCommon	OtnOamCommon	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_oduMipStatus	OduMipStatus	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 731 – Attributes for class *OduMip***13.2.13 OduMipStatus**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
acti	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Trail Trace Identifier (TTI) information recovered (Accepted) from the TTI overhead position at the sink of a trail.				
tcmFieldsInUse	Integer	0..*	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the used TCM fields of the ODU OH.				

Attribute Name	Type	Mult.	Access	Stereotypes
oduCurrentNumberOfTributarySlots	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				This attribute applies only to ODUflex(GFP) connections. It represents the current number of tributary slots allocated to this ODUflex(GFP) connection in the HO-ODU server layer.

Table 732 – Attributes for class *OduMipStatus***13.2.14 OduProtectionPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA
- Preliminary

Attribute Name	Type	Mult.	Access	Stereotypes
apsEnable	Boolean Default value: <i>true</i>	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				This attribute is for enabling/disabling the automatic protection switching (APS) capability at the transport adaptation function that is represented by the ODU_ConnectionTerminationPoint object class. It triggers the MIAPS_EN signal to the transport adaptation function.
apsLevel	Integer	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				This attribute is for configuring the automatic protection switching (APS) level that should operate at the transport adaptation function that is represented by the ODU_ConnectionTerminationPoint object class. It triggers the MIAPS_LVL signal to the transport adaptation function. The value 0 means path and the values 1 through 6 mean TCM level 1 through 6 respectively.

Table 733 – Attributes for class *OduProtectionPac*

13.2.15 OduTcmMeg

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tcmLevel	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Table 734 – Attributes for class *OduTcmMeg*

13.2.16 OduTcmMep

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
codirectional	Boolean	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
tcmLevel	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
positionSequence	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
tcmExtension	TcmExtension Default value: <i>NORMAL</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: ITU-T G.798: TCM information forwarding and erasing: TCM information can be forwarded or erased for continuing TCM information into sections at the end of a TCM section and the related ODUT_TT_Sk function.			
tcmMode	TcmMode	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: This attribute specifies the TCM mode at the entity. Valid values are: Operational, Monitor, and Transparent.			
txti	String Default value: <i>0</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The Trail Trace Identifier (TTI) information, provisioned by the managing system at the termination source, to be placed in the TTI overhead position of the source of a trail for transmission.			
adminStateSource	AdministrativeState	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute provides the capability to provision the LOCK signal at the source, which is one of the ODU maintenance signals. When a Tandem Connection endpoint is set to admin state locked, it will insert the ODU-LCK signal in the source direction.			
adminStateSink	AdministrativeState	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: This attribute provides the capability to provision the LOCK signal at the sink, which is one of the ODU maintenance signals. When a Tandem Connection endpoint is set to admin state locked, it will insert the ODU-LCK signal in the downstream direction.			
_otnOamCommon	OtnOamCommon	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_oduTcmMepStatus	OduTcmMepStatus	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 735 – Attributes for class *OduTcmMep*

13.2.17 OduTcmMepStatus

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tcmField	Integer	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the tandem connection monitoring field of the ODU OH.				
acti	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
The Trail Trace Identifier (TTI) information recovered (Accepted) from the TTI overhead position at the sink of a trail.				
acStatusSource	TcmStatus	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the status of the accepted TCM.				
acStatusSink	TcmStatus	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the status of the accepted TCM.				
operationalState	OperationalState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 736 – Attributes for class *OduTcmMepStatus*

13.2.18 OduTcmMip

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
codirectional	Boolean	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
tcmLevel	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
positionSequence	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				
_otnOamCommon	OtnOamCommon	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_oduTcmMipStatus	OduTcmMipStatus	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 737 – Attributes for class *OduTcmMip***13.2.19 OduTcmMipStatus**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tcmField	Integer	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
operationalState	OperationalState	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
acti	String	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Table 738 – Attributes for class *OduTcmMipStatus***13.2.20 OduTcmOamService**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
tcmLevel	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				

Table 739 – Attributes for class *OduTcmOamService***13.2.21 OduTerminationAndClientAdaptationPac**

Description:

- This Pac contains the attributes associated with the client adaptation function of the server layer TTP
It is present only if the CEP contains a TTP

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
opuTributarySlotSize	OduSlotSize	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
Description:				This attribute is only applicable for ODU2 and ODU3 TTP which multiplex ODU0/1 containers. It indicates the slot size of the ODU CTP.

Attribute Name	Type	Mult.	Access	Stereotypes
autoPayloadType	Boolean	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute is applicable when the ODU CTP object instance represents a lower order ODU CTP Source at the client layer of the ODUP/ODUj-21 adaptation function. The value of true of this attribute configures that the adaptation source function shall fall back to the payload type PT=20 if the conditions specified in 14.3.10.1/G.798 are satisfied.				
configuredClientType	DigitalSignalType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute configures the type of the client CTP of the server ODU TTP.				
configuredMappingType	MappingType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute indicates the configured mapping type.				
acceptedPayloadType	OduPayloadType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute is applicable when the ODU CTP object instance represents a lower order ODU CTP Sink at the client layer of the ODUP/ODU[i;j] or ODUP/ODUj-21 adaptation function. This attribute is a 2-digit Hex code that indicates the new accepted payload type. Valid values are defined in Table 15-9 of ITU-T Recommendation G.709 with one additional value UNINTERPRETABLE.				
numberOfOduC	Integer Default value: 1	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
oduCnEffectiveTimeSlotList	Integer	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
	This attribute contains a set of distinct (i.e. unique) integers (e.g. 2, 3, 5, 9, 15, 34 representing the tributary slots TS#1.2, TS#1.3, TS#1.5, TS#1.9, TS#1.15, and TS#2.14) which represents the list of effective time slots which are available for carrying ODUk clients. Each entry in the list is an integer value (P) representing the time slot name TS#A.B (see ITU-T Recommendation G.709 (v5) Clause 20.1). The mapping between P and A & B is: A = [P/20] + 1; B = P - (P/20)*20; where the square bracket represents the whole integer.			
_oduMep	OduMep	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 740 – Attributes for class *OduTerminationAndClientAdaptationPac*

13.2.22 OtnCnErrorPerformanceData

Description:

- The ODUk contains one instance of ODU PM overhead. The ODUCn contains n instances of the ODU PM overhead, numbered 1 to n (PM #1 to PM #n). The PM #2 to #n fields contain the following subfields: - bit interleaved parity (BIP-8) - backward error indication (BEI) The ODUk contains one instance of ODU TCM1 to TCM6 overhead. The ODUCn contains n instances of the ODU TCM1 to TCM6 overhead, numbered 1 to n (TCMi #1 to TCMi #n). Each TCMi #2 to #n field contains the following subfields (see Figure 15-19): - bit interleaved parity 8 (BIP-8); - backward error indication and backward incoming alignment error (BEI/BIAE)

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
nearEndOtnCounters	OtnCounters	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
farEndOtnCounters	OtnCounters	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
bidirectionalUas	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
otnCnOhIndex	Integer	1	R	OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The ODUcn contains n instances of the ODU PM/TCM overhead, numbered 1 to n (PM #1 to PM #n)/(TCMi #1 to TCMi #n).. This index specify the 2..n instance of the ODUcn PM/TCM overhead.

Table 741 – Attributes for class *OtnCnErrorPerformanceData*

13.2.23 OtnErrorPerformanceData

Description:

- ODU/OTU PM Metrics.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
nearEndOtnCounters	OtnCounters	1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
farEndOtnCounters	OtnCounters	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
bidirectionalUas	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
codirectional	Boolean	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
This attribute specifies the directionality of the ODU MIP with respect to the monitored ODU CEP. The value of TRUE means that the MIP receives the same signal direction as the sink part of the ODU CEP. The Source part behaves similarly. This attribute applies only in case of embedded provisioning, i.e. the MIPs are data structures of ODU CEP.				
_otnCnErrorPerformanceData	OtnCnErrorPerformanceData	0..*	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 742 – Attributes for class *OtnErrorPerformanceData***13.2.24 OtnMegSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduTcmMeg	OduTcmMeg	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 743 – Attributes for class *OtnMegSpec***13.2.25 OtnMepSpec**

Applied stereotypes:

- OpenModelClass
 - support: CONDITIONAL_MANDATORY
 - condition: ODU
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduMep	OduMep	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_otuMep	OtuMep	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
_oduTcmMep	OduTcmMep	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 744 – Attributes for class *OtnMepSpec*

13.2.26 OtnMipSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
_oduMip	OduMip	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
_oduTcmMip	OduTcmMip	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 745 – Attributes for class *OtnMipSpec*

13.2.27 OtnOamCommon

Description:

- Common ODU OAM parameters. Note that the object is read/write or read-only depending on the context, i.e. if is part of CSEP is R/W, while if is part of CEP is read-only. Note that both the ODUk

and ODUCn contain only one instance of ODU PM TTI overhead and ODU PM DMp overhead. Note that the ODUCn contains n instances of the ODU PM overhead: The OduOamCommon degThr and degM apply to the n instances of ODUCn PM OH.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
exDapi	<p>String Default value: 0</p>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
exSapi	<p>String Default value: 0</p>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
degThr	<p>DegThr</p>	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
timDetMode	TimDetMo Default value: <i>OFF</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: This attribute indicates the mode of the Trace Identifier Mismatch (TIM) Detection function allowed values: OFF, SAPIonly, DAPIonly, SAPIandDAPI				
timActDisabled	Boolean Default value: <i>true</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: This attribute provides the control capability for the managing system to enable or disable the Consequent Action function when detecting Trace Identifier Mismatch (TIM) at the trail termination sink.				
degM	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description: This attribute indicates the threshold level for declaring a Degraded Signal defect (dDEG). A dDEG shall be declared if DegM consecutive bad PM Seconds are detected.				

Table 746 – Attributes for class *OtnOamCommon*

13.2.28 OtnOamMepServicePoint

Description:

- Two alternative provisioning scenarios: 1) Oam provisioning through CSEPs for "service" related OAM (QoS) - provisioning joint to ConnectivityService. In this case the ODU MEP and MIP parameters are included (composed) in resp. ODU CEP TTP and CTP instances, i.e. no distinct ODU MEP/MIP instances. This provisioning scenario could apply for: a) NCM MEPs on terminated OTU b) NCM MEPs on terminated ODUCn c) NCM MEPs on terminated ODU/Flex d) NCM MEP and NCM NIM/MIP on semi-terminated ODU/Flex e) TCM MEPs on semi-terminated and non terminated ODU/Flex The Meg related attributes are distributed also to Mep/Mip for this provisioning scenario which does not involve OtnOamService/ServicePoints. 2) Oam provisioning through OtnOamService/ServicePoints for "maintenance" related OAM. In this case the distinct ODU MEP and MIP instances are created, referred (by name) by resp. ODU CEP TTP and CTP. This provisioning scenario could apply for TCM or NIM at any segment of the Service.

Applied stereotypes:

- OpenModelClass

- support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduMep	OduMep	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
_oduTcmMep	OduTcmMep	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
_otuMep	OtuMep	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				

Table 747 – Attributes for class *OtnOamMepServicePoint*

13.2.29 OtnOamMipServicePoint

Description:

- See OtnOamMepService point comment.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduMip	OduMip	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
_oduTcmMip	OduTcmMip	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 748 – Attributes for class *OtnOamMipServicePoint*

13.2.30 OtnOamService

Description:

- OduOamService class is used for TCM provisioning.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_oduTcmOamService	OduTcmOamService	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 749 – Attributes for class *OtnOamService*

13.2.31 OtsiaMep

Applied stereotypes:

- OpenModelClass

- support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
totalPowerWarnThresholdUpper	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
	Allows to configure the upper power threshold on whole Assembly scope.			
totalPowerWarnThresholdLower	Real	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				
	Allows to configure the lower power threshold on whole Assembly scope.			

Table 750 – Attributes for class *OtsiaMep*

13.2.32 **OtuConnectionEndPointSpec**

Description:

- Note that the OTU CEP includes OTSiA "termination&adaptation".

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otuTtpPac	OtuTtpPac	1	R	OpenModelAttribute <ul style="list-style-type: none"> ● isKey:No ● isInvariant: false ● valueRange: no range constraint ● support: MANDATORY ● OpenInterfaceModelAttribute ● AVC: NA
Description:				

Table 751 – Attributes for class *OtuConnectionEndPointSpec*

13.2.33 OtuConnectivityServiceEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otuCsepTtpPac	OtuCsepTtpPac	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Table 752 – Attributes for class *OtuConnectivityServiceEndPointSpec*

13.2.34 OtuCsepTtpPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
fecType	FecType	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA
baudRate	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: The baud rate in terms of giga baud. baud = bit/symbol, and the baud rate is hence sometimes referred to as the symbol rate				

Table 753 – Attributes for class *OtuCsepTtpPac***13.2.35 OtuFecPerformanceData****Description:**

- The OTU FEC PM Metrics.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
fecCorrectedErrorsCount	Integer	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: ITU-T G798: The number of bits corrected by the FEC are counted over one second and reported to the MI at the end of the second. For the application of this filter, see the specific atomic functions. During signal fail conditions of the data signal, no corrected bits shall be counted. For details on the signal fail conditions, see the specific atomic functions.				
preFecBer	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: counter: bit error rate before correction by FEC				
postFecBer	Real	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: counter: bit error rate after correction by FEC				

Attribute Name	Type	Mult.	Access	Stereotypes
uncorrectableBytes	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Bytes that could not be corrected by FEC
uncorrectableBits	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Bits that could not be corrected by FEC
correctedBytes	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				Bytes corrected between those that were received corrupted

Table 754 – Attributes for class *OtuFecPerformanceData*

13.2.36 OtuMep

Description:

- If the CSEP is OTU CSEP, then 1) OTU only: OtuMep 2) OTU and ODUcn: both OtuCep and OduMep

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
txi	String Default value: 0	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The Trail Trace Identifier (TTI) information, provisioned by the managing system at the termination source, to be placed in the TTI overhead position of the source of a trail for transmission.			
fecMonitoring	Boolean Default value: <i>true</i>	1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description:			
fecCorrectedErrorThreshold	Integer	0..1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
_otnOamCommon	OtnOamCommon	0..1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description:			
_otuMepStatus	OtuMepStatus	0..1	R	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description:			
_otsiaMep	OtsiaMep	0..1	RW	OpenModelAttribute <ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY• OpenInterfaceModelAttribute• AVC: NA
	Description:			

Table 755 – Attributes for class *OtuMep***13.2.37 OtuMepStatus**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
acti	String	1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				The Trail Trace Identifier (TTI) information recovered (Accepted) from the TTI overhead position at the sink of a trail.

Table 756 – Attributes for class *OtuMepStatus***13.2.38 OtuTtpPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_otuMep	OtuMep	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
fecType	FecType	0..1	R	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
baudRate	Integer	0..1	R	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: The baud rate in terms of giga baud. baud = bit/symbol, and the baud rate is hence sometimes referred to as the symbol rate			

Table 757 – Attributes for class *OtuTtpPac*

13.3 Signals

13.4 Associations

13.4.1 OduCepHasProtectionPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduProtection	composite	Yes	OduProtectionPac	0..1
oduconnectionendpointspec	none	No	OduConnectionEndPointSpec	1

Table 758 – Member ends for association *OduCepHasProtectionPac*

13.4.2 OduCepSpecHasCommonPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCommon	composite	Yes	OduCommonPac	0..1
oduconnectionendpointspec	none	No	OduConnectionEndPointSpec	1

Table 759 – Member ends for association *OduCepSpecHasCommonPac*

13.4.3 OduCepSpecHasCtpPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCtp	composite	Yes	OduCtpPac	0..1
_lpSpec	none	No	OduConnectionEndPointSpec	1

Table 760 – Member ends for association *OduCepSpecHasCtpPac***13.4.4 OduCepSpecHasTermAdapterPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTermAndAdapter	composite	Yes	OduTerminationAndClientAdaptationPac	0..1
_lpSpec	none	No	OduConnectionEndPointSpec	1

Table 761 – Member ends for association *OduCepSpecHasTermAdapterPac***13.4.5 OduCsepSpecHasCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCsepCommonPac	composite	Yes	OduCsepCommonPac	1
oduconnectivityserviceendpointspec	none	No	OduConnectivityServiceEndPointSpec	1

Table 762 – Member ends for association *OduCsepSpecHasCommonPac***13.4.6 OduCsepSpecHasCtpPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCsepCtpPac	composite	Yes	OduCsepCtpPac	0..1
oduconnectivityserviceendpointspec	none	No	OduConnectivityServiceEndPointSpec	1

Table 763 – Member ends for association *OduCsepSpecHasCtpPac***13.4.7 OduCsepSpecHasOduCnPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCnCsepTtpPac	composite	Yes	OduCnCsepTtpPac	0..1
oduconnectivityserviceendpointspec	none	No	OduConnectivityServiceEndPointSpec	1

Table 764 – Member ends for association *OduCsepSpecHasOduCnPac***13.4.8 OduCsepSpecHasTermAdapterPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduCsepTtpPac	composite	Yes	OduCsepTtpPac	0..1
oduconnectivityserviceendpointspec	none	No	OduConnectivityServiceEndPointSpec	1

Table 765 – Member ends for association *OduCsepSpecHasTermAdapterPac***13.4.9 OduCtpCepHasOduMip**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMip	composite	Yes	OduMip	0..2
oductppac	none	No	OduCtpPac	1

Table 766 – Member ends for association *OduCtpCepHasOduMip***13.4.10 OduMepHasOtnOamCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnOamCommon	composite	Yes	OtnOamCommon	0..1
odumep	none	No	OduMep	1

Table 767 – Member ends for association *OduMepHasOtnOamCommon***13.4.11 OduMepHasStatus**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMepStatus	composite	Yes	OduMepStatus	0..1
odumep	none	No	OduMep	1

Table 768 – Member ends for association *OduMepHasStatus***13.4.12 OduMepSpecHasOduMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMep	composite	Yes	OduMep	0..1
odumepspec	none	No	OtnMepSpec	1

Table 769 – Member ends for association *OduMepSpecHasOduMep***13.4.13 OduMepSpecHasOduTcmPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMep	composite	Yes	OduTcmMep	0..1
odumepspec	none	No	OtnMepSpec	1

Table 770 – Member ends for association *OduMepSpecHasOduTcmPac***13.4.14 OduMepSpecHasOtuMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuMep	composite	Yes	OtuMep	0..1
odumepspec	none	No	OtnMepSpec	1

Table 771 – Member ends for association *OduMepSpecHasOtuMep***13.4.15 OduMipHasOtnOamCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnOamCommon	none	Yes	OtnOamCommon	0..1
odumip	none	No	OduMip	1

Table 772 – Member ends for association *OduMipHasOtnOamCommon***13.4.16 OduMipHasStatus**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMipStatus	composite	Yes	OduMipStatus	0..1
odumip	none	No	OduMip	1

Table 773 – Member ends for association *OduMipHasStatus***13.4.17 OduMipSpecHasOduMip**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMip	composite	Yes	OduMip	0..1
odumipspec	none	No	OtnMipSpec	1

Table 774 – Member ends for association *OduMipSpecHasOduMip***13.4.18 OduMipSpecHasOduTcmMip**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMip	composite	Yes	OduTcmMip	0..1
odumipspec	none	No	OtnMipSpec	1

Table 775 – Member ends for association *OduMipSpecHasOduTcmMip***13.4.19 OduOamServiceHasTcm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmOamService	composite	Yes	OduTcmOamService	0..1
oduoamservice	none	No	OtnOamService	1

Table 776 – Member ends for association *OduOamServiceHasTcm***13.4.20 OduTcmMepHasOtnOamCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnOamCommon	composite	Yes	OtnOamCommon	0..1
odutcmmepl	none	No	OduTcmMep	1

Table 777 – Member ends for association *OduTcmMepHasOtnOamCommon***13.4.21 OduTcmMepHasStatus**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMepStatus	composite	Yes	OduTcmMepStatus	0..1
odutcmmepl	none	No	OduTcmMep	1

Table 778 – Member ends for association *OduTcmMepHasStatus***13.4.22 OduTcmMipHasOtnOamCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnOamCommon	composite	Yes	OtnOamCommon	0..1
odutcmmepl	none	No	OduTcmMip	1

Table 779 – Member ends for association *OduTcmMipHasOtnOamCommon***13.4.23 OduTcmMipHasStatus**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMipStatus	composite	Yes	OduTcmMipStatus	0..1
odutcmmp	none	No	OduTcmMip	1

Table 780 – Member ends for association *OduTcmMipHasStatus***13.4.24 OduTtpCepHasOduMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMep	composite	Yes	OduMep	0..1
oduconnectionendpointspec	none	No	OduTerminationAndClientAdaptationPac	1

Table 781 – Member ends for association *OduTtpCepHasOduMep***13.4.25 OtnErrorPmHasOducnErrorPm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnCnErrorPerformanceData	none	Yes	OtnCnErrorPerformanceData	0..*
oduerrorperformance data	none	No	OtnErrorPerformanceData	1

Table 782 – Member ends for association *OtnErrorPmHasOducnErrorPm***13.4.26 OtnMegSpecHasOduTcm**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMeg	composite	Yes	OduTcmMeg	0..1
otnmegspec	none	No	OtnMegSpec	1

Table 783 – Member ends for association *OtnMegSpecHasOduTcm***13.4.27 OtnOamMepServicePointHasOduMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMep	composite	Yes	OduMep	0..1
oduoammepservicepoint	none	No	OtnOamMepServicePoint	1

Table 784 – Member ends for association *OtnOamMepServicePointHasOduMep***13.4.28 OtnOamMepServicePointHasOduTcmMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMep	composite	Yes	OduTcmMep	0..1
oduoammepservicepoint	none	No	OtnOamMepServicePoint	1

Table 785 – Member ends for association *OtnOamMepServicePointHasOduTcmMep***13.4.29 OtnOamMepServicePointHasOtuMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuMep	composite	Yes	OtuMep	0..1
oduoammepservicepoint	none	No	OtnOamMepServicePoint	1

Table 786 – Member ends for association *OtnOamMepServicePointHasOtuMep***13.4.30 OtnOamMipServicePointHasOduMip**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduMip	composite	Yes	OduMip	0..1
oduoammipservicepoint	none	No	OtnOamMipServicePoint	1

Table 787 – Member ends for association *OtnOamMipServicePointHasOduMip***13.4.31 OtnOamMipServicePointHasOduTcmMip**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_oduTcmMip	composite	Yes	OduTcmMip	0..1
oduoammipservicepoint	none	No	OtnOamMipServicePoint	1

Table 788 – Member ends for association *OtnOamMipServicePointHasOduTcmMip***13.4.32 OtuCepSpecHasOtuTtpPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuTtpPac	composite	Yes	OtuTtpPac	1
otuconnectionendpointspec	none	No	OtuConnectionEndPointSpec	1

Table 789 – Member ends for association *OtuCepSpecHasOtuTtpPac***13.4.33 OtuCsepSpecHasOtuTtpPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuCsepTtpPac	composite	Yes	OtuCsepTtpPac	1
otuconnectivityserviceendpointspec	none	No	OtuConnectivityServiceEndPointSpec	1

Table 790 – Member ends for association *OtuCsepSpecHasOtuTtpPac***13.4.34 OtuMepHasOtnOamCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otnOamCommon	composite	Yes	OtnOamCommon	0..1
otumep	none	No	OtuMep	1

Table 791 – Member ends for association *OtuMepHasOtnOamCommon***13.4.35 OtuMepHasOtsiaMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otsiaMep	composite	Yes	OtsiaMep	0..1
otumep	none	No	OtuMep	1

Table 792 – Member ends for association *OtuMepHasOtsiaMep***13.4.36 OtuMepHasStatus**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuMepStatus	composite	Yes	OtuMepStatus	0..1
otumep	none	No	OtuMep	1

Table 793 – Member ends for association *OtuMepHasStatus***13.4.37 OtuTtpCepHasOtuMep**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_otuMep	composite	Yes	OtuMep	0..1
otutppac	none	No	OtuTtpPac	1

Table 794 – Member ends for association *OtuTtpCepHasOtuMep***13.5 Abstractions****13.5.1 OduCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
OduConnectionEndPointSpec	ConnectionEndPoint	

target:
"/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connectionEndPoint"

Table 795 – Member ends for class abstraction *OduCepSpecAugmentsCep***13.5.2 OduCsepSpecAugmentsCsepLpc**

Augmenting Class	Augmented Class	Comment
OduConnectivityServiceEndPointSpec	LayerProtocolConstraint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint" "		

Table 796 – Member ends for class abstraction *OduCsepSpecAugmentsCsepLpc***13.5.3 OduDelayPerformanceDataAugmentsCd**

Augmenting Class	Augmented Class	Comment
OduDelayPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 797 – Member ends for class abstraction *OduDelayPerformanceDataAugmentsCd***13.5.4 OduDelayPerformanceDataAugmentsHd**

Augmenting Class	Augmented Class	Comment
OduDelayPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:CurrentData:_historyData"		

Table 798 – Member ends for class abstraction *OduDelayPerformanceDataAugmentsHd***13.5.5 OduFecPmDataAugmentsCd**

Augmenting Class	Augmented Class	Comment
OtuFecPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 799 – Member ends for class abstraction *OduFecPmDataAugmentsCd***13.5.6 OduFecPmDataAugmentsHd**

Augmenting Class	Augmented Class	Comment
OtuFecPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:CurrentData:_historyData"		

Table 800 – Member ends for class abstraction *OduFecPmDataAugmentsHd***13.5.7 OduOamJobTypeAugmentsOamJobType**

Augmenting Enumeration	Augmented Enumeration
OduOamJobType • NCM • TCM	OamJobType • LOOPBACK_FACILITY • LOOPBACK TERMINAL
Comment	
Enumeration Augment.	

