



TAPI UML Model

PATH COMPUTATION

Version 2.5.0

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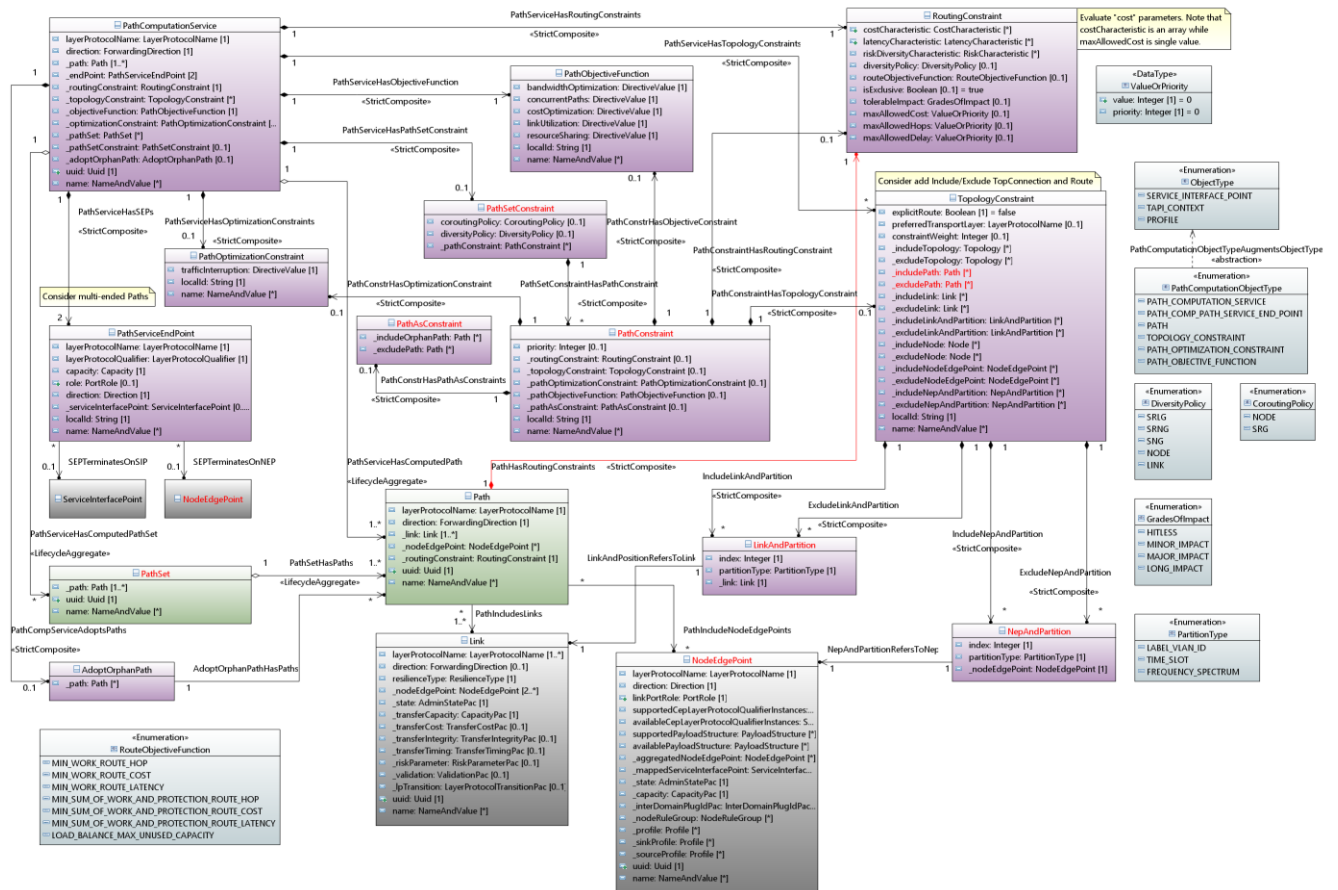
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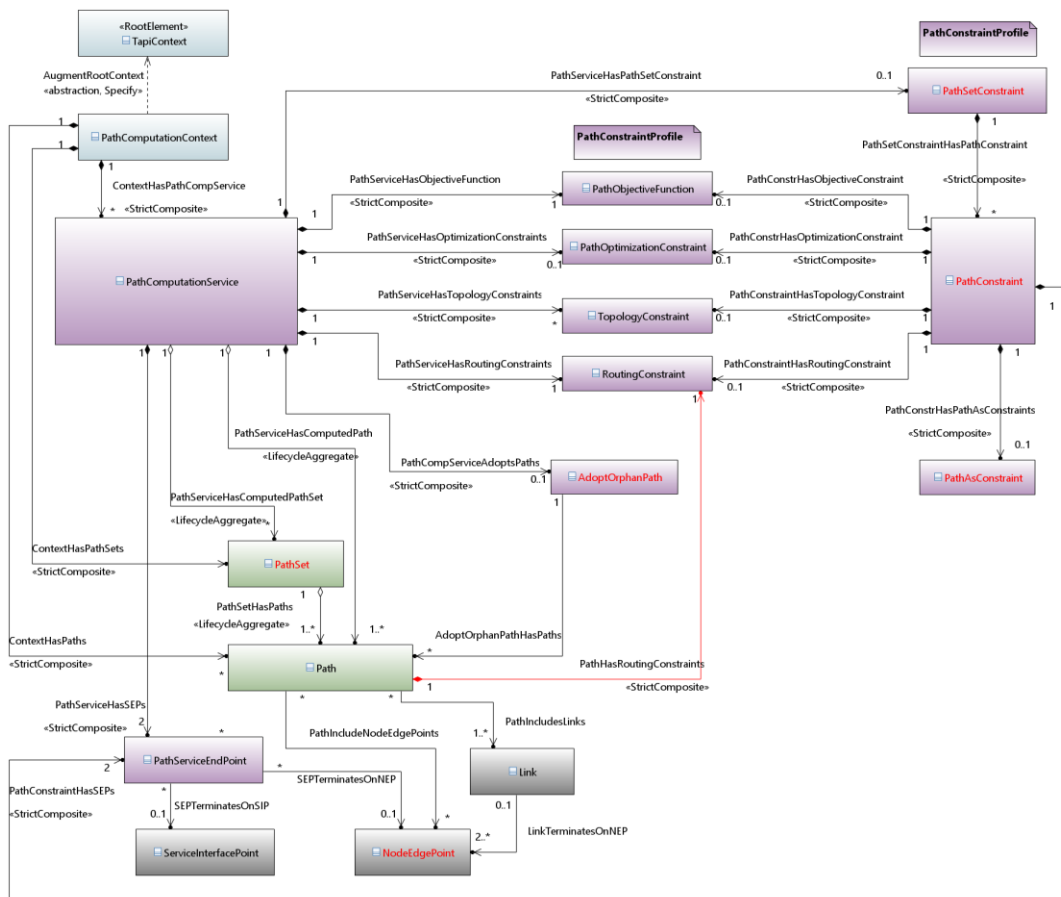
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Document History

Version	Date	Description of Change
2.3	May 27, 2021	Model Dump <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>
2.4.0	December 2022	See high level diff document in Github
2.4.1	March 2023	See high level diff document in Github
2.5.0	October 2023	See high level diff document in Github



Figure 3 – Diagram *PathComputationServiceSkeleton*

1.2 Classes

1.2.1 AdoptOrphanPath

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
_path <i>Navigable association end of:</i> AdoptOrphanPathHasPaths	Path	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Table 1 – Attributes for class *AdoptOrphanPath***1.2.2 LinkAndPartition**

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
index	PrimitiveTypes::Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
partitionType	PartitionType	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_link <i>Navigable association end of:</i> LinkAndPositionRefersToLink	TapiTopology::ObjectClasses::Link	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Table 2 – Attributes for class *LinkAndPartition***1.2.3 NepAndPartition**

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
index	PrimitiveTypes::Integer	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
partitionType	PartitionType	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_nodeEdgePoint <i>Navigable association end of:</i> NepAndPartitionRefersToNep	TapiTopology::ObjectClasses::