Table 801 – Member ends for enum abstraction *OduOamJobTypeAugmentsOamJobType***13.5.8 OduOamMepServicePointAugmentsOamServicePoint**

Augmenting Class	Augmented Class	Comment
OtnOamMepServicePoint	OamServicePoint	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService/TapiOam:OamService:_oamServicePoint"		

Table 802 – Member ends for class abstraction *OduOamMepServicePointAugmentsOamServicePoint***13.5.9 OduOamMepSrvPointAugmentsConnOamSrvPoint**

Augmenting Class	Augmented Class	Comment
OtnOamMepServicePoint	ConnectivityOamServicePoint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiOam:ConnectivityOamServicePoint"		

Table 803 – Member ends for class abstraction *OduOamMepSrvPointAugmentsConnOamSrvPoint***13.5.10 OduOamMipServicePointAugmentsOamServicePoint**

Augmenting Class	Augmented Class	Comment
OtnOamMipServicePoint	OamServicePoint	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService/TapiOam:OamService:_oamServicePoint"		

Table 804 – Member ends for class abstraction *OduOamMipServicePointAugmentsOamServicePoint***13.5.11 OduOamMipSrvPointAugmentsConnOamSrvPoint**

Augmenting Class	Augmented Class	Comment
OtnOamMipServicePoint	ConnectivityOamServicePoint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiOam:ConnectivityOamServicePoint"		

Table 805 – Member ends for class abstraction *OduOamMipSrvPointAugmentsConnOamSrvPoint*

13.5.12 OduTcmMegAugmentsMeg

Augmenting Class	Augmented Class	Comment
OtnMegSpec	Meg	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg"		

Table 806 – Member ends for class abstraction *OduTcmMegAugmentsMeg*

13.5.13 OduTypeAugmentsLayerProtocolQualifier

Augmenting Enumeration	Augmented Enumeration
OduType	LayerProtocolQualifier
<ul style="list-style-type: none"> • ODU0 • ODU1 • ODU2 • ODU2E • ODU3 • ODU4 • ODU CN • ODU_FLEX 	<ul style="list-style-type: none"> • UNSPECIFIED
Comment	
Enumeration Augment.	

Table 807 – Member ends for enum abstraction *OduTypeAugmentsLayerProtocolQualifier*

13.5.14 OtnErrorPmDataAugmentsCd

Augmenting Class	Augmented Class	Comment
OtnErrorPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 808 – Member ends for class abstraction *OtnErrorPmDataAugmentsCd*

13.5.15 OtnErrorPmDataAugmentsHd

Augmenting Class	Augmented Class	Comment
OtnErrorPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:CurrentData:_historyData"		

Table 809 – Member ends for class abstraction *OtnErrorPmDataAugmentsHd*

13.5.16 OtnFaultConditionDeterminationAugmentsFaultConditionDetermination

Augmenting Enumeration	Augmented Enumeration
OtnFaultConditionDetermination • NON_INTRUSIVE_CLIENT • NON_INTRUSIVE_E2E • NON_INTRUSIVE_SUBLAYER	FaultConditionDetermination • INHERENT • NON_INTRUSIVE • SUBLAYER • TEST
Comment	
Enumeration Augment.	

Table 810 – Member ends for enum abstraction *OtnFaultConditionDeterminationAugmentsFaultConditionDetermination***13.5.17 OtnMepSpecAugmentsMep**

Augmenting Class	Augmented Class	Comment
OtnMepSpec	Mep	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg/TapiOam:Meg:_mep"		

Table 811 – Member ends for class abstraction *OtnMepSpecAugmentsMep***13.5.18 OtnMipSpecAugmentsMip**

Augmenting Class	Augmented Class	Comment
OtnMipSpec	Mip	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg/TapiOam:Meg:_mip"		

Table 812 – Member ends for class abstraction *OtnMipSpecAugmentsMip***13.5.19 OtnOamServiceAugmentsOamService**

Augmenting Class	Augmented Class	Comment
OtnOamService	OamService	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService"		

Table 813 – Member ends for class abstraction *OtnOamServiceAugmentsOamService***13.5.20 OtuCepSpecAugmentsCep**

Augmenting Class	Augmented Class	Comment
OtuConnectionEndPointSpec	ConnectionEndPoint	
target: "/TapiCommon:Context:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connecti onEndPoint"		

Table 814 – Member ends for class abstraction *OtuCepSpecAugmentsCep***13.5.21 OtuCsepSpecAugmentsCsepLpc**

Augmenting Class	Augmented Class	Comment
OtuConnectivityServiceEndPointSpec	LayerProtocolConstraint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint/TapiConnectivity:ConnectivityServiceEndPoint:_layerProtocolConstraint"		

Table 815 – Member ends for class abstraction *OtuCsepSpecAugmentsCsepLpc***13.5.22 OtuTypeAugmentsLayerProtocolQualifier**

Augmenting Enumeration	Augmented Enumeration
OtuType	LayerProtocolQualifier
<ul style="list-style-type: none"> • OTU1 • OTU2 • OTU3 • OTU4 • OTU_CN 	<ul style="list-style-type: none"> • UNSPECIFIED
Comment	
Enumeration Augment.	

Table 816 – Member ends for enum abstraction *OtuTypeAugmentsLayerProtocolQualifier***13.6 Data Types****13.6.1 DegThr****Description:**

- Degraded Threshold, specify either the percentage or the number of Errored Blocks in the defined interval. 1) degThrValue when type is PERCENTAGE: percentageGranularity is used to indicate the number of decimal points. So if percentageGranularity is ones, a value of 1 in degThrValue would indicate 1%, a value of 10 = 10%, a value of 100 = 100%. So if percentageGranularity is thousandths a value of 1 in degThrValue would indicate 0.001%, a value of 1000 = 1%, a value of 1000000 = 100%. 2) degThrValue when type is NUMBER_ERROR_BLOCKS: Number of Errored Blocks is captured in an integer value.

Attribute Name	Type	Mult.	Access	Stereotypes
degThrValue	Integer	1	RW	OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA
Description: Percentage of detected errored blocks				

Attribute Name	Type	Mult.	Access	Stereotypes
degThrType	DegThrType Default value: <i>NUMBER_ERRORED_BLOCKS</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description: Number of errored blocks			
percentageGranularity	PercentageGranularity Default value: <i>ONES</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 817 – Attributes for data type *DegThr*

13.6.2 FecType

Description:

- The specification of OTU FEC Type. The standardFecType and proprietaryFecType attributes are mutually exclusive.

Attribute Name	Type	Mult.	Access	Stereotypes
standardFecType	StandardFecType	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
proprietaryFecType	String	0..1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 818 – Attributes for data type *FecType*

13.6.3 OduPayloadType

Description:

- This type includes is a 2-digit Hex code that indicates the new accepted payload type. Valid values are defined in Table 15-9 of ITU-T Recommendation G.709 with one additional value UNINTERPRETABLE.

Applied stereotype:

- Experimental

Attribute Name	Type	Mult.	Access	Stereotypes
namedPayloadType	OduNamedPayloadType Default value: UNKNOWN	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
hexPayloadType	String Default value: 0	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				

Table 819 – Attributes for data type *OduPayloadType*

13.6.4 OtnCounters

Attribute Name	Type	Mult.	Access	Stereotypes
bbe	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
Description:				
ses	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			
uas	Integer	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Table 820 – Attributes for data type *OtnCounters*

13.6.5 UasChoice

Description:

- If bidirectional is TRUE then use the uas attribute, if bidirectional is FALSE use the nuas, and fuas attributes.

Attribute Name	Type	Mult.	Access	Stereotypes
bidirectional	Boolean Default value: <i>true</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
uas	Integer Default value: <i>0</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			
nuas	Integer Default value: <i>0</i>	1	RW	OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY OpenInterfaceModelAttribute • AVC: NA
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
fuas	<p style="margin-left: 20px;">Integer Default value: 0</p> <p style="margin-left: 20px;">Description:</p>	1	RW	<p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY • OpenInterfaceModelAttribute • AVC: NA

Table 821 – Attributes for data type *UasChoice*

13.7 Enumerations

13.7.1 DegThrType

Description:

- The value of the threshold can be provisioned in terms of number of errored blocks or in terms of percentage of errored blocks. For percentage-based specification, in order to support provision of less than 1%, the specification consists of two fields. The first field indicates the granularity of percentage. For examples, in 1%, in 0.1%, or in 0.01%, etc. The second field indicates the multiple of the granularity. For number of errored block based, the value is a positive integer.

Contains Enumeration Literals:

- PERCENTAGE:
 - Choice of % or Number of errored blocks
- NUMBER_ERRORED_BLOCKS:
 - Number of % or blocks

13.7.2 MappingType

Contains Enumeration Literals:

- AMP:
- BMP:
- GFP_F:
- GMP:
- TTP_GFP_BMP:
- NULL:

13.7.3 OduNamedPayloadType

Applied stereotype:

- Experimental

Contains Enumeration Literals:

- UNKNOWN:
- UNINTERPRETABLE:

13.7.4 OduOamJobType

Contains Enumeration Literals:

- NCM:
- TCM:

13.7.5 OduSlotSize

Contains Enumeration Literals:

- 1G25:
- 2G5:

13.7.6 OduType

Contains Enumeration Literals:

- ODU0:
- ODU1:
- ODU2:
- ODU2E:
- ODU3:
- ODU4:
- ODU_FLEX:
- ODU_CN:

13.7.7 OtnAlarmConditionName

Applied stereotype:

- Deprecated

Contains Enumeration Literals:

- LOS_P:
 - G.798: Loss of signal information from the media element. Loss of optical signal.
- TIM:
 - G.798: Connectivity supervision/trail trace identifier mismatch.
- BDI_P:
 - G.798: Backward defect indication payload.
- BDI_O:
 - G.798: Backward defect indication overhead.
- BDI:
 - G.798: Backward defect indication.
- OCI:
 - G.798: Open connection indication.
- SSF:
 - Server Signal Fail.
- SSF_P:
 - Server Signal Fail Payload.
- SSF_O:

- Server Signal Fail Overhead.
- DEG:
 - G.798, G.806: Signal degrade.
- FOP_PM:
 - G.798: ODU linear protection failure of protocol provisioning mismatch.
- FOP_NR:
 - G.798: ODU linear protection failure of protocol no response.
- PLM:
 - Payload mismatch supervision. G.806: The payload label mismatch defect (dPLM) shall be detected if the "accepted TSL" code does not match the "expected TSL" code. If the "accepted TSL" is "equipped non-specific", the mismatch is not detected (TSL: Trail Signal Label). Payload type supervision checks that compatible adaptation functions are used at the source and the sink. This is normally done by adding a signal type identifier at the source adaptation function and comparing it with the expected identifier at the sink. If they do not match, a payload mismatch is detected. G.798 - dPLM at the ODUP layer: dPLM shall be declared if the accepted payload type (AcPT) is not equal to the expected payload type(s) as defined by the specific adaptation function.
- CSF:
 - G.798: Client signal fail.
- MSIM:
 - G.798: Multiplex structure identifier mismatch supervision - tributary port #p
- LOFLOM:
 - G.798: Loss of frame and multiframe - tributary port #p
- LOOMFI:
 - G.798: OPU multiframe (OMFI) reception for OPUk with k = 4
- LSS:
 - G.798, O.151: Loss of PRBS lock.
- LCS:
 - G.798, IEEE 802.3, G.709: Loss of character synchronization.
- LFD:
 - GFP loss of frame delineation. G.806 - Server layer-specific GFP sink processes: GFP loss of frame delineation (dLFD) is raised when the frame delineation process (clause 6.3.1 of [ITU-T G.7041]) is not in the "SYNC" state. dLFD is cleared when the frame delineation process is in the "SYNC" state.
- UPM:
 - GFP user payload mismatch. G.806 - Client-specific GFP-F (Frame) and GFP-T (Transparent) sink processes: GFP user payload mismatch (dUPM) is raised when the accepted UPI (AcUPI) is different from the expected UPI. dUPM is cleared when AcUPI matches the expected UPI or GFP_SF is active.
- EXM:
 - GFP extension header mismatch. G.806 - Common GFP sink processes: GFP extension header mismatch (dEXM) is raised when the accepted EXI (AcEXI) is different from the expected EXI. dEXM is cleared when AcEXI matches the expected EXI or GFP_SF is active.
- LOF:
 - G.798, G.783: Loss Of Frame.
- RCOHM:
 - G.798: Resize Control Overhead Mismatch.
- GIDM:
 - G.798: Group ID Mismatch.
- FMM:

- G.798: FlexO/FlexE Map Mismatch.
- LOL:
 - G.798: Loss of lane alignment.
- CSACM:
 - G.798: Calendar Slot Availability Count Mismatch.
- LOM:
 - G.798: Loss of multiframe. Loss of the interleaved FlexESG multi-frame.
- LRC:
 - G.798: Loss of Rate Compensation blocks.
- LTC:
 - G.798: Loss of tandem connection.
- RDI:
 - G.798: Remote Defect Indication.
- LCK:
 - G.798: Locked.
- LOS_O:
 - G.798: Loss of signal overhead.
- LOA:
 - G.798: Loss of alignment.
- LFA:
 - G.798: Loss of FEC word alignment.
- LOS:
 - G.783: Loss Of Signal.

13.7.8 OtnFaultConditionDetermination

Description:

- ITU-T-REC-G.873.1-201710 Optical transport network: Linear protection

Contains Enumeration Literals:

- NON_INTRUSIVE_CLIENT:
 - Non-intrusive monitoring of Client signal fail
- NON_INTRUSIVE_E2E:
 - Non-intrusive end-to-end monitoring
- NON_INTRUSIVE_SUBLAYER:
 - Non-intrusive Sublayer monitoring

13.7.9 OtuType

Contains Enumeration Literals:

- OTU1:
- OTU2:
- OTU3:
- OTU4:
- OTU_CN:

13.7.10 PercentageGranularity

Applied stereotype:

- Experimental

Contains Enumeration Literals:

- ONES:
- ONE_TENTHS:
 - value * (1/10)
- ONE_HUNDREDTHS:
 - value * (1/100)
- ONE_THOUSANDTHS:
 - value * (1/1000)

13.7.11 StandardFecType

Contains Enumeration Literals:

- REED_SOLOMON:

13.7.12 TcmExtension

Contains Enumeration Literals:

- NORMAL:
- PASS_THROUGH:
- ERASE:

13.7.13 TcmMode

Description:

- List of value modes for the sink side of the tandem connection monitoring function.

Contains Enumeration Literals:

- OPERATIONAL:
- TRANSPARENT:
- MONITOR:

13.7.14 TcmMonitoring

Description:

- Monitoring types for the tandem connection monitoring function.

Contains Enumeration Literals:

- INTRUSIVE:
- NON_INTRUSIVE:

13.7.15 TcmStatus

Description:

- See Table 15-5/G.709/Y.1331

Contains Enumeration Literals:

- NO_SOURCE_TC:
 - TCM byte 3 (bits 6 7 8) -- 0 0 0, No source Tandem Connection
- IN_USE_WITHOUT_IAE:
 - TCM byte 3 (bits 6 7 8) -- 0 0 1, In use without IAE (Incoming Alignment Error)
- IN_USE_WITH_IAE:
 - TCM byte 3 (bits 6 7 8) -- 0 1 0, In use with IAE (Incoming Alignment Error)
- RESERVED_1:
 - TCM byte 3 (bits 6 7 8) -- 0 1 1, Reserved for future international standardization
- RESERVED_2:
 - TCM byte 3 (bits 6 7 8) -- 1 0 0, Reserved for future international standardization
- LCK:
 - TCM byte 3 (bits 6 7 8) -- 1 0 1, Maintenance signal: ODU-LCK
- OCI:
 - TCM byte 3 (bits 6 7 8) -- 1 1 0, Maintenance signal: ODU-OCI
- AIS:
 - TCM byte 3 (bits 6 7 8) -- 1 1 1, Maintenance signal: ODU-AIS

13.7.16 TimDetMo

Description:

- List of modes for trace identifier mismatch detection.

Contains Enumeration Literals:

- DAPI:
- SAPI:
- BOTH:
- OFF:

13.8 Primitives

14 Ethernet Model

TapiEth: This module contains TAPI Ethernet Model definitions. Source: TapiEth.uml Copyright (c) 2023 Open Networking Foundation (ONF). All rights reserved. License: This module is distributed under the Apache License 2.0

14.1 Diagrams

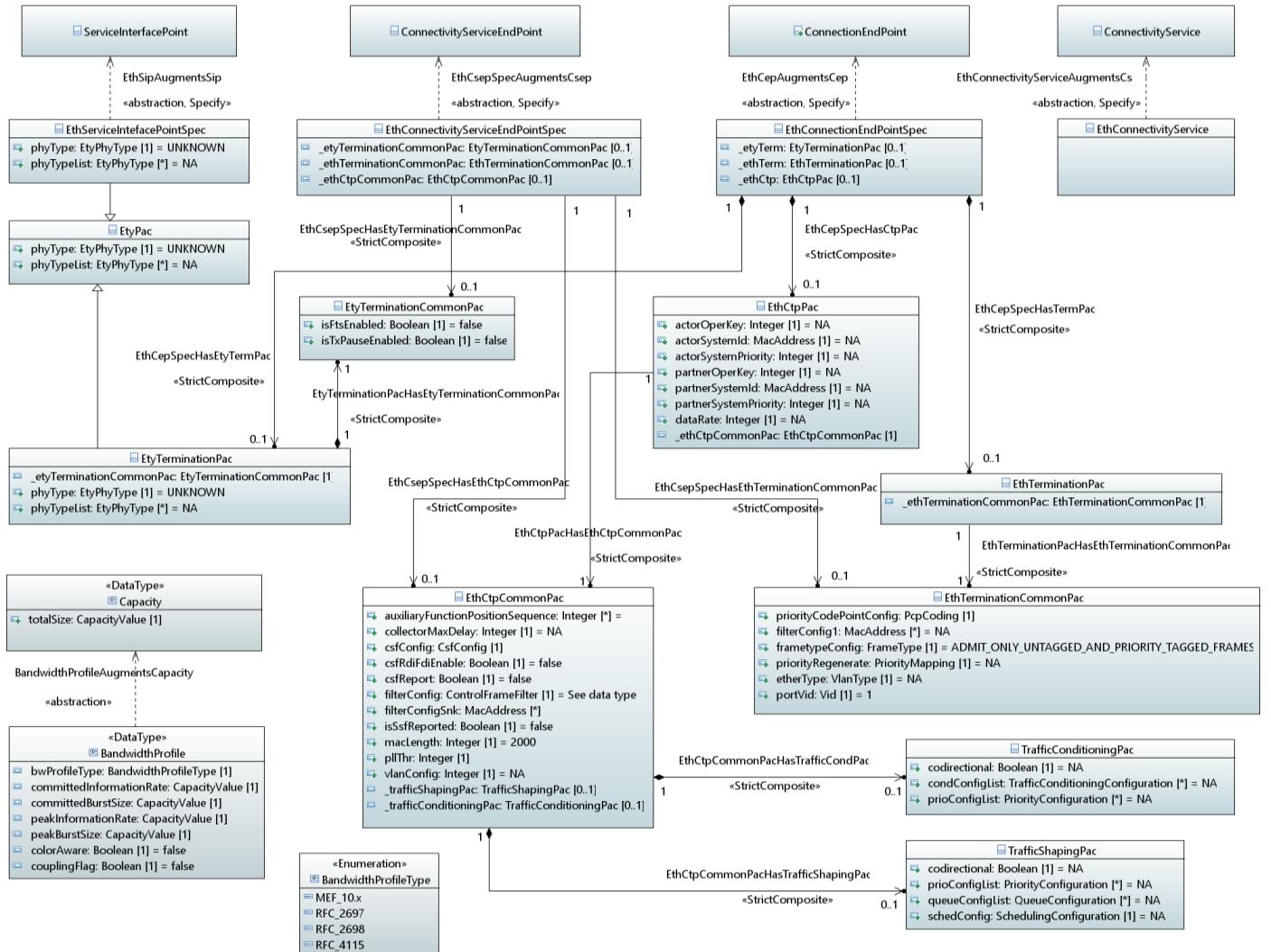
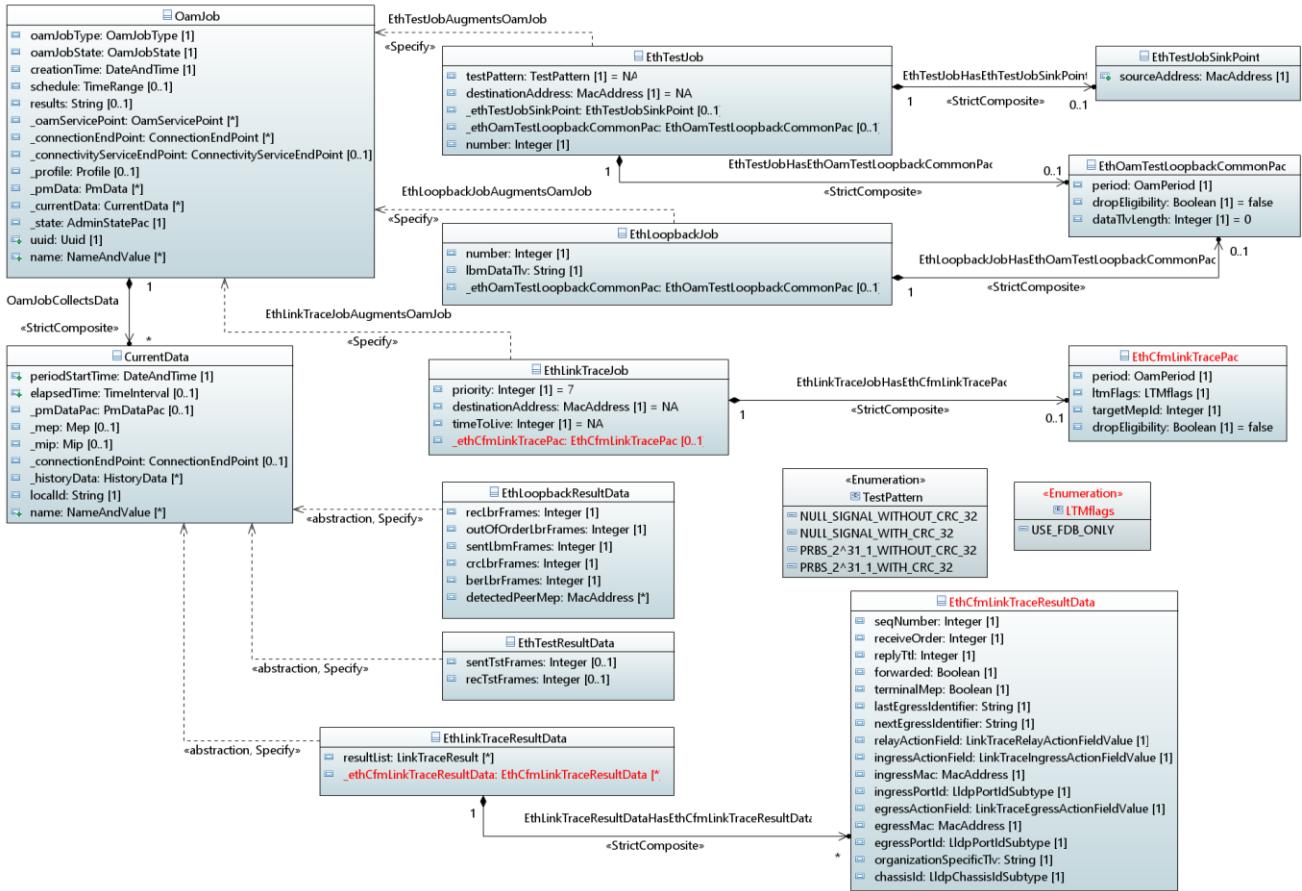
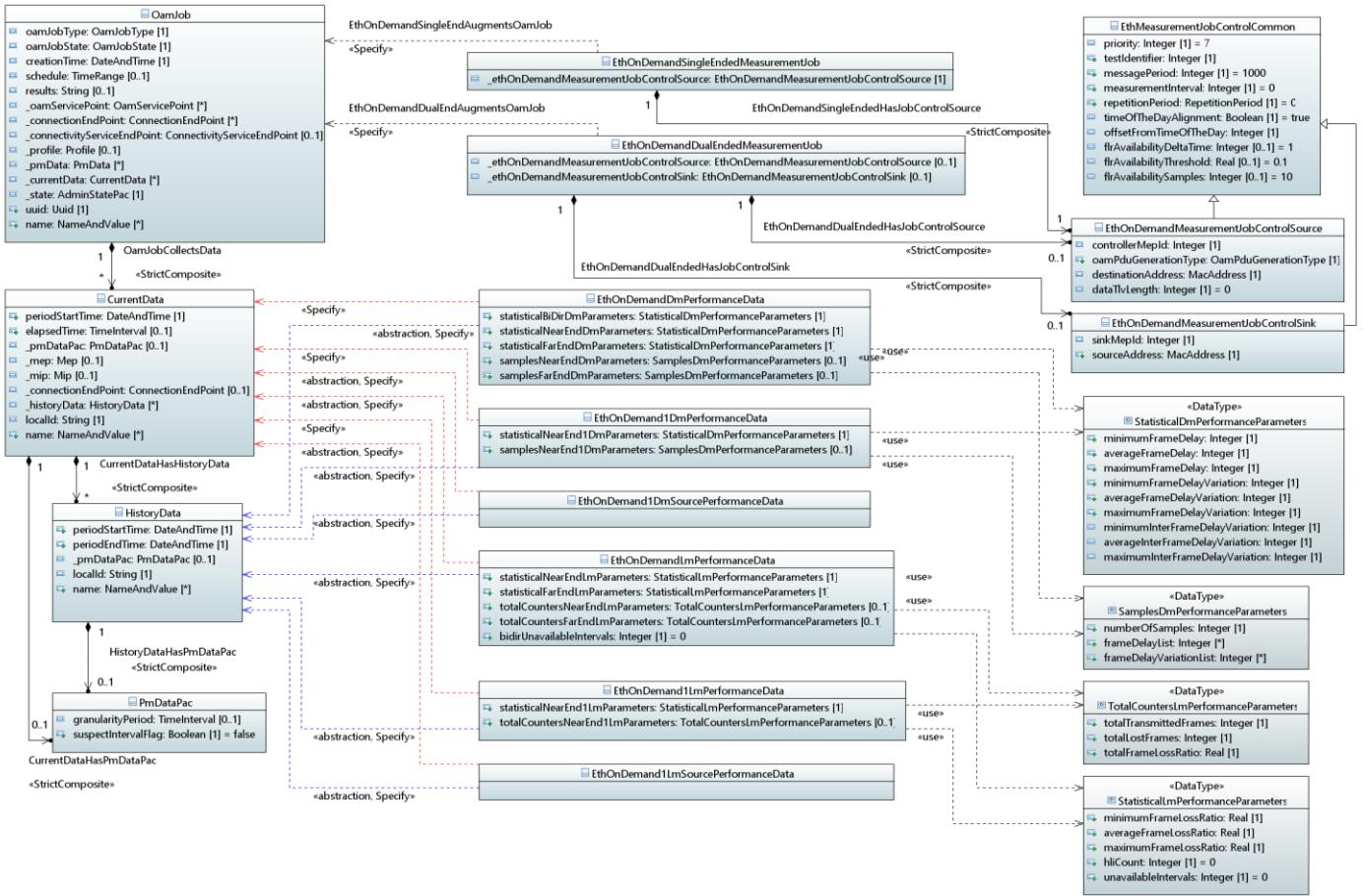
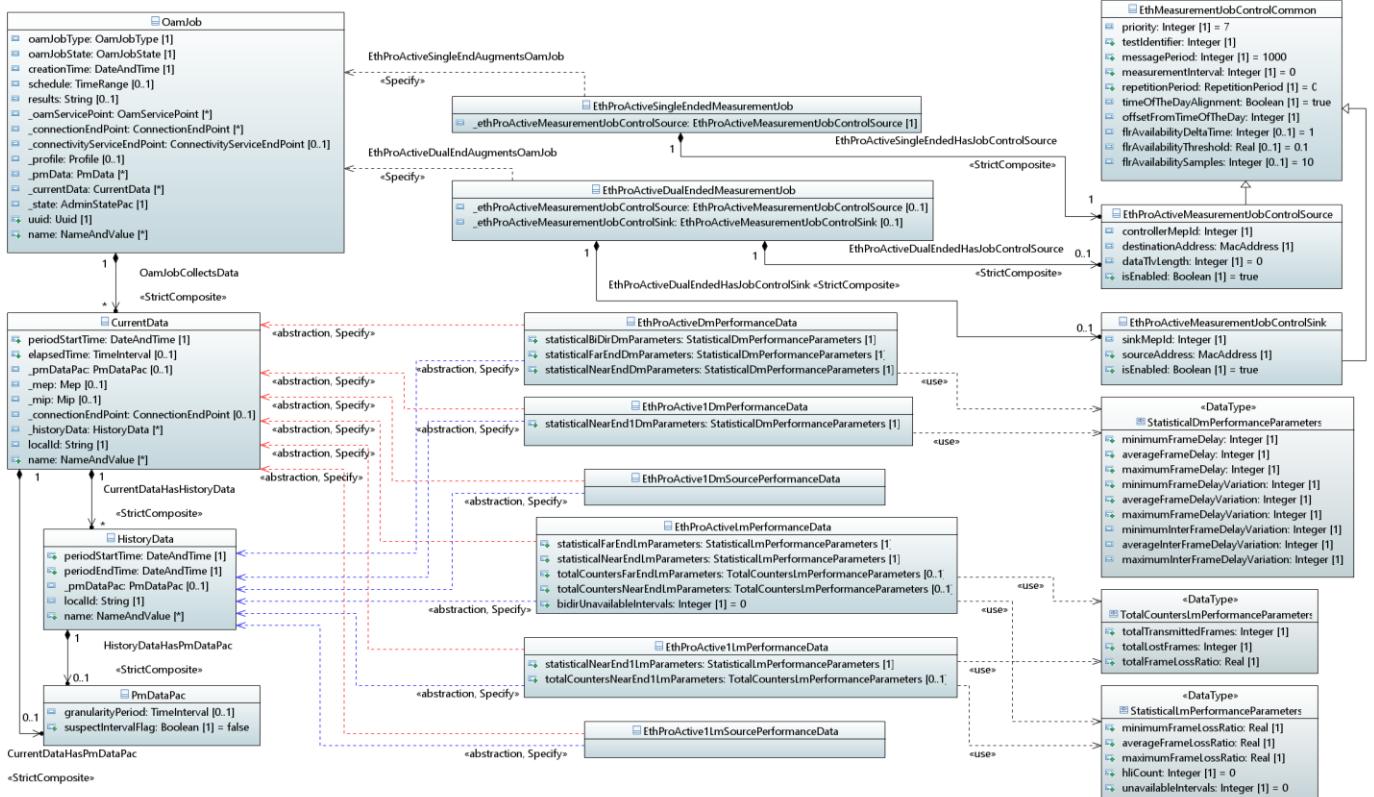
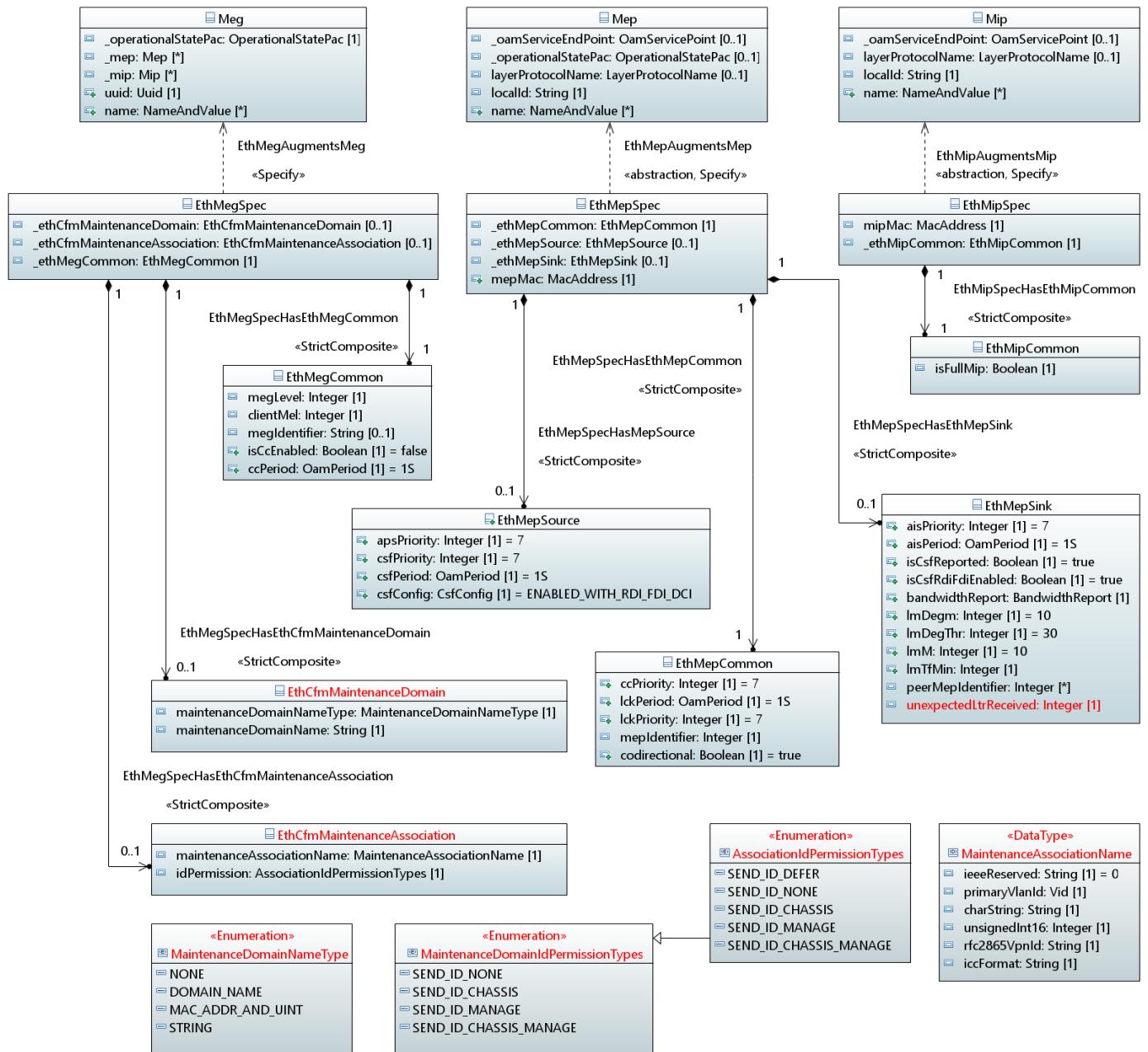
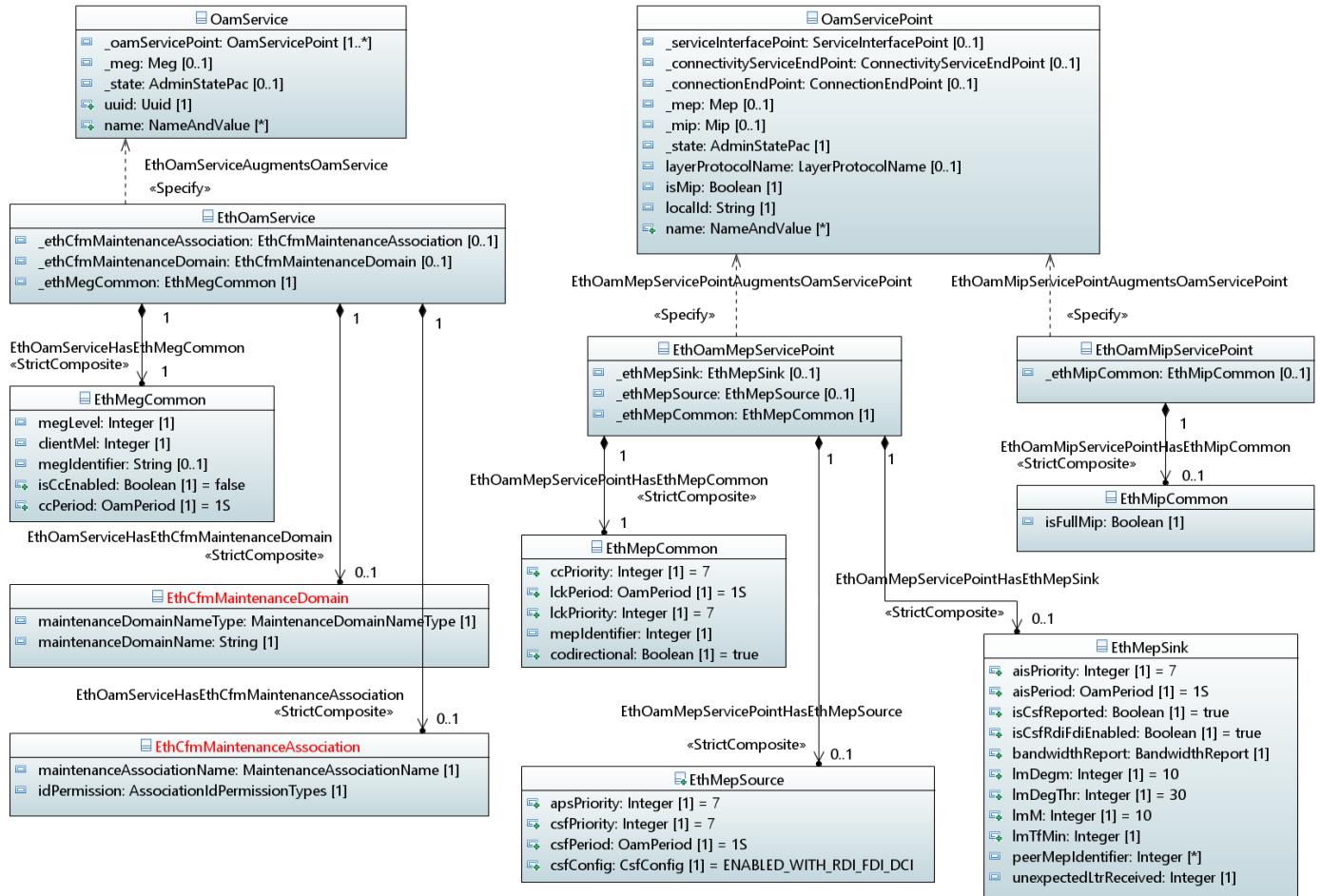


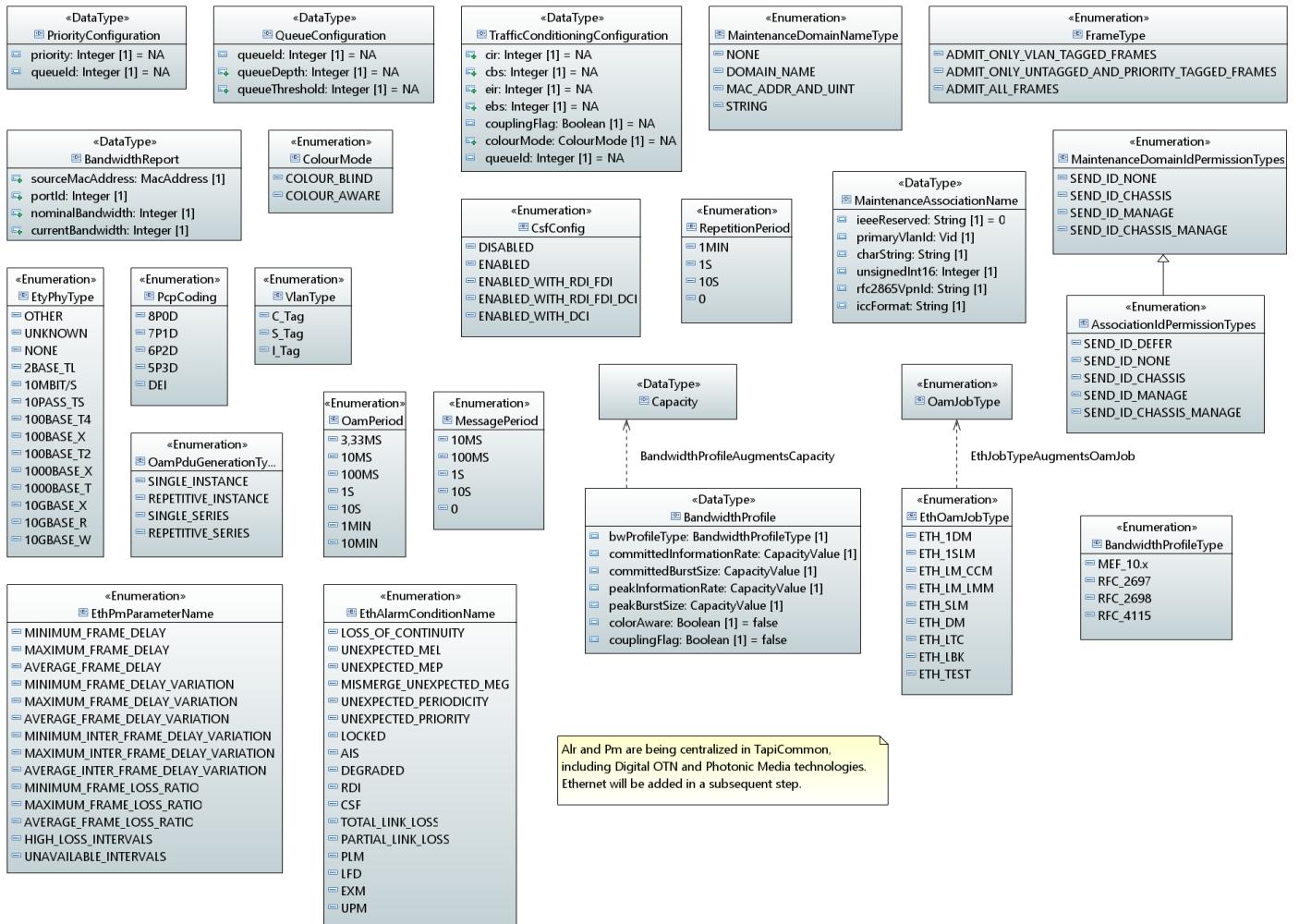
Figure 55 – Diagram *EthSpecConnectivity*

Figure 56 – Diagram *EthSpecJobsFm*

Figure 57 – Diagram *EthSpecJobsPmOnDemand*Figure 58 – Diagram *EthSpecJobsPmProActive*

Figure 59 – Diagram *EthSpecOamResource*

Figure 60 – Diagram *EthSpecOamService*

Figure 61 – Diagram *EthernetTypes*

14.2 Classes

14.2.1 EthCfmLinkTracePac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
period	OamPeriod	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: IEEE P802.1Qcx/D0.3: The interval between LTM transmissions to be used by all MEPs in the Maintenance Association.			
ltmFlags	LTMflags	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: MEF 38: The flags field for the LTMs transmitted by the MEP.			
targetMepId	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: MEF 38: An indication of a destination MEP, the MEPID of a MEP. Alternative to destination MAC address.			
dropEligibility	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: MEF 38: Drop eligible bit value to be used in the VLAN tag, if present in the transmitted frame.			

Table 822 – Attributes for class *EthCfmLinkTracePac*

14.2.2 EthCfmLinkTraceResultData

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: An index to distinguish among multiple LTRs with the same LTR transaction-id field value. Assigned sequentially from 1, in the order that the Linktrace Initiator received the LTRs.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
seqNumber	Integer	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				<p>Description:</p> <p>IEEE P802.1Qcx/D0.3: type uint32 range "0..4294967295" Transaction identifier returned by a previous transmit linktrace message command, indicating which LTM's response is going to be returned. MEF 38: The LTM Transaction Identifier to which the LTR entries will be attached.</p>
receiveOrder	Integer	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				<p>Description:</p> <p>IEEE P802.1Qcx/D0.3: MEF 38: type uint32 range "1..4294967295" An index to distinguish among multiple LTRs with the same LTR Transaction Identifier field value. Assigned sequentially from 1, in the order that the Linktrace Initiator received the LTRs.</p>
replyTtl	Integer	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				<p>Description:</p> <p>IEEE P802.1Qcx/D0.3: MEF 38: TTL field value for a returned LTR. Range "0..255"</p>
forwarded	Boolean	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				<p>Description:</p> <p>IEEE P802.1Qcx/D0.3: MEF 38: Indicates if a LTM was forwarded by the responding MP, as returned in the FwdYes flag of the flags field.</p>
terminalMep	Boolean	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				<p>Description:</p> <p>IEEE P802.1Qcx/D0.3: MEF 38: A Boolean value stating whether the forwarded LTM reached a MEP enclosing its MA, as returned in the Terminal MEP flag of the Flags field.</p>

Attribute Name	Type	Mult.	Access	Stereotypes
lastEgressIdentifier	String	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	IEEE P802.1Qcx/D0.3: MEF 38: String length "8" An octet field holding the Last Egress Identifier returned in the LTR Egress Identifier TLV of the LTR. The Last Egress Identifier identifies the MEP Linktrace Initiator that originated, or the Linktrace Responder that forwarded, the LTM to which this LTR is the response. This is the same value as the Egress Identifier TLV of that LTM.			
nextEgressIdentifier	String	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	IEEE P802.1Qcx/D0.3: MEF 38: String length "8" An octet field holding the Next Egress Identifier returned in the LTR Egress Identifier TLV of the LTR. The Next Egress Identifier Identifies the Linktrace Responder that transmitted this LTR, and can forward the LTM to the next hop. This is the same value as the Egress Identifier TLV of the forwarded LTM, if any. If the FwdYes bit of the Flags field is false, the contents of this field are undefined, i.e., any value can be transmitted, and the field is ignored by the receiver.			
relayActionField	LinkTraceRelayActionFieldValue	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	IEEE P802.1Qcx/D0.3: MEF 38: An enumerated value indicating the value returned in the Relay Action field.			
ingressActionField	LinkTraceIngressActionFieldValue	1	R	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: OPTIONAL
	Description:			
	IEEE P802.1Qcx/D0.3: MEF 38: The value returned in the Ingress Action Field of the LTM. IEEE P802.1Qcx/D0.3: The value INGRESS-NO-TLV indicates that no Reply Ingress TLV was returned in the LTM.			

Attribute Name	Type	Mult.	Access	Stereotypes
ingressMac	MacAddress	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				IEEE P802.1Qcx/D0.3: MEF 38: MAC address returned in the ingress MAC address field. IEEE P802.1Qcx/D0.3: If the ingressActionField attribute contains the value INGRESS-NO-TLV, then the contents of this attribute is meaningless.
ingressPortId	LldpPortIdSubtype	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				IEEE P802.1Qcx/D0.3: MEF 38: Ingress Port ID. IEEE P802.1Qcx/D0.3: If the ingressActionField attribute contains the value INGRESS-NO-TLV, then the contents of this attribute are meaningless.
egressActionField	LinkTraceEgressActionFieldValue	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				IEEE P802.1Qcx/D0.3: MEF 38: An enumerated value indicating the value returned in the Egress Action field. IEEE P802.1Qcx/D0.3: The value EGRESS-NO-TLV indicates that no Reply Egress TLV was returned in the LTM.
egressMac	MacAddress	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				IEEE P802.1Qcx/D0.3: MEF 38: MAC address returned in the egress MAC address field. IEEE P802.1Qcx/D0.3: If the egressActionField contains the value EGRESS-NO-TLV, then the contents of this attribute are meaningless.
egressPortId	LldpPortIdSubtype	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: MEF 38: IEEE P802.1Qcx/D0.3: Egress Port ID. IEEE P802.1Qcx/D0.3: If the egressActionField attribute contains the value EGRESS-NO-TLV, then the contents of this attribute are meaningless.			
organizationSpecificTlv	String	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: String length "0 4..1500"; All Organization specific TLVs returned in the LTR, if any. Includes all octets including and following the TLV Length field of each TLV, concatenated together.			
chassisId	LldpChassisIdSubtype	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: MEF 38: The chassis-id-subtype contains the chassis ID entity that is listed in the chassis ID field. This is a combination of the 'Chassis ID Subtype' and 'chassis ID' fields. IEEE P802.1Qcx/D0.3: The Chassis ID returned in the Sender ID TLV of the LTR, if any. The format of a chassis identifier string. Objects of this type are always used with an associated lldp-chassis-is-subtype object, which identifies the format of the particular lldp-chassis-id object instance. If the associated lldp-chassis-id-subtype object has a value of chassis-component, then the octet string identifies a particular instance of the entPhysicalAlias object (defined in IETF RFC 2737) for a chassis component (i.e., an entPhysicalClass value of chassis(3)). If the associated lldp-chassis-id-subtype object has a value of interface-alias, then the octet string identifies a particular instance of the ifAlias object (defined in IETF RFC 2863) for an interface on the containing chassis. If the particular ifAlias object does not contain any values, another chassis identifier type should be used.			

Table 823 – Attributes for class EthCfmLinkTraceResultData

14.2.3 EthCfmMaintenanceAssociation

Description:

- IEEE CFM parameters applicable to the composing class. IEEE P802.1Qcx/D0.3: Provides configuration and operational data for the Maintenance Associations. A Maintenance Association is a set of MEPs, each configured with the same MAID and MD level, established to verify the integrity of a single service instance. A Maintenance Association can be thought of as a full mesh of Maintenance Entities among a set of MEPs so configured.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
maintenanceAssociationName	MaintenanceAssociationName	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
IEEE P802.1Qcx/D0.3: MEF 38: The Maintenance Association name and name format choice.				
idPermission	AssociationIdPermissionTypes	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
IEEE P802.1Qcx/D0.3: MEF 38: This parameter indicates what, if anything, is to be included in the Sender ID TLV transmitted by Maintenance Points configured in this MA. A value of 'defer' means that the contents of the Sender ID TLV are determined by the enclosing Maintenance Domain instance.				

Table 824 – Attributes for class *EthCfmMaintenanceAssociation*

14.2.4 EthCfmMaintenanceDomain

Description:

- IEEE CFM parameters applicable to the composing class. IEEE P802.1Qcx/D0.3: MEF 38: A Maintenance Domain is the network or the part of the network for which faults in connectivity can be managed. A Maintenance Domain object is required in order to create an MA with a Maintenance Association Identifier (MAID) that includes that Maintenance Domains Name. From this Maintenance Domain managed object, all Maintenance Association managed objects associated with that Maintenance Domain managed object can be accessed, and thus controlled.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
maintenanceDomainNameType	MaintenanceDomainNameType	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
IEEE P802.1Qcx/D0.3: MEF 38: The Maintenance Domain name format choice.				

Attribute Name	Type	Mult.	Access	Stereotypes
maintenanceDomainName	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				IEEE P802.1Qcx/D0.3: MEF 38: A reference to the maintenance domain that this maintenance group is associated with.

Table 825 – Attributes for class *EthCfmMaintenanceDomain***14.2.5 EthConnectionEndPointSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_etyTerm	EtyTerminationPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethTerm	EthTerminationPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethCtp	EthCtpPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 826 – Attributes for class *EthConnectionEndPointSpec***14.2.6 EthConnectivityService**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

14.2.7 EthConnectivityServiceEndPointSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_etyTerminationCommonPac	EtyTerminationCommonPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_ethTerminationCommonPac	EthTerminationCommonPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_ethCtpCommonPac	EthCtpCommonPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Table 827 – Attributes for class *EthConnectivityServiceEndPointSpec*

14.2.8 EthCtpCommonPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
auxiliaryFunctionPositionSequence	Integer Default value:	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute indicates the positions (i.e., the relative order) of all the MEP, MIP, and TCS objects which are associated with the CTP.			
collectorMaxDelay	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: See 802.1AX: The value of this attribute defines the maximum delay, in tens of microseconds, that may be imposed by the Frame Collector between receiving a frame from an Aggregator Parser, and either delivering the frame to its MAC Client or discarding the frame (see IEEE 802.1AX clause 5.2.3.1.1).			
csfConfig	CsfConfig	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the combination of all CSF related MI signals (MI_CSF_Enable, MI_CSFrdfdi_Enable, MI_CSFdci_Enable) as defined in G.8021.			
csfRdiFdiEnable	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the MI_CSFrdfdiEnable information defined in G.8021.			

Attribute Name	Type	Mult.	Access	Stereotypes
csfReport	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the MI_CSF_Reported information defined in G.8021.			
filterConfig	ControlFrameFilter Default value: <i>See data type</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the FilterConfig MI defined in section 8.3/G.8021. It indicates the configured filter action for each of the 33 group MAC addresses for control frames. The 33 MAC addresses are: - All bridges address: 01-80-C2-00-00-10, - Reserved addresses: 01-80-C2-00-00-00 to 01-80-C2-00-00-0F, - GARP Application addresses: 01-80-C2-00-00-20 to 01-80-C2-00-00-2F. The filter action is Pass or Block. If the destination address of the incoming ETH_CI_D matches one of the above addresses, the filter process shall perform the corresponding configured filter action. If none of the above addresses match, the ETH_CI_D is passed.			
filterConfigSnk	MacAddress	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the FilteConfig MI defined in 8.3/G.8021. It indicates the configured filter action for each of the 33 group MAC addresses for control frames. The 33 MAC addresses are: 01-80-C2-00-00-10, 01-80-C2-00-00-00 to 01-80-C2-00-00-0F, and 01-80-C2-00-00-20 to 01-80-C2-00-00-2F. The filter action is Pass or Block. If the destination address of the incoming ETH_CI_D matches one of the above addresses, the filter process shall perform the corresponding configured filter action. If none of the above addresses match, the ETH_CI_D is passed.			
isSsfReported	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute provisions whether the SSF defect should be reported as fault cause or not. It models the ETH-LAG_FT_Sk_MI_SSF_Reported defined in G.8021.			

Attribute Name	Type	Mult.	Access	Stereotypes
macLength	Integer Default value: 2000	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the MAC_Lenght MI defined in 8.6/G.8021 for the MAC Length Check process. It indicates the allowed maximum frame length in bytes.			
pllThr	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute provisions the threshold for the number of active ports. If the number of active ports is more than zero but less than the provisioned threshold, a cPLL (Partial Link Loss) is raised. See section 9.7.1.2 of G.8021.			
vlanConfig	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the ETHx/ETH-m_A_So_MI_Vlan_Config information defined in G.8021.			
_trafficShapingPac	TrafficShapingPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description:			
_trafficConditioningPac	TrafficConditioningPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description:			

Table 828 – Attributes for class *EthCtpCommonPac*

14.2.9 EthCtpPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
actorOperKey	Integer Default value: <i>NA</i>	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: See 802.1AX: The current operational value of the Key for the Aggregator. The administrative Key value may differ from the operational Key value for the reasons discussed in 5.6.2. The meaning of particular Key values is of local significance.			
actorSystemId	MacAddress Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: See 802.1AX: A MAC address used as a unique identifier for the System that contains this Aggregator.			
actorSystemPriority	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: See 802.1AX: Indicating the priority associated with the Actors System ID.			
dataRate	Integer Default value: <i>NA</i>	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: See 802.1AX: The current data rate, in bits per second, of the aggregate link. The value is calculated as N times the data rate of a single link in the aggregation, where N is the number of active links.			

Attribute Name	Type	Mult.	Access	Stereotypes
partnerOperKey	Integer Default value: <i>NA</i>	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				See 802.1AX: The current operational value of the Key for the Aggregators current protocol Partner. If the aggregation is manually configured, this Key value will be a value assigned by the local System.
partnerSystemId	MacAddress Default value: <i>NA</i>	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				See 802.1AX: A MAC address consisting of the unique identifier for the current protocol Partner of this Aggregator. A value of zero indicates that there is no known Partner. If the aggregation is manually configured, this System ID value will be a value assigned by the local System.
partnerSystemPriority	Integer Default value: <i>NA</i>	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				See 802.1AX: Indicates the priority associated with the Partners System ID. If the aggregation is manually configured, this System Priority value will be a value assigned by the local System.
_ethCtpCommonPac	EthCtpCommonPac	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 829 – Attributes for class *EthCtpPac*

14.2.10 EthLinkTraceJob

Description:

- This class represents the Link Trace (LT) process for fault localization or for discovering the intermediate MIPs along the link from the MEP Source to a target MEP or MIP. An LTM frame will be sent from the MEP source to the target MEP/MIP. The termination occurs at specified stop time (schedule attribute of OamJob).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
priority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: G.8052: This parameter provides the priority to be used in the LBM frame. G.8052: This parameter provides the priority to be used in the TST frame.			
destinationAddress	MacAddress Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: G.8052: This parameter provides the destination address, i.e., the MAC Address of the target MEP or MIP.			
timeToLive	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: G.8052: This parameter provides the Time To Live (TTL) parameter of the Link Track protocol. The TTL parameter allows the receiver (MIP or MEP) of the LTM frame to determine if the frame can be terminated. TTL is decremented every time the LTM frame is relayed. LTM frame with TTL<=1 is terminated and not relayed. IEEE P802.1Qcx/D0.3: MEF 38: An initial value for the LTM TTL field.			
_ethCfmLinkTracePac	EthCfmLinkTracePac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Table 830 – Attributes for class *EthLinkTraceJob*

14.2.11 EthLinkTraceResultData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
resultList	LinkTraceResult	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: G.8052: This parameter returns the results of the LT process. It contains a list of the result received from the individual LTR frames. The result from the individual LTR frame include the Source Mac Address, the TTL, and TLV.
_ethCfmLinkTraceResultData	EthCfmLinkTraceResultData	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description:

Table 831 – Attributes for class *EthLinkTraceResultData*

14.2.12 EthLoopbackJob

Description:

- This class represents the Loopback (LB) process (send a series of LB messages carrying a test pattern to a particular MEP). The termination occurs at specified stop time (schedule attribute of OamJob). This class models also the "loopback discover" process, when destinationAddress is multicast. When number is greater than 1, then the process is to perform a Loopback (LB) Series process (send a series of N LB messages to a particular MEP/MIP).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
number	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
G.8052: This parameter specifies how many LB messages to be sent for the LB_Series process.				
lbtmDataTlv	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
IEEE P802.1Qcx/D0.3: String length "1..1480" The loopback message Data TLV type. MEF 38: An arbitrary amount of data to be included in a Data TLV.				
_ethOamTestLoopbackCommonPac	EthOamTestLoopbackCommonPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 832 – Attributes for class *EthLoopbackJob*

14.2.13 EthLoopbackResultData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
recLbrFrames	Integer	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: G.8052: This parameter returns the total number of received LBR messages, including the out of order LBR frames.			
outOfOrderLbrFrames	Integer	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: G.8052: This parameter returns the number of LBR traffic unites (messages) that were received out of order (OO).			
sentLbmFrames	Integer	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: G.8052: This parameter returns the total number of sent LBM frames.			
crcLbrFrames	Integer	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: G.8052: This parameter returns the number of LBR frames where the CRC in the pattern failed.			
berLbrFrames	Integer	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: G.8052: This parameter returns the number of LBR frames where there was a bit error in the pattern.			
detectedPeerMep	MacAddress	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes	
	Description: G.8052: This parameter returns the MAC addresses of the discovered peer MEPs of the subject MEP.				

Table 833 – Attributes for class *EthLoopbackResultData***14.2.14 EthMeasurementJobControlCommon****Description:**

- Time length over which each Availability Frame Loss Ratio value is calculated. This parameter allows to generalize SES and UAS. MEF 35.1: [R78]/[CR58] [O8] A SOAM PM Implementation MUST support a configurable parameter for the length of time over which each Availability flr value is calculated, with a range of 1s – 300s. This parameter is equivalent to delta-t as specified by MEF 10.3. [R79]/[CR59] [O8] The length of time over which each Availability flr value is calculated (delta-t) MUST be an integer multiple of the interval between each SLM/1SL frame transmission. [D31]/[CD16] [O8] The default length of time over which each Availability flr value is calculated SHOULD be 1s.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
priority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA OpenModelAttribute <ul style="list-style-type: none"> ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY
testIdentifier	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA OpenModelAttribute <ul style="list-style-type: none"> ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
messagePeriod	<p>Integer Default value: <i>1000</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute indicates the period (frequency) of the measurement frame transmission. Note that the value 0 means that only one OAM message per measurement interval is generated. Unit is milliseconds.			
measurementInterval	<p>Integer Default value: <i>0</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the discrete non overlapping periods of time (in seconds) during which measurements are performed (i.e., OAM messages are generated) and reports are gathered at the end of the measurement intervals. Note that the value 0 means a degenerated measurement interval with a single OAM message and the report is sent as immediately as possible.			
repetitionPeriod	<p>RepetitionPeriod Default value: <i>0</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the time between the start of two measurement intervals. This IS applicable for the repetitive instance type and MAY be applicable for the repetitive series type. Note that a value of 0 means not applicable (NA), which is for the cases of single instance, single series, or repetitive series without extra gap in between the measurement intervals (i.e., also as known as continuous series).			
timeOfDayAlignment	<p>Boolean Default value: <i>true</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: MEF 35.1: [D7] A SOAM PM Implementation SHOULD allow for no alignment to the time-of-day clock.			
offsetFromTimeOfDay	Integer	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: MEF 35.1: [D8] A SOAM PM Implementation SHOULD support a configurable (in minutes) offset from ToD time for alignment of the start of Measurement Intervals other than the first Measurement Interval.			
flrAvailabilityDeltaTime	Integer Default value: 1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Time length over which each Availability Frame Loss Ratio value is calculated. MEF 35.1: [R78]/[CR58] [O8] A SOAM PM Implementation MUST support a configurable parameter for the length of time over which each Availability flr value is calculated, with range of 1s – 300s. This parameter is equivalent to delta-t as specified by MEF 10.3. [R79]/[CR59] [O8] The length of time over which each Availability flr value is calculated (delta-t) MUST be an integer multiple of the interval between each SLM/1SL frame transmission. [D31]/[CD16] [O8] The default length of time over which each Availability flr value is calculated SHOULD be 1s.			
flrAvailabilityThreshold	Real Default value: 0.1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each time interval (as specified by Availability Delta Time). MEF 35.1: [R81]/[CR61] A SOAM PM Implementation MUST support a configurable Availability frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each delta-t interval per MEF 10.3 [R82]/[CR62] The Availability frame loss ratio threshold range of 0.00 through 1.00 MUST be supported in increments of 0.01. [D33]/[CD18] [O8] The default Availability frame loss ratio threshold SHOULD be 0.1.			
flrAvailabilitySamples	Integer Default value: 10	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Number of consecutive Availability Frame Loss Ratio measurements to be used to determine Available/Unavailable state transitions. MEF 35.1: [R80]/[CR60] [O8] The number range of 1 through 10 MUST be supported for the configurable number of consecutive Availability flr measurements to be used to determine Available/Unavailable state transitions. This parameter is equivalent to the Availability parameter of n as specified by MEF 10.3. [D32]/[CD17] [O8] The default number of n for Availability SHOULD be 10.			

Table 834 – Attributes for class EthMeasurementJobControlCommon**14.2.15 EthMegCommon**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
megLevel	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY
	Description:			
clientMeli	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY
	Description:			
megIdentifier	String	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY
	Description:			
	Optional in case 802.1Q maintenanceAssociationName is used.			
isCcEnabled	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute ◦ isKey:No ◦ isInvariant: false ◦ valueRange: no range constraint ◦ support: MANDATORY
	Description:			
	This attribute models the MI_CC_Enable signal defined in G.8021 and configured as specified in G8051. ITU-T G.8013/Y.1731 (2015)/Amd.1 (11/2018): When ETH-CC transmission is enabled in a MEG, all MEPs are enabled to periodically transmit frames with ETH-CC information to their peer MEPs in the MEG.			

Attribute Name	Type	Mult.	Access	Stereotypes
ccPeriod	OamPeriod Default value: <i>IS</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p> <p>This attribute models the MI_CC_Period signal defined in G.8021 and configured as specified in G8051. It is the period at which the CCM message should be sent. Default values are: 3.33 ms for PS, 100 ms for PM, 1 s for FM. ITU-T G.8013/Y.1731 (2015)/Amd.1 (11/2018): The ETH-CC transmission period is the same for all MEPs in the MEG.</p>

Table 835 – Attributes for class *EthMegCommon***14.2.16 EthMegSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethCfmMaintenanceDomain	EthCfmMaintenanceDomain	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p>
_ethCfmMaintenanceAssociation	EthCfmMaintenanceAssociation	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY <p>Description:</p>
_ethMegCommon	EthMegCommon	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description:			

Table 836 – Attributes for class EthMegSpec**14.2.17 EthMepCommon****Description:**

- Continuity Check Process related attributes: ccPeriod, ccPriority, isCcEnabled

Description:

- Lock Process related attributes: lckPeriod, lckPriority

Description:

- Basic attributes: adminState, clientMeli, megIdentifier, mepMac

Description:

- This object class models the MEP functions that are common to MEP Sink and MEP Source.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
ccPriority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY
lckPeriod	OamPeriod Default value: IS	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> AVC: NA OpenModelAttribute <ul style="list-style-type: none"> isKey:No isInvariant: false valueRange: no range constraint support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
lckPriority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: This attribute models the MI_LCK_Pri signal defined in G.8021 and configured as specified in G8051. It is the priority at which the LCK messages should be sent.				
mepIdentifier	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: IEEE P802.1Qcx/D0.3: MEF 38: Integer that is unique among all the MEPs in the same Maintenance Association (MEG). G.8052: This attribute contains the identifier of the MEP.				
codirectional	Boolean Default value: <i>true</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: This attribute specifies the directionality of the Ethernet MEP with respect to the associated CEP. The value of TRUE means that the sink part of the MEP terminates the same signal direction as the sink part of the CEP. The Source part behaves similarly. This attribute is meaningful only when CEP is bidirectional.				

Table 837 – Attributes for class *EthMepCommon*

14.2.18 EthMepSink

Description:

- This object contains the configuration parameters for detecting "degraded signal" (DEG).

Description:

- Defect correlation Process related attribute: currentProblemList

Description:

- Bandwidth notification Process related attribute: bandwidthReport

Description:

- CSF Process related attributes: isCsfRdiFdiEnabled, isCsfReported

Description:

- Basic attribute: peerMepRefList

Description:

- This object class models the MEP sink function. Instance of this object class can be created and contained by ETH CTP or TTP objects. It also provides the management of the dual-ended maintenance job, such as test.

Description:

- 1DM related attribute: 1DmPriority

Description:

- AIS Process related attributes: aisPeriod, aisPriority

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
aisPriority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute models the MI_AIS_Pri signal defined in G.8021 and configured as specified in G8051. It is the priority at which the AIS messages should be sent.				
aisPeriod	OamPeriod Default value: 1S	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute models the MI_AIS_Period signal defined in G.8021 and configured as specified in G8051. It is the frequency at which the AIS messages should be sent.				
isCsfReported	Boolean Default value: true	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute models the MI_CSF_Reported signal defined in G.8021 and configured as specified in G8051. It configures whether the secondary failure CSF should be reported or not.				

Attribute Name	Type	Mult.	Access	Stereotypes
isCsfRdiFdiEnabled	Boolean Default value: <i>true</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the MI_CSFrdifdiEnable signal defined in G.8021 and configured as specified in G8051. aSSFrdi ? dCSF-RDI and MI_CSFrdifdiEnable aSSFfdi ? dCSF-FDI and MI_CSFrdifdiEnable			
bandwidthReport	BandwidthReport	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the content of the bandwidth report received by the MEP Sink from the peer MEP Source.			
lmDegm	Integer Default value: <i>10</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute defines the number of consecutive bad seconds necessary for the "degraded" detection. See also section "Degraded signal defect (dDEG)" in G.8021.			
lmDegThr	Integer Default value: <i>30</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute defines the threshold for declaring a "bad second". See also section "Degraded signal defect (dDEG)" in G.8021.			
lmM	Integer Default value: <i>10</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute defines the number of consecutive good seconds necessary for the clearing of "degraded". See also section "Degraded signal defect (dDEG)" in G.8021.			

Attribute Name	Type	Mult.	Access	Stereotypes
lmTfMin	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute defines the necessary number of transmitted frames to enable the detection of "bad seconds". See also section "Degraded signal defect (dDEG)" in G.8021.
Description:				
peerMepIdentifier	Integer	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				G.8052: This attribute models the MI_PeerMEP_ID[i] signal defined in G.8021 and configured as specified in G.8051. It provides the identifiers of the MEPs which are peer to the subject MEP.
Description:				
unexpectedLtrReceived	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				IEEE P802.1Qcx/D0.3: MEF 38: The total number of unexpected LTRs received.

Table 838 – Attributes for class *EthMepSink***14.2.19 EthMepSource****Description:**

- Test related operations: testInitiatorStart, testInitiatorTerminate

Description:

- This object class models the MEP source function. Instance of this object class can be created and contained by ETH CTP or TTP objects. It also provides the management of single-ended maintenance jobs, such as loopback test, loopback discover, loopback series, link trace, and dual-ended maintenance job, such as test.

Description:

- Proactive measurement job control related operation: establishProActiveDualEndedMeasurementJobSource

Description:

- Loopback related operations: loopbackDiscover, loopbackSeries, loopbackTest, loopbackTestTerminate

Description:

- Basic attribute: mepIdentifier

Description:

- Link trace related operation: linkTrace

Description:

- On demand measurement job control related operation: establishOnDemandDualEndedMeasurementJobSource

Description:

- CSF Process related attributes: csfConfig, csfPeriod, csfPriority

Description:

- APS Process related attribute: apsPriority

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
apsPriority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute specifies the priority of the APS messages. See section 8.1.5 APS insert process in G.8021.			
csfPriority	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the MI_CSF_Pri signal defined in G.8021 and configured as specified in G8051. It is the priority at which the CSF messages should be sent			
csfPeriod	OamPeriod Default value: 1S	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute models the MI_CSF_Period signal defined in G.8021 and configured as specified in G8051. It is the period at which the CSF messages should be sent.			
csfConfig	CsfConfig Default value: <i>ENABLED_WITH_RDI_FDI_DCI</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute models the combination of all CSF related MI signals (MI_CSF_Enable, MI_CSFrdfidfi_Enable, MI_CSFdci_Enable) as defined in G.8021.			

Table 839 – Attributes for class *EthMepSource***14.2.20 EthMepSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethMepCommon	EthMepCommon	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_ethMepSource	EthMepSource	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
_ethMepSink	EthMepSink	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
mepMac	MacAddress	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				This attribute contains the MAC Address of the MEP.

Table 840 – Attributes for class *EthMepSpec*

14.2.21 EthMipCommon

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
isFullMip	Boolean	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				This attribute indicates whether the MIP is a full MIP (true) or a down-half MIP (false). Up-half MIP is not foreseen by G.8052

Table 841 – Attributes for class *EthMipCommon*

14.2.22 EthMipSpec

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass

- objectCreationNotification: NA
- objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
mipMac	MacAddress	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the MAC address of the MIP instance.				
_ethMipCommon	EthMipCommon	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 842 – Attributes for class *EthMipSpec*

14.2.23 EthOamMepServicePoint

Description:

- This class defines the common parameters for configuration of Sink and/or Source MEP.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethMepSink	EthMepSink	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_ethMepSource	EthMepSource	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethMepCommon	EthMepCommon	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 843 – Attributes for class *EthOamMepServicePoint*

14.2.24 EthOamMipServicePoint

Description:

- This class defines the common parameters for configuration of MIP.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethMipCommon	EthMipCommon	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 844 – Attributes for class *EthOamMipServicePoint*

14.2.25 EthOamService

Description:

- This class defines the parameters for configuration of MEG.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethCfmMaintenanceDomain	EthCfmMaintenanceDomain	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethCfmMaintenanceAssociation	EthCfmMaintenanceAssociation	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethMegCommon	EthMegCommon	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 845 – Attributes for class *EthOamService*

14.2.26 EthOamTestLoopbackCommonPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
period	OamPeriod	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
G.8052: This parameter provides the periodicity of the TST OAM messages. G.8052: This parameter provides the periodicity of the LBM OAM messages used in the LB Series process.				
dropEligibility	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
G.8052: This parameter provides the eligibility of frames with unicast ETH-TST information to be discarded when congestion conditions are encountered. G.8052: This parameter provides the eligibility of frames with unicast ETH-LB information to be discarded when congestion conditions are encountered.				
dataTlvLength	Integer Default value: <i>0</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
G.8052: This parameter provides the length (in number of octet) of the optional Data TLV to be included in the TST frame.				

Table 846 – Attributes for class *EthOamTestLoopbackCommonPac***14.2.27 EthOnDemand1DmPerformanceData**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEnd1DmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute contains the statistical near end performnace parameters.
samplesNearEnd1DmParameters	SamplesDmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute contains the results of an on-demand frame delay measurement job in the ingress direction.

Table 847 – Attributes for class *EthOnDemand1DmPerformanceData*

14.2.28 EthOnDemand1DmSourcePerformanceData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

14.2.29 EthOnDemand1LmPerformanceData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEnd1LmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute contains the statistical near end performance parameters.			
totalCountersNearEnd1LmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the results of an on-demand synthetic loss measurement job in the ingress direction.			

Table 848 – Attributes for class *EthOnDemand1LmPerformanceData***14.2.30 EthOnDemand1LmSourcePerformanceData**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

14.2.31 EthOnDemandDmPerformanceData

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute contains the statistical bidirectional performance parameters.			
statisticalBiDirDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the statistical bidirectional performance parameters.			

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEndDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical near end performance parameters.				
statisticalFarEndDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical far end performance parameters.				
samplesNearEndDmParameters	SamplesDmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the results of an on-demand frame delay measurement job in the ingress direction.				
samplesFarEndDmParameters	SamplesDmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the results of an on-demand frame delay measurement job in the ingress direction.				

Table 849 – Attributes for class *EthOnDemandDmPerformanceData***14.2.32 EthOnDemandDualEndedMeasurementJob**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethOnDemandMeasurementJobControlSource	EthOnDemandMeasurementJobControlSource	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethOnDemandMeasurementJobControlSink	EthOnDemandMeasurementJobControlSink	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 850 – Attributes for class *EthOnDemandDualEndedMeasurementJob***14.2.33 EthOnDemandLmPerformanceData**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEndLmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical near end performance parameters.				
statisticalFarEndLmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical far end performance parameters.				

Attribute Name	Type	Mult.	Access	Stereotypes
totalCountersNearEndLmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the results of an on-demand synthetic loss measurement job in the ingress direction.				
totalCountersFarEndLmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the results of an on-demand synthetic loss measurement job in the egress direction.				
bidirUnavailableIntervals	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
A generalized (bidirectional) UAS. MEF 35.1: A 32-bit counter reflecting the number of delta-t intervals evaluated as Unavailable (i.e., for which $A<\text{Controller}, \text{Responder}>(\text{delta-t}) = 0$).				

Table 851 – Attributes for class *EthOnDemandLmPerformanceData***14.2.34 EthOnDemandMeasurementJobControlSink****Description:**

- This object class represents an on-demand measurement job controller sink for 1-way measurements. It is created as a result of an establishOnDemandDualEndedMeasurementJobSink() operation. It is deleted either automatically after the measurement job has completed (stop time reached) and the performance data AVC notification has been sent, or by an explicit abortOnDemandMeasurementJob() operation when the measurement job is running.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
sinkMepId	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
sourceAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			<p>This attribute contains the MAC address of the peer MEP. See G.8013 for details.</p>
priority Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::priority</i>	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			<p>This attribute contains the priority value on which the MEP performs the measurement. When the measurement is enabled, the MEP should use this value to encode the priority of generated measurement frames (OAM PDU frames.). The EMF uses this value to assign the P parameter of the measurement operation.</p>
testIdentifier Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::testIdentifier</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			<p>This attribute is used to distinguish each measurement session if multiple measurement sessions are simultaneously activated towards a peer MEP including concurrent on-demand and proactive tests. It must be unique at least within the context of any measurement type for the MEG and initiating MEP. Note: The attribute is not used in case of 2-way loss measurement.</p>
messagePeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::messagePeriod</i>	Integer Default value: 1000	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute indicates the period (frequency) of the measurement frame transmission. Note that the value 0 means that only one OAM message per measurement interval is generated. Unit is milliseconds.			
measurementInterval Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::measurementInterval</i>	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the discrete non overlapping periods of time (in seconds) during which measurements are performed (i.e., OAM messages are generated) and reports are gathered at the end of the measurement intervals. Note that the value 0 means a degenerated measurement interval with a single OAM message and the report is sent as immediately as possible.			
repetitionPeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::repetitionPeriod</i>	RepetitionPeriod Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the time between the start of two measurement intervals. This IS applicable for the repetitive instance type and MAY be applicable for the repetitive series type. Note that a value of 0 means not applicable (NA), which is for the cases of single instance, single series, or repetitive series without extra gap in between the measurement intervals (i.e., also as known as continuous series).			
timeOfDayAlignment Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::timeOfDayAlignment</i>	Boolean Default value: true	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D7] A SOAM PM Implementation SHOULD allow for no alignment to the time-of-day clock.			
offsetFromTimeOfDay Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::offsetFromTimeOfDay</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D8] A SOAM PM Implementation SHOULD support a configurable (in minutes) offset from ToD time for alignment of the start of Measurement Intervals other than the first Measurement Interval.			

Attribute Name	Type	Mult.	Access	Stereotypes
flrAvailabilityDeltaTime Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityDeltaTime</i>	Integer Default value: 1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
flrAvailabilityThreshold Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityThreshold</i>	Real Default value: 0.1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
flrAvailabilitySamples Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilitySamples</i>	Integer Default value: 10	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Table 852 – Attributes for class *EthOnDemandMeasurementJobControlSink***14.2.35 EthOnDemandMeasurementJobControlSource****Description:**

- Measurement configuration related attributes: oamPduGenerationType, startTime, stopTime, messagePeriod, repetitionPeriod, measurementInterval

Description:

- This object class represents an on-demand measurement job controller source for 1-way measurements. It is created as a result of an establishOnDemandDualEndedMeasurementJobSource() operation. It is deleted either automatically after the measurement job has completed (stop time reached), or by an explicit abortOnDemandMeasurementJob() operation while the measurement job is running.

Description:

- Basic attributes: destinationAddress, priority

Description:

- Optional attributes: dataTlvLength, testIdentifier

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
controllerMepId	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
oamPduGenerationType	OamPduGenerationType	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: This attribute contains the pattern that is used for the generation of OAM PDUs.				
destinationAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: This attribute contains the MAC address of the peer MEP. See G.8013 for details.				

Attribute Name	Type	Mult.	Access	Stereotypes
dataTlvLength	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This parameter provides the size of the optional data TLV. Non-negative integer represents the number of bytes for the length of the padding TLV. Notes: When configuring this parameter one should be aware of the maximum allowed total frame size limitation. The attribute is not used in case of 2-way loss measurement.			
priority Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::priority</i>	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the priority value on which the MEP performs the measurement. When the measurement is enabled, the MEP should use this value to encode the priority of generated measurement frames (OAM PDU frames.). The EMF uses this value to assign the P parameter of the measurement operation.			
testIdentifier Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::testIdentifier</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute is used to distinguish each measurement session if multiple measurement sessions are simultaneously activated towards a peer MEP including concurrent on-demand and proactive tests. It must be unique at least within the context of any measurement type for the MEG and initiating MEP. Note: The attribute is not used in case of 2-way loss measurement.			
messagePeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::messagePeriod</i>	Integer Default value: 1000	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the period (frequency) of the measurement frame transmission. Note that the value 0 means that only one OAM message per measurement interval is generated. Unit is milliseconds.			

Attribute Name	Type	Mult.	Access	Stereotypes
measurementInterval Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::measurementInterval</i>	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the discrete non overlapping periods of time (in seconds) during which measurements are performed (i.e., OAM messages are generated) and reports are gathered at the end of the measurement intervals. Note that the value 0 means a degenerated measurement interval with a single OAM message and the report is sent as immediately as possible.			
repetitionPeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::repetitionPeriod</i>	RepetitionPeriod Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the time between the start of two measurement intervals. This IS applicable for the repetitive instance type and MAY be applicable for the repetitive series type. Note that a value of 0 means not applicable (NA), which is for the cases of single instance, single series, or repetitive series without extra gap in between the measurement intervals (i.e., also as known as continuous series).			
timeOfDayAlignment Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::timeOfDayAlignment</i>	Boolean Default value: true	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D7] A SOAM PM Implementation SHOULD allow for no alignment to the time-of-day clock.			
offsetFromTimeOfDay Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::offsetFromTimeOfDay</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D8] A SOAM PM Implementation SHOULD support a configurable (in minutes) offset from ToD time for alignment of the start of Measurement Intervals other than the first Measurement Interval.			
flrAvailabilityDeltaTime Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityDeltaTime</i>	Integer Default value: 1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Time length over which each Availability Frame Loss Ratio value is calculated. MEF 35.1: [R78]/[CR58] [O8] A SOAM PM Implementation MUST support a configurable parameter for the length of time over which each Availability flr value is calculated, with a range of 1s – 300s. This parameter is equivalent to delta-t as specified by MEF 10.3. [R79]/[CR59] [O8] The length of time over which each Availability flr value is calculated (delta-t) MUST be an integer multiple of the interval between each SLM/1SL frame transmission. [D31]/[CD16] [O8] The default length of time over which each Availability flr value is calculated SHOULD be 1s.			
flrAvailabilityThreshold Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityThreshold</i>	Real Default value: 0.1	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: Frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each time interval (as specified by Availability Delta Time). MEF 35.1: [R81]/[CR61] A SOAM PM Implementation MUST support a configurable Availability frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each delta-t interval per MEF 10.3 [R82]/[CR62] The Availability frame loss ratio threshold range of 0.00 through 1.00 MUST be supported in increments of 0.01. [D33]/[CD18] [O8] The default Availability frame loss ratio threshold SHOULD be 0.1.				
flrAvailabilitySamples Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilitySamples</i>	Integer Default value: 10	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: Number of consecutive Availability Frame Loss Ratio measurements to be used to determine Available/Unavailable state transitions. MEF 35.1: [R80]/[CR60] [O8] The number range of 1 through 10 MUST be supported for the configurable number of consecutive Availability flr measurements to be used to determine Available/Unavailable state transitions. This parameter is equivalent to the Availability parameter of n as specified by MEF 10.3. [D32]/[CD17] [O8] The default number of n for Availability SHOULD be 10.				

Table 853 – Attributes for class *EthOnDemandMeasurementJobControlSource*

14.2.36 EthOnDemandSingleEndedMeasurementJob

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethOnDemandMeasurementJobControlSource	EthOnDemandMeasurementJobControlSource	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Table 854 – Attributes for class *EthOnDemandSingleEndedMeasurementJob***14.2.37 EthProActive1DmPerformanceData****Description:**

- This object class represents the PM current data collected in a pro-active delay measurement job (using 1DM).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEnd1DmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Table 855 – Attributes for class *EthProActive1DmPerformanceData***14.2.38 EthProActive1DmSourcePerformanceData****Description:**

- This object class represents the PM current data collected in a pro-active delay measurement job (using 1DM), on the source or controller MEP.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

14.2.39 EthProActive1LmPerformanceData

Description:

- This object class represents the PM current data collected in a pro-active loss measurement job (using 1SL).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalNearEnd1LmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the statistical near end performance parameters.
totalCountersNearEnd1LmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the results of an on-demand synthetic loss measurement job in the ingress direction.

Table 856 – Attributes for class *EthProActive1LmPerformanceData*

14.2.40 EthProActive1LmSourcePerformanceData

Description:

- This object class represents the PM current data collected in a pro-active loss measurement job (using 1SL), on the source or controller MEP.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

14.2.41 EthProActiveDmPerformanceData

Description:

- This object class represents the PM current data collected in a pro-active delay measurement job (using DMM/DMR).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalBiDirDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical bidirectional performance parameters.				
statisticalFarEndDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical far end performance parameters.				
statisticalNearEndDmParameters	StatisticalDmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the statistical near end performance parameters.				

Table 857 – Attributes for class *EthProActiveDmPerformanceData*

14.2.42 EthProActiveDualEndedMeasurementJob

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethProActiveMeasurementJobControlSource	EthProActiveMeasurementJobControlSource	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_ethProActiveMeasurementJobControlSink	EthProActiveMeasurementJobControlSink	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 858 – Attributes for class *EthProActiveDualEndedMeasurementJob*

14.2.43 EthProActiveLmPerformanceData

Description:

- This object class represents the PM current data collected in a pro-active loss measurement job (using LMM/LMR or SLM/SLR).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
statisticalFarEndLmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute contains the statistical far end performance parameters.			
statisticalNearEndLmParameters	StatisticalLmPerformanceParameters	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute contains the statistical near end performance parameters.			
totalCountersFarEndLmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the results of an on-demand synthetic loss measurement job in the egress direction.			
totalCountersNearEndLmParameters	TotalCountersLmPerformanceParameters	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the results of an on-demand synthetic loss measurement job in the ingress direction.			
bidirUnavailableIntervals	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: A generalized (bidirectional) UAS. MEF 35.1: A 32-bit counter reflecting the number of delta-t intervals evaluated as Unavailable (i.e., for which $A<\text{Controller}, \text{Responder}>(\text{delta-t}) = 0$).			

Table 859 – Attributes for class *EthProActiveLmPerformanceData***14.2.44 EthProActiveMeasurementJobControlSink****Description:**

- This object class allows the control of the proactive 1-way measurement. It is created as a part of an establishProActiveDualEndedMeasurementJobSink() operation. Lifecycle: A pre-condition of deleting the object is that the Enable attribute should have the value FALSE.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
sinkMepId	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
sourceAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	This attribute contains the MAC address of the peer MEP. See G.8013 for details.			
isEnabled	Boolean Default value: <i>true</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	This attribute identifies the state of the measurement job. If set to TRUE, the MEP performs proactive Performance Measurement.			
priority Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::priority</i>	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	This attribute contains the priority value on which the MEP performs the measurement. When the measurement is enabled, the MEP should use this value to encode the priority of generated measurement frames (OAM PDU frames.). The EMF uses this value to assign the P parameter of the measurement operation.			
testIdentifier Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::testIdentifier</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute is used to distinguish each measurement session if multiple measurement sessions are simultaneously activated towards a peer MEP including concurrent on-demand and proactive tests. It must be unique at least within the context of any measurement type for the MEG and initiating MEP. Note: The attribute is not used in case of 2-way loss measurement.			
messagePeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::messagePeriod</i>	Integer Default value: 1000	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the period (frequency) of the measurement frame transmission. Note that the value 0 means that only one OAM message per measurement interval is generated. Unit is milliseconds.			
measurementInterval Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::measurementInterval</i>	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the discrete non overlapping periods of time (in seconds) during which measurements are performed (i.e., OAM messages are generated) and reports are gathered at the end of the measurement intervals. Note that the value 0 means a degenerated measurement interval with a single OAM message and the report is sent as immediately as possible.			
repetitionPeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::repetitionPeriod</i>	RepetitionPeriod Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the time between the start of two measurement intervals. This IS applicable for the repetitive instance type and MAY be applicable for the repetitive series type. Note that a value of 0 means not applicable (NA), which is for the cases of single instance, single series, or repetitive series without extra gap in between the measurement intervals (i.e., also as known as continuous series).			
timeOfDayAlignment Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::timeOfDayAlignment</i>	Boolean Default value: true	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D7] A SOAM PM Implementation SHOULD allow for no alignment to the time-of-day clock.			

Attribute Name	Type	Mult.	Access	Stereotypes
offsetFromTimeOfDay Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::offsetFromTimeOfDay</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D8] A SOAM PM Implementation SHOULD support a configurable (in minutes) offset from ToD time for alignment of the start of Measurement Intervals other than the first Measurement Interval.			
flrAvailabilityDeltaTime Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityDeltaTime</i>	Integer Default value: 1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Time length over which each Availability Frame Loss Ratio value is calculated. MEF 35.1: [R78]/[CR58] [O8] A SOAM PM Implementation MUST support a configurable parameter for the length of time over which each Availability flr value is calculated, with a range of 1s – 300s. This parameter is equivalent to delta-t as specified by MEF 10.3. [R79]/[CR59] [O8] The length of time over which each Availability flr value is calculated (delta-t) MUST be an integer multiple of the interval between each SLM/1SL frame transmission. [D31]/[CD16] [O8] The default length of time over which each Availability flr value is calculated SHOULD be 1s.			
flrAvailabilityThreshold Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityThreshold</i>	Real Default value: 0.1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each time interval (as specified by Availability Delta Time). MEF 35.1: [R81]/[CR61] A SOAM PM Implementation MUST support a configurable Availability frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each delta-t interval per MEF 10.3 [R82]/[CR62] The Availability frame loss ratio threshold range of 0.00 through 1.00 MUST be supported in increments of 0.01. [D33]/[CD18] [O8] The default Availability frame loss ratio threshold SHOULD be 0.1.			
flrAvailabilitySamples Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilitySamples</i>	Integer Default value: 10	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	<p>Description:</p> <p>Number of consecutive Availability Frame Loss Ratio measurements to be used to determine Available/Unavailable state transitions. MEF 35.1: [R80]/[CR60] [O8] The number range of 1 through 10 MUST be supported for the configurable number of consecutive Availability flr measurements to be used to determine Available/Unavailable state transitions. This parameter is equivalent to the Availability parameter of n as specified by MEF 10.3. [D32]/[CD17] [O8] The default number of n for Availability SHOULD be 10.</p>			

Table 860 – Attributes for class *EthProActiveMeasurementJobControlSink***14.2.45 EthProActiveMeasurementJobControlSource****Description:**

- This object class represents a proactive measurement job controller source for 1way measurements. It is created as a part of an establishProactiveDualEndedMeasurementJobSource() operation.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
controllerMepId	Integer	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA <p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
destinationAddress	MacAddress	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA <p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
dataTlvLength	<p>Integer</p> <p>Default value: 0</p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA <p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This parameter provides the size of the optional data TLV. Non-negative integer represents the number of bytes for the length of the padding TLV. Notes: When configuring this parameter one should be aware of the maximum allowed total frame size limitation. The attribute is not used in case of 2-way loss measurement.			
isEnabled	Boolean Default value: <i>true</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the state of the measurement job. If set to TRUE, the MEP performs proactive Performance Measurement.			
priority Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::priority</i>	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the priority value on which the MEP performs the measurement. When the measurement is enabled, the MEP should use this value to encode the priority of generated measurement frames (OAM PDU frames.). The EMF uses this value to assign the P parameter of the measurement operation.			
testIdentifier Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::testIdentifier</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute is used to distinguish each measurement session if multiple measurement sessions are simultaneously activated towards a peer MEP including concurrent on-demand and proactive tests. It must be unique at least within the context of any measurement type for the MEG and initiating MEP. Note: The attribute is not used in case of 2-way loss measurement.			
messagePeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::messagePeriod</i>	Integer Default value: 1000	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the period (frequency) of the measurement frame transmission. Note that the value 0 means that only one OAM message per measurement interval is generated. Unit is milliseconds.			

Attribute Name	Type	Mult.	Access	Stereotypes
measurementInterval Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::measurementInterval</i>	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the discrete non overlapping periods of time (in seconds) during which measurements are performed (i.e., OAM messages are generated) and reports are gathered at the end of the measurement intervals. Note that the value 0 means a degenerated measurement interval with a single OAM message and the report is sent as immediately as possible.			
repetitionPeriod Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::repetitionPeriod</i>	RepetitionPeriod Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the time between the start of two measurement intervals. This IS applicable for the repetitive instance type and MAY be applicable for the repetitive series type. Note that a value of 0 means not applicable (NA), which is for the cases of single instance, single series, or repetitive series without extra gap in between the measurement intervals (i.e., also as known as continuous series).			
timeOfDayAlignment Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::timeOfDayAlignment</i>	Boolean Default value: true	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D7] A SOAM PM Implementation SHOULD allow for no alignment to the time-of-day clock.			
offsetFromTimeOfDay Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::offsetFromTimeOfDay</i>	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: MEF 35.1: [D8] A SOAM PM Implementation SHOULD support a configurable (in minutes) offset from ToD time for alignment of the start of Measurement Intervals other than the first Measurement Interval.			
flrAvailabilityDeltaTime Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityDeltaTime</i>	Integer Default value: 1	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Time length over which each Availability Frame Loss Ratio value is calculated. MEF 35.1: [R78]/[CR58] [O8] A SOAM PM Implementation MUST support a configurable parameter for the length of time over which each Availability flr value is calculated, with a range of 1s – 300s. This parameter is equivalent to delta-t as specified by MEF 10.3. [R79]/[CR59] [O8] The length of time over which each Availability flr value is calculated (delta-t) MUST be an integer multiple of the interval between each SLM/1SL frame transmission. [D31]/[CD16] [O8] The default length of time over which each Availability flr value is calculated SHOULD be 1s.			
flrAvailabilityThreshold Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilityThreshold</i>	Real Default value: 0.1	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: Frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each time interval (as specified by Availability Delta Time). MEF 35.1: [R81]/[CR61] A SOAM PM Implementation MUST support a configurable Availability frame loss ratio threshold to be used in evaluating the Available/Unavailable state of each delta-t interval per MEF 10.3 [R82]/[CR62] The Availability frame loss ratio threshold range of 0.00 through 1.00 MUST be supported in increments of 0.01. [D33]/[CD18] [O8] The default Availability frame loss ratio threshold SHOULD be 0.1.				
flrAvailabilitySamples Inherited: <i>TapiEth::ObjectClasses::EthMeasurementJobControlCommon::flrAvailabilitySamples</i>	Integer Default value: 10	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description: Number of consecutive Availability Frame Loss Ratio measurements to be used to determine Available/Unavailable state transitions. MEF 35.1: [R80]/[CR60] [O8] The number range of 1 through 10 MUST be supported for the configurable number of consecutive Availability flr measurements to be used to determine Available/Unavailable state transitions. This parameter is equivalent to the Availability parameter of n as specified by MEF 10.3. [D32]/[CD17] [O8] The default number of n for Availability SHOULD be 10.				

Table 861 – Attributes for class *EthProActiveMeasurementJobControlSource*

14.2.46 EthProActiveSingleEndedMeasurementJob

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethProActiveMeasurementJobControlSource	EthProActiveMeasurementJobControlSource	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Table 862 – Attributes for class *EthProActiveSingleEndedMeasurementJob***14.2.47 EthServiceIntefacePointSpec**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
phyType Inherited: <i>TapiEth::ObjectClasses::EtyPac::phyType</i>	EtyPhyType Default value: UNKNOWN	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
phyTypeList Inherited: <i>TapiEth::ObjectClasses::EtyPac::phyTypeList</i>	EtyPhyType Default value: NA	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Table 863 – Attributes for class *EthServiceIntefacePointSpec***14.2.48 EthTerminationCommonPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY

- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
priorityRegenerate	PriorityMapping Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute models the ETHx/ETH-m _A_Sk_MI_P_Regenerate information defined in G.8021.
priorityCodePointConfig	PcpCoding	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute models the ETHx/ETH-m _A_Sk_MI_PCP_Config information defined in G.8021.
etherType	VlanType Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute models the ETHx/ETH-m _A_Sk_MI_Etype information defined in G.8021.
frametypeConfig	FrameType Default value: <i>ADMIT_ONLY_UNTAGGED_AND_PRIORITY_TAGGED_FRAMES</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute models the ETHx/ETH-m _A_Sk_MI_Frametype_Config information defined in G.8021.
filterConfig1	MacAddress Default value: NA	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> ◦ AVC: NA ◦ OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute models the ETHx/ETH-m_A_Sk_MI_Filter_Config information defined in G.8021. It indicates the configured filter action for each of the 33 group MAC addresses for control frames. The 33 MAC addresses are: 01-80-C2-00-00-10, 01-80-C2-00-00-00 to 01-80-C2-00-00-0F, and 01-80-C2-00-00-20 to 01-80-C2-00-00-2F. The filter action is Pass or Block. If the destination address of the incoming ETH_CI_D matches one of the above addresses, the filter process shall perform the corresponding configured filter action. If none of the above addresses match, the ETH_CI_D is passed.			
portVid	Vid Default value: 1	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute models the ETHx/ETH-m_A_Sk_MI_PVID information defined in G.8021.			

Table 864 – Attributes for class *EthTerminationCommonPac***14.2.49 EthTerminationPac****Description:**

- This object class models the Ethernet Flow Termination function located at a layer boundary.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_ethTerminationCommonPac	EthTerminationCommonPac	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description:			

Table 865 – Attributes for class *EthTerminationPac***14.2.50 EthTestJob****Description:**

- This class represents the 1-way on-demand in-service or out-of-service diagnostic test. The diagnostic test includes verifying bandwidth throughput, frame loss, bit errors, etc. TST frames are transmitted. The termination occurs at specified stop time (schedule attribute of OamJob).

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
testPattern	TestPattern Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: G.8052: This parameter provides the test pattern to be used in the optional Data TLV. Examples of test patterns include pseudo-random bit sequence (PRBS) 2^31-1 as specified in clause 5.8 of [ITU-T O.150], all '0' pattern, etc.			
destinationAddress	MacAddress Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: G.8052: This parameter provides the destination address, i.e., the MAC Address of the target MEP or MIP.			
_ethTestJobSinkPoint	EthTestJobSinkPoint	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_ethOamTestLoopbackCommonPac	EthOamTestLoopbackCommonPac	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
number	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				This parameter specifies how many TST messages to be sent.

Table 866 – Attributes for class *EthTestJob***14.2.51 EthTestJobSinkPoint**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
sourceAddress	MacAddress	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				This attribute contains the MAC address of the peer MEP.

Table 867 – Attributes for class *EthTestJobSinkPoint***14.2.52 EthTestResultData**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
sentTstFrames	Integer	0..1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	G.8052: This parameter returns the total number of sent TST frames. Optional in case of sink only MEP.			
recTstFrames	Integer	0..1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	Received TST frames. Optional in case of source only MEP.			

Table 868 – Attributes for class *EthTestResultData*

14.2.53 EtyPac

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
phyType	EtyPhyType Default value: UNKNOWN	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute identifies the PHY type of the ETY trail termination. See IEEE 802.3 clause 30.3.2.1.2.			
phyTypeList	EtyPhyType Default value: NA	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes	
	<p>Description:</p> <p>This attribute identifies the possible PHY types that could be supported at the ETY trail termination. See IEEE 802.3 clause 30.3.2.1.3.</p>				

Table 869 – Attributes for class *EtyPac***14.2.54 EtyTerminationCommonPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
isFtsEnabled	<p>Boolean</p> <p>Default value: <i>false</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA <p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
<p>Description:</p> <p>This attribute indicates whether Forced Transmitter Shutdown (FTS) is enabled or not. It models the ETYn_TT_So_MI_FTSEnable information.</p>				
isTxPauseEnabled	<p>Boolean</p> <p>Default value: <i>false</i></p>	1	RW	<p>OpenInterfaceModelAttribute</p> <ul style="list-style-type: none"> • AVC: NA <p>OpenModelAttribute</p> <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
<p>Description:</p> <p>This attribute identifies whether the Transmit Pause process is enabled or not. It models the MI_TxPauseEnable defined in G.8021.</p>				

Table 870 – Attributes for class *EtyTerminationCommonPac***14.2.55 EtyTerminationPac**

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
_etyTerminationCommonPac	EtyTerminationCommonPac	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
phyType Inherited: <i>TapiEth::ObjectClasses::EtyPac::phyType</i>	EtyPhyType Default value: <i>UNKNOWN</i>	1	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			<p>This attribute identifies the PHY type of the ETY trail termination. See IEEE 802.3 clause 30.3.2.1.2.</p>
phyTypeList Inherited: <i>TapiEth::ObjectClasses::EtyPac::phyTypeList</i>	EtyPhyType Default value: <i>NA</i>	0..*	R	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			<p>This attribute identifies the possible PHY types that could be supported at the ETY trail termination. See IEEE 802.3 clause 30.3.2.1.3.</p>

Table 871 – Attributes for class *EtyTerminationPac***14.2.56 TrafficConditioningPac****Description:**

- This object class models the ETH traffic conditioning function as defined in G.8021.

Description:

- Basic attributes: codirectional, condConfigList, prioConfigList

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
prioConfigList	PriorityConfiguration Default value: NA	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
condConfigList	TrafficConditioningConfiguration Default value: NA	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
codirectional	Boolean Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY

Table 872 – Attributes for class *TrafficConditioningPac*

14.2.57 TrafficShapingPac

Description:

- Basic attribute: codirectional, prioConfigList, queueConfigList, schedConfig

Description:

- This object class models the ETH traffic shaping function as defined in G.8021.

Applied stereotypes:

- OpenModelClass
 - support: MANDATORY
- OpenInterfaceModelClass
 - objectCreationNotification: NA
 - objectDeletionNotification: NA

Attribute Name	Type	Mult.	Access	Stereotypes
prioConfigList	PriorityConfiguration Default value: NA	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: This attribute configures the Priority Splitter function for the mapping of the Ethernet frame priority (ETH_CI_P) values to the output queue.				
queueConfigList	QueueConfiguration Default value: NA	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: This attribute configures the Queue depth and Dropping threshold parameters of the Queue process. The Queue depth sets the maximum size of the queue in bytes. An incoming ETH_CI traffic unit is dropped if there is insufficient space in the queue to hold the whole unit. The Dropping threshold sets the threshold of the queue. If the queue is filled beyond this threshold, incoming ETH_CI traffic units accompanied by the ETH_CI_DE signal set are dropped.				
schedConfig	SchedulingConfiguration Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: This attribute configures the scheduler process. The value of this attribute is for further study because it is for further study in G.8021. Scheduler is a pointer to a Scheduler object, which is to be defined in the future (because in G.8021, this is FFS). Note that the only significance of the GTCS function defined in G.8021 is the use of a common scheduler for shaping. Given that, G.8052 models the common scheduler feature by having a common value for this attribute.				
codirectional	Boolean Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: This attribute indicates the direction of the shaping function. The value of true means that the shaping (modeled as a TCS Source according to G.8021) is associated with the source part of the containing CTP. The value of false means that the shaping (modeled as a TCS Source according to G.8021) is associated with the sink part of the containing CTP.				

Table 873 – Attributes for class *TrafficShapingPac*

14.3 Signals

14.4 Associations

14.4.1 EthCepSpecHasCtpPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCtp	composite	Yes	EthCtpPac	0..1
_lpSpec	none	No	EthConnectionEndPointSpec	1

Table 874 – Member ends for association *EthCepSpecHasCtpPac*

14.4.2 EthCepSpecHasEtyTermPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_etyTerm	composite	Yes	EtyTerminationPac	0..1
_lpSpec	none	No	EthConnectionEndPointSpec	1

Table 875 – Member ends for association *EthCepSpecHasEtyTermPac*

14.4.3 EthCepSpecHasTermPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethTerm	composite	Yes	EthTerminationPac	0..1
_lpSpec	none	No	EthConnectionEndPointSpec	1

Table 876 – Member ends for association *EthCepSpecHasTermPac*

14.4.4 EthCsepSpecHasEthCtpCommonPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCtpCommonPac	none	Yes	EthCtpCommonPac	0..1
ethconnectivityserviceendpointspec	none	No	EthConnectivityServiceEndPointSpec	1

Table 877 – Member ends for association *EthCsepSpecHasEthCtpCommonPac***14.4.5 EthCsepSpecHasEthTerminationCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethTerminationCommonPac	none	Yes	EthTerminationCommonPac	0..1
ethconnectivityserviceendpointspec	none	No	EthConnectivityServiceEndPointSpec	1

Table 878 – Member ends for association *EthCsepSpecHasEthTerminationCommonPac***14.4.6 EthCsepSpecHasEtyTerminationCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_etyTerminationCommonPac	none	Yes	EtyTerminationCommonPac	0..1
ethconnectivityserviceendpointspec	none	No	EthConnectivityServiceEndPointSpec	1

Table 879 – Member ends for association *EthCsepSpecHasEtyTerminationCommonPac***14.4.7 EthCtpCommonPacHasTrafficCondPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_trafficConditioningPac	composite	Yes	TrafficConditioningPac	0..1
connectionpointandadapterspec_tapi_eth	none	No	EthCtpCommonPac	1

Table 880 – Member ends for association *EthCtpCommonPacHasTrafficCondPac***14.4.8 EthCtpCommonPacHasTrafficShapingPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_trafficShapingPac	composite	Yes	TrafficShapingPac	0..1
connectionpointandadapterspec_tapi_eth	none	No	EthCtpCommonPac	1

Table 881 – Member ends for association *EthCtpCommonPacHasTrafficShapingPac*

14.4.9 EthCtpPacHasEthCtpCommonPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCtpCommonPac	none	Yes	EthCtpCommonPac	1
ethctppac	none	No	EthCtpPac	1

Table 882 – Member ends for association *EthCtpPacHasEthCtpCommonPac*

14.4.10 EthLinkTraceJobHasEthCfmLinkTracePac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmLinkTracePac	composite	Yes	EthCfmLinkTracePac	0..1
ethlinktracejob	none	No	EthLinkTraceJob	1

Table 883 – Member ends for association *EthLinkTraceJobHasEthCfmLinkTracePac*

14.4.11 EthLinkTraceResultDataHasEthCfmLinkTraceResultData

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmLinkTraceResultData	composite	Yes	EthCfmLinkTraceResultData	0..*
ethlinktraceresultdata	none	No	EthLinkTraceResultData	1

Table 884 – Member ends for association *EthLinkTraceResultDataHasEthCfmLinkTraceResultData*

14.4.12 EthLoopbackJobHasEthOamTestLoopbackCommonPac

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethOamTestLoopbackCommonPac	composite	Yes	EthOamTestLoopbackCommonPac	0..1
ethloopbackjob	none	No	EthLoopbackJob	1

Table 885 – Member ends for association *EthLoopbackJobHasEthOamTestLoopbackCommonPac*

14.4.13 EthMegSpecHasEthCfmMaintenanceAssociation

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmMaintenanceAssociation	composite	Yes	EthCfmMaintenanceAssociation	0..1
ethmegspec	none	No	EthMegSpec	1

Table 886 – Member ends for association *EthMegSpecHasEthCfmMaintenanceAssociation*

14.4.14 EthMegSpecHasEthCfmMaintenanceDomain

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmMaintenanceDomain	composite	Yes	EthCfmMaintenanceDomain	0..1
ethmegspec	none	No	EthMegSpec	1

Table 887 – Member ends for association *EthMegSpecHasEthCfmMaintenanceDomain*

14.4.15 EthMegSpecHasEthMegCommon

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMegCommon	composite	Yes	EthMegCommon	1
ethmegspec	none	No	EthMegSpec	1

Table 888 – Member ends for association *EthMegSpecHasEthMegCommon*

14.4.16 EthMepSpecHasEthMepCommon

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepCommon	composite	Yes	EthMepCommon	1
ethmepspec	none	No	EthMepSpec	1

Table 889 – Member ends for association *EthMepSpecHasEthMepCommon*

14.4.17 EthMepSpecHasEthMepSink

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepSink	composite	Yes	EthMepSink	0..1
ethmepspec	none	No	EthMepSpec	1

Table 890 – Member ends for association *EthMepSpecHasEthMepSink***14.4.18 EthMepSpecHasMepSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepSource	composite	Yes	EthMepSource	0..1
ethmepspec	none	No	EthMepSpec	1

Table 891 – Member ends for association *EthMepSpecHasMepSource***14.4.19 EthMipSpecHasEthMipCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMipCommon	composite	Yes	EthMipCommon	1
ethmipspec	none	No	EthMipSpec	1

Table 892 – Member ends for association *EthMipSpecHasEthMipCommon***14.4.20 EthOamMepServicePointHasEthMepCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepCommon	composite	Yes	EthMepCommon	1
ethoammepservicepoint	none	No	EthOamMepServicePoint	1

Table 893 – Member ends for association *EthOamMepServicePointHasEthMepCommon***14.4.21 EthOamMepServicePointHasEthMepSink**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepSink	composite	Yes	EthMepSink	0..1
ethoammepservicepoint	none	No	EthOamMepServicePoint	1

Table 894 – Member ends for association *EthOamMepServicePointHasEthMepSink***14.4.22 EthOamMepServicePointHasEthMepSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMepSource	composite	Yes	EthMepSource	0..1
ethoammepservicepoint	none	No	EthOamMepServicePoint	1

Table 895 – Member ends for association *EthOamMepServicePointHasEthMepSource***14.4.23 EthOamMipServicePointHasEthMipCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMipCommon	composite	Yes	EthMipCommon	0..1
ethoammipservicepoint	none	No	EthOamMipServicePoint	1

Table 896 – Member ends for association *EthOamMipServicePointHasEthMipCommon***14.4.24 EthOamServiceHasEthCfmMaintenanceAssociation**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmMaintenanceAssociation	composite	Yes	EthCfmMaintenanceAssociation	0..1
ethoamservice	none	No	EthOamService	1

Table 897 – Member ends for association *EthOamServiceHasEthCfmMaintenanceAssociation***14.4.25 EthOamServiceHasEthCfmMaintenanceDomain**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethCfmMaintenanceDomain	composite	Yes	EthCfmMaintenanceDomain	0..1
ethoamservice	none	No	EthOamService	1

Table 898 – Member ends for association *EthOamServiceHasEthCfmMaintenanceDomain***14.4.26 EthOamServiceHasEthMegCommon**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethMegCommon	composite	Yes	EthMegCommon	1
ethoamservice	none	No	EthOamService	1

Table 899 – Member ends for association *EthOamServiceHasEthMegCommon***14.4.27 EthOnDemandDualEndedHasJobControlSink**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethOnDemandMeasurementJobControlSink	composite	Yes	EthOnDemandMeasurementJobControlSink	0..1
ethondemand1waymeasurementjob	none	No	EthOnDemandDualEndedMeasurementJob	1

Table 900 – Member ends for association *EthOnDemandDualEndedHasJobControlSink***14.4.28 EthOnDemandDualEndedHasJobControlSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethOnDemandMeasurementJobControlSource	composite	Yes	EthOnDemandMeasurementJobControlSource	0..1
ethondemand1waymeasurementjob	none	No	EthOnDemandDualEndedMeasurementJob	1

Table 901 – Member ends for association *EthOnDemandDualEndedHasJobControlSource***14.4.29 EthOnDemandSingleEndedHasJobControlSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethOnDemandMeasurementJobControlSource	composite	Yes	EthOnDemandMeasurementJobControlSource	1
ethondemand2waymeasurementjob	none	No	EthOnDemandSingleEndedMeasurementJob	1

Table 902 – Member ends for association *EthOnDemandSingleEndedHasJobControlSource***14.4.30 EthProActiveDualEndedHasJobControlSink**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethProActiveMeasurementJobControlSink	composite	Yes	EthProActiveMeasurementJobControlSink	0..1
eth1waydelaymeasurementproactivejob	none	No	EthProActiveDualEndedMeasurementJob	1

Table 903 – Member ends for association *EthProActiveDualEndedHasJobControlSink***14.4.31 EthProActiveDualEndedHasJobControlSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethProActiveMeasurementJobControlSource	composite	Yes	EthProActiveMeasurementJobControlSource	0..1
eth1waydelaymeasurementproactivejob	none	No	EthProActiveDualEndedMeasurementJob	1

Table 904 – Member ends for association *EthProActiveDualEndedHasJobControlSource***14.4.32 EthProActiveSingleEndedHasJobControlSource**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethProActiveMeasurementJobControlSource	composite	Yes	EthProActiveMeasurementJobControlSource	1
ethframedelay2wayproactivejob	none	No	EthProActiveSingleEndedMeasurementJob	1

Table 905 – Member ends for association *EthProActiveSingleEndedHasJobControlSource***14.4.33 EthTerminationPacHasEthTerminationCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethTerminationCommonPac	none	Yes	EthTerminationCommonPac	1
ethterminationpac	none	No	EthTerminationPac	1

Table 906 – Member ends for association *EthTerminationPacHasEthTerminationCommonPac***14.4.34 EthTestJobHasEthOamTestLoopbackCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethOamTestLoopbackCommonPac	composite	Yes	EthOamTestLoopbackCommonPac	0..1
ethtestspec	none	No	EthTestJob	1

Table 907 – Member ends for association *EthTestJobHasEthOamTestLoopbackCommonPac***14.4.35 EthTestJobHasEthTestJobSinkPoint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_ethTestJobSinkPoint	composite	Yes	EthTestJobSinkPoint	0..1
ethtestjob	none	No	EthTestJob	1

Table 908 – Member ends for association *EthTestJobHasEthTestJobSinkPoint***14.4.36 EtyTerminationPacHasEtyTerminationCommonPac**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_etyTerminationCommonPac	composite	Yes	EtyTerminationCommonPac	1
etyterminationpac	none	No	EtyTerminationPac	1

Table 909 – Member ends for association *EtyTerminationPacHasEtyTerminationCommonPac***14.5 Abstractions****14.5.1 EthOamMipServicePointAugmentsOamServicePoint**

Augmenting Class	Augmented Class	Comment
EthOamMipServicePoint	OamServicePoint	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService/TapiOam:OamService:_oamServicePoint"		

Table 910 – Member ends for class abstraction *EthOamMipServicePointAugmentsOamServicePoint***14.5.2 EthCepAugmentsCep**

Augmenting Class	Augmented Class	Comment
EthConnectionEndPointSpec	ConnectionEndPoint	Augments the base CEP with Ethernet specific information.
target: "/TapiCommon:TapiContext:_context/TapiTopology:TopologyContext:_topologyContext/TapiTopology:TopologyContext:_topology/TapiTopology:Topology:_node/TapiTopology:Node:_ownedNodeEdgePoint/TapiConnectivity:CepList:_cepList/TapiConnectivity:CepList:_connectionEndPoint"		

Table 911 – Member ends for class abstraction *EthCepAugmentsCep***14.5.3 EthLoopbackJobAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthLoopbackJob	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 912 – Member ends for class abstraction *EthLoopbackJobAugmentsOamJob***14.5.4 EthMegAugmentsMeg**

Augmenting Class	Augmented Class	Comment
EthMegSpec	Meg	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg"		

Table 913 – Member ends for class abstraction *EthMegAugmentsMeg***14.5.5 EthMepAugmentsMep**

Augmenting Class	Augmented Class	Comment
EthMepSpec	Mep	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg/TapiOam:Meg:_mep"		

Table 914 – Member ends for class abstraction *EthMepAugmentsMep***14.5.6 EthMipAugmentsMip**

Augmenting Class	Augmented Class	Comment
EthMipSpec	Mip	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_meg/TapiOam:Meg:_mip"		

Table 915 – Member ends for class abstraction *EthMipAugmentsMip***14.5.7 EthProActiveSingleEndAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthProActiveSingleEndedMeasurementJob	Diagrams	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 916 – Member ends for class abstraction *EthProActiveSingleEndAugmentsOamJob***14.5.8 EthLinkTraceJobAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthLinkTraceJob	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 917 – Member ends for class abstraction *EthLinkTraceJobAugmentsOamJob***14.5.9 EthTestJobAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthTestJob	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 918 – Member ends for class abstraction *EthTestJobAugmentsOamJob***14.5.10 EthProActiveDualEndAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthProActiveDualEndedMeasurementJob	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 919 – Member ends for class abstraction *EthProActiveDualEndAugmentsOamJob*

14.5.11 EthJobTypeAugmentsOamJob

Augmenting Enumeration	Augmented Enumeration
EthOamJobType <ul style="list-style-type: none"> • ETH_1DM • ETH_1SLM • ETH_DM • ETH_LBK • ETH_LM_CCM • ETH_LM_LMM • ETH_LTC • ETH_SLM • ETH_TEST 	OamJobType <ul style="list-style-type: none"> • LOOPBACK_FACILITY • LOOPBACK_TERMINAL
Comment	
Enumeration Augment.	

Table 920 – Member ends for enum abstraction *EthJobTypeAugmentsOamJob*

14.5.12 EthProActiveDmAugmentsCurrentData

Augmenting Class	Augmented Class	Comment
EthProActiveDmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 921 – Member ends for class abstraction *EthProActiveDmAugmentsCurrentData*

14.5.13 EthProActiveDmAugmentsHistoryData

Augmenting Class	Augmented Class	Comment
EthProActiveDmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 922 – Member ends for class abstraction *EthProActiveDmAugmentsHistoryData*

14.5.14 EthProActiveLmAugmentsCurrentData

Augmenting Class	Augmented Class	Comment
EthProActiveLmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 923 – Member ends for class abstraction *EthProActiveLmAugmentsCurrentData*

14.5.15 EthProActiveLmAugmentsHistoryData

Augmenting Class	Augmented Class	Comment
EthProActiveLmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 924 – Member ends for class abstraction *EthProActiveLmAugmentsHistoryData***14.5.16 EthOnDemandDmAugsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemandDmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 925 – Member ends for class abstraction *EthOnDemandDmAugsCurrentData***14.5.17 EthOnDemand1LmAugsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1LmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 926 – Member ends for class abstraction *EthOnDemand1LmAugsCurrentData***14.5.18 EthOnDemand1DmAugsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1DmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 927 – Member ends for class abstraction *EthOnDemand1DmAugsCurrentData***14.5.19 EthProActive1DmAugsCurrentData**

Augmenting Class	Augmented Class	Comment
EthProActive1DmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 928 – Member ends for class abstraction *EthProActive1DmAugsCurrentData***14.5.20 EthProActive1DmAugsHistoryData**

Augmenting Class	Augmented Class	Comment
EthProActive1DmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 929 – Member ends for class abstraction *EthProActive1DmAugmentsHistoryData***14.5.21 EthProActive1LmAugsCurrentData**

Augmenting Class	Augmented Class	Comment
EthProActive1LmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 930 – Member ends for class abstraction *EthProActive1LmAugsCurrentData***14.5.22 EthProActive1LmAugsHistoryData**

Augmenting Class	Augmented Class	Comment
EthProActive1LmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 931 – Member ends for class abstraction *EthProActive1LmAugsHistoryData***14.5.23 EthOnDemandDualEndAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
EthOnDemandDualEndedMeasurementJob	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 932 – Member ends for class abstraction *EthOnDemandDualEndAugmentsOamJob***14.5.24 EthOnDemandSingleEndAugmentsOamJob**

Augmenting Class	Augmented Class	Comment
Diagrams	OamJob	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob"		

Table 933 – Member ends for class abstraction *EthOnDemandSingleEndAugmentsOamJob***14.5.25 EthOnDemand1DmAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1DmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 934 – Member ends for class abstraction *EthOnDemand1DmAugmentsHistoryData***14.5.26 EthOnDemand1LmAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1LmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 935 – Member ends for class abstraction *EthOnDemand1LmAugmentsHistoryData***14.5.27 EthOnDemandDmAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemandDmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 936 – Member ends for class abstraction *EthOnDemandDmAugmentsHistoryData***14.5.28 EthOnDemandLmAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemandLmPerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 937 – Member ends for class abstraction *EthOnDemandLmAugmentsCurrentData***14.5.29 EthOnDemandLmAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemandLmPerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 938 – Member ends for class abstraction *EthOnDemandLmAugmentsHistoryData***14.5.30 EthLtResultAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthLinkTraceResultData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 939 – Member ends for class abstraction *EthLtResultAugmentsCurrentData***14.5.31 EthTestResultAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthTestResultData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 940 – Member ends for class abstraction *EthTestResultAugmentsCurrentData***14.5.32 EthLbResultAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthLoopbackResultData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 941 – Member ends for class abstraction *EthLbResultAugmentsCurrentData***14.5.33 EthOamMepServicePointAugmentsOamServicePoint**

Augmenting Class	Augmented Class	Comment
EthOamMepServicePoint	OamServicePoint	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService/TapiOam:OamService:_oamServicePoint"		

Table 942 – Member ends for class abstraction *EthOamMepServicePointAugmentsOamServicePoint***14.5.34 EthOamServiceAugmentsOamService**

Augmenting Class	Augmented Class	Comment
EthOamService	OamService	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamService"		

Table 943 – Member ends for class abstraction *EthOamServiceAugmentsOamService***14.5.35 EthProActive1DmSourceAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthProActive1DmSourcePerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 944 – Member ends for class abstraction *EthProActive1DmSourceAugmentsCurrentData***14.5.36 EthProActive1DmSourceAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthProActive1DmSourcePerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 945 – Member ends for class abstraction *EthProActive1DmSourceAugmentsHistoryData***14.5.37 EthProActive1LmSourceAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthProActive1LmSourcePerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 946 – Member ends for class abstraction *EthProActive1LmSourceAugmentsCurrentData***14.5.38 EthProActive1LmSourceAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthProActive1LmSourcePerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 947 – Member ends for class abstraction *EthProActive1LmSourceAugmentsHistoryData***14.5.39 EthOnDemand1DmSourceAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1DmSourcePerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData"		

Table 948 – Member ends for class abstraction *EthOnDemand1DmSourceAugmentsCurrentData***14.5.40 EthOnDemand1DmSourceAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1DmSourcePerformanceData	Diagrams	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 949 – Member ends for class abstraction *EthOnDemand1DmSourceAugmentsHistoryData***14.5.41 EthOnDemand1LmSourceAugmentsCurrentData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1LmSourcePerformanceData	CurrentData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 950 – Member ends for class abstraction *EthOnDemand1LmSourceAugmentsCurrentData***14.5.42 EthOnDemand1LmSourceAugmentsHistoryData**

Augmenting Class	Augmented Class	Comment
EthOnDemand1LmSourcePerformanceData	HistoryData	
target: "/TapiCommon:Context:_context/TapiOam:OamContext:_oamContext/TapiOam:OamContext:_oamJob/TapiOam:OamJob:_currentData/TapiOam:PmCurrentData:_historyData"		

Table 951 – Member ends for class abstraction *EthOnDemand1LmSourceAugmentsHistoryData***14.5.43 EthCsepSpecAugmentsCsep**

Augmenting Class	Augmented Class	Comment
EthConnectivityServiceEndPointSpec	ConnectivityServiceEndPoint	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService/TapiConnectivity:ConnectivityService:_endPoint"		

Table 952 – Member ends for class abstraction *EthCsepSpecAugmentsCsep***14.5.44 EthSipAugmentsSip**

Augmenting Class	Augmented Class	Comment
EthServiceInterfacePointSpec	ServiceInterfacePoint	
target: "/TapiCommon:Context:_context/TapiCommon:Context:_serviceInterfacePoint"		

Table 953 – Member ends for class abstraction *EthSipAugmentsSip***14.5.45 EthConnectivityServiceAugmentsCs**

Augmenting Class	Augmented Class	Comment
EthConnectivityService	ConnectivityService	
target: "/TapiCommon:Context:_context/TapiConnectivity:ConnectivityContext:_connectivityContext/TapiConnectivity:ConnectivityContext:_connectivityService"		

Table 954 – Member ends for class abstraction *EthConnectivityServiceAugmentsCs***14.5.46 BandwidthProfileAugmentsCapacity**

Augmenting Enumeration	Augmented Enumeration
BandwidthProfile	Capacity
Comment	
Data Type Augment.	

Table 955 – Member ends for enum abstraction *BandwidthProfileAugmentsCapacity***14.6 Data Types****14.6.1 AddressTuple****Description:**

- This data type contains an address tuple consisting of a MAC address and a corresponding port list.

Attribute Name	Type	Mult.	Access	Stereotypes
address	MacAddress	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the MAC address of the address tuple.				
portList	MacAddress	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the ports associated to the MAC address in the address tuple.				

Table 956 – Attributes for data type *AddressTuple***14.6.2 BandwidthProfile**

Attribute Name	Type	Mult.	Access	Stereotypes
bwProfileType	BandwidthProfileType	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
committedInformationRate	CapacityValue	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
committedBurstSize	CapacityValue	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
peakInformationRate	CapacityValue	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
peakBurstSize	CapacityValue	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
colorAware	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
couplingFlag	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Table 957 – Attributes for data type *BandwidthProfile*

14.6.3 BandwidthReport

Description:

- Data type for the bandwidth report.

Attribute Name	Type	Mult.	Access	Stereotypes
sourceMacAddress	MacAddress	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	The sourceMacAddress is the address from the far end.			
portId	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	This attribute returns the far end port identifier.			

Attribute Name	Type	Mult.	Access	Stereotypes
nominalBandwidth	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute returns the configured bandwidth			
currentBandwidth	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute returns the current bandwidth.			

Table 958 – Attributes for data type *BandwidthReport*

14.6.4 ControlFrameFilter

Description:

- This data type identifies the filter action for each of the 33 group MAC addresses (control frames). Value "false" means block: The frame is discarded by the filter process. Value "true" means pass: The frame is passed unchanged through the filter process.

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-10	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute identifies the "All LANs Bridge Management Group Address".			
01-80-C2-00-00-00	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute identifies the STP/RSTP/MSTP protocol address.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-01	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the IEEE MAC-specific Control Protocols group address (PAUSE protocol).			
01-80-C2-00-00-02	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the IEEE 802.3 Slow_Protocols_Multicast address (LACP/LAMP or Link OAM protocols).			
01-80-C2-00-00-03	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Nearest non-TPMR Bridge group address (Port Authentication protocol).			
01-80-C2-00-00-04	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the IEEE MAC-specific Control Protocols group address.			
01-80-C2-00-00-05	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-06	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-07	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Metro Ethernet Forum E-LMI protocol group address.			
01-80-C2-00-00-08	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Provider Bridge Group address.			
01-80-C2-00-00-09	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-0A	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-0B	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-0C	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-0D	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Provider Bridge MVRP address.			
01-80-C2-00-00-0E	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Individual LAN Scope group address, Nearest Bridge group address (LLDP protocol).			
01-80-C2-00-00-0F	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-20	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Customer and Provider Bridge MMRP address.			
01-80-C2-00-00-21	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute identifies the Customer Bridge MVRP address.			
01-80-C2-00-00-22	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-23	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-24	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-25	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-26	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-27	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-28	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-29	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-2A	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-2B	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-2C	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-2D	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			
01-80-C2-00-00-2E	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: Reserved for future standardization.			

Attribute Name	Type	Mult.	Access	Stereotypes
01-80-C2-00-00-2F	Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: Reserved for future standardization.				

Table 959 – Attributes for data type *ControlFrameFilter***14.6.5 LinkTraceResult****Description:**

- G.8052: This data type contains the result from an individual LTR frame.

Attribute Name	Type	Mult.	Access	Stereotypes
sourceAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey: yes – part: 1• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: G.8052: This attribute contains the source MAC Address of an individual LTR frame result.				
timeToLive	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: G.8052: This attribute contains the Time To Live (TTL) value of an individual LTR frame result.				
dataTlvLength	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
Description: G.8052: This attribute contains the length (in number of octets) of the Data TLV of an individual LTR frame result.				

Table 960 – Attributes for data type *LinkTraceResult*

14.6.6 LldpChassisIdSubtype

Description:

- MEF 38: The chassis-id-subtype contains the chassis ID entity that is listed in the chassis ID field. This is a combination of the 'Chassis ID Subtype' and 'chassis ID' fields.

Attribute Name	Type	Mult.	Access	Stereotypes
chassisComponent	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	String length "0..32" Represents a chassis identifier based on the value of entPhysicalAlias object (defined in IETF RFC 2737) for a chassis component (i.e., an entPhysicalClass value of chassis(3)).			
interfaceAlias	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	String length "0..64" Represents a chassis identifier based on the value of ifAlias object (defined in IETF RFC 2863) for an interface on the containing chassis.			
portComponent	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	String length "0..32" Represents a chassis identifier based on the value of entPhysicalAlias object (defined in IETF RFC 2737) for a port or backplane component (i.e., entPhysicalClass value of port(10) or backplane(4)), within the containing chassis.			
macAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA OpenModelAttribute <ul style="list-style-type: none"> • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
	Represents a chassis identifier based on the value of a unicast source address (encoded in network byte order and IEEE 802.3 canonical bit order), of a port on the containing chassis as defined in IEEE Std 802-2001.			

Attribute Name	Type	Mult.	Access	Stereotypes
networkAddress	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Octet string that identifies a particular network address family and an associated network address that are encoded in network octet order. An IP address, for example, would be encoded with the first octet containing the IANA Address Family Numbers enumeration value for the specific address type and octets 2 through n containing the address value.				
interfaceName	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Represents a chassis identifier based on the value of ifName object (defined in IETF RFC 2863) for an interface on the containing chassis.				
local	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
Represents a chassis identifier based on a locally defined value.				

Table 961 – Attributes for data type *LldpChassisIdSubtype*

14.6.7 LldpPortIdSubtype

Description:

- IEEE P802.1Qcx/D0.3: The source of a particular type of port identifier used in the LLDP YANG module. MEF 38: Data definitions associated with the Port ID TLV.

Attribute Name	Type	Mult.	Access	Stereotypes
interfaceAlias	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
String length "0..64" Represents a port identifier based on the ifAlias MIB object, defined in IETF RFC 2863.				

Attribute Name	Type	Mult.	Access	Stereotypes
portComponent	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				String length "0..32" Represents a port identifier based on the value of entPhysicalAlias (defined in IETF RFC 2737) for a port component (i.e., entPhysicalClass value of port(10)), within the containing chassis.
Description:				
macAddress	MacAddress	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				Represents a port identifier based on a unicast source address (encoded in network byte order and IEEE 802.3 canonical bit order), which has been detected by the agent and associated with a particular port (IEEE Std 802-2001).
Description:				
networkAddress	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				Represents a port identifier based on a network address, detected by the agent and associated with a particular port. Octet string that identifies a particular network address family and an associated network address that are encoded in network octet order. An IP address, for example, would be encoded with the first octet containing the IANA Address Family Numbers enumeration value for the specific address type and octets 2 through n containing the address value.
Description:				
interfaceName	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				String length "0..64" Represents a port identifier based on the ifName MIB object, defined in IETF RFC 2863.
Description:				
agentCircuitId	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: Represents a port identifier based on the agent-local identifier of the circuit (defined in RFC 3046), detected by the agent and associated with a particular port.			
local	String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: Represents a port identifier based on a value locally assigned.			

Table 962 – Attributes for data type *LldpPortIdSubtype***14.6.8 MaintenanceAssociationName**

Attribute Name	Type	Mult.	Access	Stereotypes
ieeeReserved	String Default value: 0	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: Reserved for definition by IEEE 802.1. Recommend not to use zero unless absolutely needed. Length "1..45".			
primaryVlanId	Vid	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: MEF 38: Primary VLAN ID. 12 bits represented in a 2-octet integer.			
charString	String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: IEEE P802.1Qcx/D0.3: MEF 38: RFC2579 DisplayString, except that the character codes 0-31 (decimal) are not used. Length "1..45"			

Attribute Name	Type	Mult.	Access	Stereotypes
unsignedInt16	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	IEEE P802.1Qcx/D0.3: MEF 38: 2-octet integer/big endian.			
rfc2865VpnId	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	IEEE P802.1Qcx/D0.3: MEF 38: RFC2685 VPN ID. 3 octet VPN authority Organizationally Unique Identifier followed by 4 octet VPN index identifying VPN according to the OUI. Length "1..45";			
iccFormat	String	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	IEEE P802.1Qcx/D0.3: ICC-based format as specified in ITU-T Y.1731. Length "1..45"			

Table 963 – Attributes for data type *MaintenanceAssociationName***14.6.9 ModifyCrossConnectionData****14.6.10 PriorityConfiguration**

Attribute Name	Type	Mult.	Access	Stereotypes
priority	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
queueId	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description:

Table 964 – Attributes for data type *PriorityConfiguration***14.6.11 PriorityMapping****Description:**

- This data type provides the priority mapping done in the "P Regenerate" process defined in G.8021.

Attribute Name	Type	Mult.	Access	Stereotypes
Priority0	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute defines the new priority value for the old priority value 0.
Priority1	Integer Default value: 1	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute defines the new priority value for the old priority value 1.
Priority2	Integer Default value: 2	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY Description: This attribute defines the new priority value for the old priority value 2.

Attribute Name	Type	Mult.	Access	Stereotypes
Priority3	Integer Default value: 3	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute defines the new priority value for the old priority value 3.			
Priority4	Integer Default value: 4	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute defines the new priority value for the old priority value 4.			
Priority5	Integer Default value: 5	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute defines the new priority value for the old priority value 5.			
Priority6	Integer Default value: 6	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute defines the new priority value for the old priority value 6.			
Priority7	Integer Default value: 7	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute defines the new priority value for the old priority value 7.			

Table 965 – Attributes for data type *PriorityMapping***14.6.12 QueueConfiguration**

Attribute Name	Type	Mult.	Access	Stereotypes
queueId	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute indicates the queue id.			
queueDepth	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute defines the depth of the queue in bytes.			
queueThreshold	Integer Default value: NA	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute defines the threshold of the queue in bytes.			

Table 966 – Attributes for data type *QueueConfiguration*

14.6.13 SamplesDmPerformanceParameters

Description:

- This data type contains the results of an on-demand delay measurement job.

Attribute Name	Type	Mult.	Access	Stereotypes
numberOfSamples	Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: This attribute contains the number of received DM frames (successful samples) used for this frame delay measurement.			

Attribute Name	Type	Mult.	Access	Stereotypes
frameDelayList	Integer	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the frame delays measured in ns (nano second, 1x10e-9 seconds). The multiplicity is defined by the numberOfSamples attribute.
frameDelayVariationList	Integer	0..*	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the frame delay variations measured in ns (nano second). The multiplicity is defined by (numberOfSamples - 1, for numberOfSamples > 0).

Table 967 – Attributes for data type *SamplesDmPerformanceParameters***14.6.14 SchedulingConfiguration****Description:**

- The syntax of this dataType is pending on the specification in G.8021, which is for further study.

14.6.15 StatisticalDmPerformanceParameters**Description:**

- This data type contains the statistical delay measurement performance parameters.

Attribute Name	Type	Mult.	Access	Stereotypes
minimumFrameDelay	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the minimum frame delay observed over the monitored period. It is measured in units of ns (nano second, 1x10e-9 seconds).
averageFrameDelay	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute contains the average frame delay observed over the monitored period. It is measured in units of ns (nano second, 1x10e-9 seconds).			
maximumFrameDelay	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the maximum frame delay observed over the monitored period. It is measured in units of ns (nano second, 1x10e-9 seconds).			
minimumFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (v_k) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (x_k) of frame k and a defined reference Ethernet frame transfer delay, $d_{1,2}$, between those same MPs: $v_k = x_k - d_{1,2}$.			
averageFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (v_k) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (x_k) of frame k and a defined reference Ethernet frame transfer delay, $d_{1,2}$, between those same MPs: $v_k = x_k - d_{1,2}$.			
maximumFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• OpenModelAttribute<ul style="list-style-type: none">• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (v_k) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (x_k) of frame k and a defined reference Ethernet frame transfer delay, $d_{1,2}$, between those same MPs: $v_k = x_k - d_{1,2}$.			

Attribute Name	Type	Mult.	Access	Stereotypes
minimumInterFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
averageInterFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
maximumInterFrameDelayVariation	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
				This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames

Table 968 – Attributes for data type *StatisticalDmPerformanceParameters***14.6.16 StatisticalLmPerformanceParameters****Description:**

- This data type contains the statistical loss measurement performance parameters.

Attribute Name	Type	Mult.	Access	Stereotypes
minimumFrameLossRatio	Real	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
	This attribute contains the minimum frame loss ratio calculated over a period of time.			

Attribute Name	Type	Mult.	Access	Stereotypes
averageFrameLossRatio	Real	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the average frame loss ratio calculated over a period of time.				
maximumFrameLossRatio	Real	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the maximum frame loss ratio calculated over a period of time.				
hliCount	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
A generalized SES. MEF 10.3: The Resiliency attributes are similar to the definitions of Severely Errored Seconds (SES) and Consecutive SES in section 9 and Annex B (respectively) of Y.1563 [6], when delta-t = 1 second. MEF 35.1: Count of High Loss Intervals during the Measurement Interval.				
unavailableIntervals	Integer Default value: 0	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
A generalized UAS. MEF 35.1: A 32-bit counter reflecting the number of delta-t intervals evaluated as Unavailable (i.e., for which A<Controller, Responder>(delta-t) = 0).				

Table 969 – Attributes for data type *StatisticalLmPerformanceParameters*

14.6.17 TotalCountersLmPerformanceParameters

Description:

- This data type contains the results of an on-demand loss measurement job.

Attribute Name	Type	Mult.	Access	Stereotypes
totalTransmittedFrames	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the total number of frames transmitted.				
totalLostFrames	Integer	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the total number of frames lost.				
totalFrameLossRatio	Real	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute contains the frame loss ratio (number of lost frames divided by the number of total frames (N_{LF} / N_{TF}))). The accuracy of the value is for further study.				

Table 970 – Attributes for data type *TotalCountersLmPerformanceParameters***14.6.18 TrafficConditioningConfiguration**

Attribute Name	Type	Mult.	Access	Stereotypes
cir	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
This attribute indicates the Committed Information Rate in bits/s.				
cbs	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none"> • AVC: NA • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: This attribute indicates the Committed Burst Size in bytes.			
eir	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the Excess Information Rate in bits/s.			
ebs	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the Excess Burst Size in bytes.			
couplingFlag	Boolean Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the coupling flag.			
colourMode	ColourMode Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey:No• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the colour mode.			
queueId	Integer Default value: <i>NA</i>	1	RW	OpenInterfaceModelAttribute <ul style="list-style-type: none">• AVC: NA• isKey: yes – part: 1• isInvariant: false• valueRange: no range constraint• support: MANDATORY
	Description: This attribute indicates the queue id.			

Table 971 – Attributes for data type *TrafficConditioningConfiguration*

14.7 Enumerations

14.7.1 AdminState

Contains Enumeration Literals:

- LOCK:
- NORMAL:

14.7.2 AssociationIdPermissionTypes

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: Indicates what, if anything, is to be included in the Sender ID TLV transmitted in CCMs, LBMs, LTM, and LTRs.

Contains Enumeration Literals:

- SEND_ID_DEFER:
 - IEEE P802.1Qcx/D0.3: MEF 38: The content of the Sender ID TLV are determined by the corresponding Maintenance Domain variable.
- *inherited* SEND_ID_NONE:
- *inherited* SEND_ID_MANAGE:
- *inherited* SEND_ID_CHASSIS_MANAGE:
- *inherited* SEND_ID_CHASSIS:

14.7.3 BandwidthProfileType

Contains Enumeration Literals:

- MEF_10.x:
- RFC_2697:
- RFC_2698:
- RFC_4115:

14.7.4 ColourMode

Contains Enumeration Literals:

- COLOUR_BLIND:
- COLOUR_AWARE:

14.7.5 CsfConfig

Contains Enumeration Literals:

- DISABLED:
 - This literal covers the following states of the CSF related MI informations: - MI_CSF_Enable is false - MI_CSFrdfidli_Enable is false - MI_CSFdci_Enable is false.
- ENABLED:
 - This literal covers the following states of the CSF related MI informations: - MI_CSF_Enable is true - MI_CSFrdfidli_Enable is false - MI_CSFdci_Enable is false.
- ENABLED_WITH_RDI_FDI:

- This literal covers the following states of the CSF related MI informations: - MI_CSF_Enable is true - MI_CSFrdfdi_Enable is true - MI_CSFdci_Enable is false.
- ENABLED_WITH_RDI_FDI_DCI:
 - This literal covers the following states of the CSF related MI informations: - MI_CSF_Enable is true - MI_CSFrdfdi_Enable is true - MI_CSFdci_Enable is true.
- ENABLED_WITH_DCI:
 - This literal covers the following states of the CSF related MI informations: - MI_CSF_Enable is true - MI_CSFrdfdi_Enable is false - MI_CSFdci_Enable is true.

14.7.6 EthAlarmConditionName

Contains Enumeration Literals:

- LOSS_OF_CONTINUITY:
 - G.8021: The loss of continuity defect is calculated at the ETH layer. It monitors the presence of continuity in ETH trails.
- UNEXPECTED_MEL:
 - G.8021: Reception of a CCM frame with an invalid MEL value. Monitoring of the connectivity in a maintenance entity group.
- UNEXPECTED_MEPE:
 - G.8021: Reception of a CCM frame with an invalid MEP value, but with valid MEL and MEG values. Monitoring of the connectivity in a maintenance entity group.
- MISMERGE_UNEXPECTED_MEG:
 - G.8021: Reception of a CCM frame with an invalid MEG value, but with a valid MEL value. Monitoring of the connectivity in a maintenance entity group.
- UNEXPECTED_PERIODICITY:
 - G.8021: Reception of a CCM frame with an invalid periodicity value, but with valid MEL, MEG and MEP values. It detects the configuration of different periodicities at different MEPs belonging to the same MEG.
- UNEXPECTED_PRIORITY:
 - G.8021: Reception of a CCM frame with an invalid priority value, but with valid MEL, MEG, MEP and periodicity values. It detects the configuration of different priorities for CCM at different MEPs belonging to the same MEG.
- LOCKED:
 - G.8021: Reception of a LCK frame.
- AIS:
 - G.8021: Reception of an AIS frame.
- DEGRADED:
 - G.8021: The defect is detected if there are MI_LM_DEGM (lmDegm of EthMepSink) consecutive bad seconds and cleared if there are MI_LM_M (lmM of EthMepSink) consecutive good seconds. In order to declare a bad second the number of transmitted frames must exceed a threshold (MI_LM_TFMIN, lmTfMin of EthMepSink). Furthermore, if the frame loss ratio (lost frames/transmitted frames) is greater than MI_LM_DEGTHR (lmDegThr of EthMepSink), a bad second is declared. This defect is only defined for point-to-point ETH connections. It monitors the connectivity of an ETH trail.
- RDI:
 - G.8021: Remote defect indicator defect, reception by an MEP (indexed by "i", this index not included in the "cause" cRDI) of a CCM frame with valid MEL, MEG, MEP and periodicity values and the RDI flag set to x; where x=0 (remote defect clear) and x=1 (remote defect set).
- CSF:

- G.8021 - ETH layer: Reception of a CSF frame that indicates a client loss of signal (dCSF-LOS) or a client forward defect indication (dCSF-FDI) or a client reverse defect indication (dCSF-RDI). The CSF (CSF-LOS, CSF-FDI, and CSF-RDI) defect is calculated at the ETH layer. It monitors the presence of a CSF maintenance signal. G.8021 - GFP: dCSF is Client-specific GFP-F and GFP-T (resp. Frame and Transparent) sink processes. dCSF-RDI: GFP client signal fail-remote defect indication is raised when a GFP client management frame with the RDI UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-RDI is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received. dCSF-FDI: GFP client signal fail-forward defect indication is raised when a GFP client management frame with the FDI UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-FDI is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received. dCSF-LOS: GFP client signal fail-loss of signal is raised when a GFP client management frame with the LOS UPI (as defined in Table 6-4 of [ITU-T G.7041]) is received. dCSF-LOS is cleared when no such GFP client management frame is received in N x 1000 ms (a value of 3 is suggested for N), a valid GFP client data frame is received, or a GFP client management frame with the DCI UPI is received.
- TOTAL_LINK_LOSS:
 - G.8021: LAG - fault cause will be raised if no ports are active for an aggregator.
- PARTIAL_LINK_LOSS:
 - G.8021: LAG - fault cause shall be raised if the number of active ports is less than the provisioned threshold.
- PLM:
 - G.806: The payload label mismatch defect (dPLM) shall be detected if the "accepted TSL" code does not match the "expected TSL" code. If the "accepted TSL" is "equipped non-specific", the mismatch is not detected (TSL: Trail Signal Label). Payload type supervision checks that compatible adaptation functions are used at the source and the sink. This is normally done by adding a signal type identifier at the source adaptation function and comparing it with the expected identifier at the sink. If they do not match, a payload mismatch is detected.
- LFD:
 - G.806 - Server layer-specific GFP sink processes: GFP loss of frame delineation (dLFD) is raised when the frame delineation process (clause 6.3.1 of [ITU-T G.7041]) is not in the "SYNC" state. dLFD is cleared when the frame delineation process is in the "SYNC" state.
- EXM:
 - G.806 - Common GFP sink processes: GFP extension header mismatch (dEXM) is raised when the accepted EXI (AcEXI) is different from the expected EXI. dEXM is cleared when AcEXI matches the expected EXI or GFP_SF is active.
- UPM:
 - G.806 - Client-specific GFP-F (Frame) and GFP-T (Transparent) sink processes: GFP user payload mismatch (dUPM) is raised when the accepted UPI (AcUPI) is different from the expected UPI. dUPM is cleared when AcUPI matches the expected UPI or GFP_SF is active.

14.7.7 EthOamJobType

Contains Enumeration Literals:

- ETH_1DM:
- ETH_1SLM:

- ETH_LM_CCM:
- ETH_LM_LMM:
- ETH_SLM:
- ETH_DM:
- ETH_LTC:
- ETH_LBK:
- ETH_TEST:

14.7.8 EthPmParameterName

Contains Enumeration Literals:

- MINIMUM_FRAME_DELAY:
- MAXIMUM_FRAME_DELAY:
- AVERAGE_FRAME_DELAY:
- MINIMUM_FRAME_DELAY_VARIATION:
 - This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- MAXIMUM_FRAME_DELAY_VARIATION:
 - This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- AVERAGE_FRAME_DELAY_VARIATION:
 - This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). Y.1563: The 2-point frame delay variation (vk) for an Ethernet frame k between SRC and DST is the difference between the absolute Ethernet frame transfer delay (xk) of frame k and a defined reference Ethernet frame transfer delay, d1,2, between those same MPs: $vk = xk - d1,2$.
- MINIMUM_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the minimum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- MAXIMUM_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the maximum frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- AVERAGE_INTER_FRAME_DELAY_VARIATION:
 - This attribute contains the average frame delay variation measured in units of ns (nano second, 1x10e-9 seconds). G.8013/Y.1731: Frame delay variation is a measure of the variations in the frame delay between a pair of service frames
- MINIMUM_FRAME_LOSS_RATIO:
- MAXIMUM_FRAME_LOSS_RATIO:
- AVERAGE_FRAME_LOSS_RATIO:
- HIGH_LOSS_INTERVALS:
- UNAVAILABLE_INTERVALS:

14.7.9 EtyPhyType

Contains Enumeration Literals:

- OTHER:
- UNKNOWN:
- NONE:
- 2BASE_TL:
- 10MBIT/S:
- 10PASS_TS:
- 100BASE_T4:
- 100BASE_X:
- 100BASE_T2:
- 1000BASE_X:
- 1000BASE_T:
- 10GBASE_X:
- 10GBASE_R:
- 10GBASE_W:

14.7.10 FrameType

Contains Enumeration Literals:

- ADMIT_ONLY_VLAN_TAGGED_FRAMES:
- ADMIT_ONLY_UNTAGGED_AND_PRIORITY_TAGGED_FRAMES:
- ADMIT_ALL_FRAMES:

14.7.11 LTMflags

Description:

- IEEE 802.1Q 2018: In the LTM, the Flags field of the Common CFM Header specifies certain options.

Contains Enumeration Literals:

- USE_FDB_ONLY:
 - IEEE 802.1Q 2018: If set, indicates that only MAC addresses learned in a Bridge's FDB, and not information saved in the MIP CCM Database, is to be used to determine the Egress Port. Bit 8 (MSB).

14.7.12 LinkTraceEgressActionFieldValue

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: Possible values returned in the Egress Action field.

Contains Enumeration Literals:

- EGRESS_NO_TLV:
 - Indicates that no Reply Egress TLV was returned in the LTM.
- EGRESS_OK:

- The targeted data frame would be forwarded.
- EGRESS_DOWN:
 - The Egress Port can be identified, but that Bridge Port MAC_Operational parameter is false.
- EGRESS_BLOCKED:
 - The Egress Port can be identified, but the data frame would not pass through the Egress Port due to active topology management (i.e., the Bridge Port is not in the Forwarding state).
- EGRESS_VID:
 - The Egress Port can be identified, but the Bridge Port is not in the LTM's VIDs member set, so would be filtered by egress filtering.

14.7.13 LinkTraceIngressActionFieldValue

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: Possible values returned in the ingress action field.

Contains Enumeration Literals:

- INGRESS_NO_TLV:
 - Indicates that no Reply Ingress TLV was returned in the LTM.
- INGRESS_OK:
 - The target data frame would be passed through to the MAC Relay Entity.
- INGRESS_DOWN:
 - The Bridge Ports MAC_Operational parameter is false.
- INGRESS_BLOCKED:
 - The target data frame would not be forwarded if received on this Port due to active topology enforcement.
- INGRESS_VID:
 - The ingress port is not in the member set of the LTM's VID, and ingress filtering is enabled, so the target data frame would be filtered by ingress filtering.

14.7.14 LinkTraceRelayActionFieldValue

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: Possible values the Relay action field can take.

Contains Enumeration Literals:

- RELAY_HIT:
 - The LTM reached a Maintenance Point whose MAC address matches the target address.
- RELAY_FDB:
 - The Egress Port was determined by consulting the Filtering Database.
- RELAY_MPDB:
 - The Egress Port was determined by consulting the MIP CCM Database.

14.7.15 MaintenanceDomainIdPermissionTypes

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: Indicates what, if anything, is to be included in the Sender ID TLV transmitted in CCMs, LBMs, LTMs, and LTRs.

Contains Enumeration Literals:

- SEND_ID_NONE:
 - The Sender ID TLV is not to be sent.
- SEND_ID_CHASSIS:
 - The Chassis ID Length, Chassis ID Subtype, and Chassis ID fields of te Sender ID TLV are to be sent.
- SEND_ID_MANAGE:
 - The Management Address Length and Management Address of the Sender ID TLV are to be sent.
- SEND_ID_CHASSIS_MANAGE:
 - The Chassis ID Length, Chassis ID Subtype, Chassis ID, Management Address Length and Management Address fields are all to be sent.

14.7.16 MaintenanceDomainNameType

Description:

- IEEE P802.1Qcx/D0.3: MEF 38: The Maintenance Domain format choice.

Contains Enumeration Literals:

- NONE:
 - IEEE P802.1Qcx/D0.3: No format specified, usually because there is not a Maintenance Domain Name. In this case, a zero length OCTET string for the Domain name field is acceptable. MEF 38: No format specified.
- DOMAIN_NAME:
 - IEEE P802.1Qcx/D0.3: MEF 38: Domain Name like string, globally unique text string derived from a DNS name.
- MAC_ADDR_AND_UINT :
 - IEEE P802.1Qcx/D0.3: MEF 38: MAC address + 2-octet (unsigned) integer.
- STRING:
 - IEEE P802.1Qcx/D0.3: MEF 38: RFC2579 DisplayString, except that the character codes 0-31 (decimal) are not used.

14.7.17 MessagePeriod

Description:

- This enumeration defines the allowed values for the message period in on-demand measurements. Notes: The value 10ms is only used in synthetic loss measurements. The value 0 means that the value is not relevant.

Contains Enumeration Literals:

- 10MS:
- 100MS:
- 1S:
- 10S:
- 0:

14.7.18 OamPduGenerationType

Description:

- This enumeration defines the generation pattern of the on-demand OAM PDUs (messages).

Contains Enumeration Literals:

- SINGLE_INSTANCE:
- REPETITIVE_INSTANCE:
- SINGLE_SERIES:
- REPETITIVE_SERIES:

14.7.19 OamPeriod

Description:

- Provides the frequency for the OAM PDU insertion.

Contains Enumeration Literals:

- 3,33MS:
 - Default for protection.
- 10MS:
- 100MS:
- 1S:
- 10S:
- 1MIN:
- 10MIN:

14.7.20 PcpCoding

Description:

- This enum models the coding of the Priority Code Point as defined in section "Priority Code Point encoding" of IEEE 802.1Q.

Contains Enumeration Literals:

- 8P0D:
- 7P1D:
- 6P2D:
- 5P3D:
- DEI:
 - This enumeration value means that all priorities should be drop eligible. DEI = Drop Eligibility Indicator

14.7.21 RepetitionPeriod

Description:

- This enumeration defines the allowed values for the repetition period in on-demand measurements.
Note: The value 0 means that the value is not relevant.

Contains Enumeration Literals:

- 1MIN:
- 1S:
- 10S:
- 0:

14.7.22 TestPattern

Description:

- The following values of pattern types are defined: "Null signal without CRC-32" "Null signal with CRC-32" "PRBS 2^31-1 without CRC-32" "PRBS 2^31-1 with CRC-32".

Contains Enumeration Literals:

- NULL_SIGNAL_WITHOUT_CRC_32:
- NULL_SIGNAL_WITH_CRC_32:
- PRBS_2^31_1_WITHOUT_CRC_32:
- PRBS_2^31_1_WITH_CRC_32:

14.7.23 VlanType

Description:

- This enumeration contains the Ethertypes defined in IEEE 802.1Q.

Contains Enumeration Literals:

- C_Tag:
 - 0x8100
- S_Tag:
 - 0x88a8
- I_Tag:
 - 88-e7

14.8 Primitives

14.8.1 MacAddress

Description:

- This primitive data type contains an Ethernet MAC address defined by IEEE 802a. The format of the address consists of 12 hexadecimal characters, grouped in pairs and separated by "-" (e.g., 03-27-AC-75-3E-1D).

14.8.2 Vid

Description:

- This primitive type models the 12 Bit VLAN identifier of a VLAN tag.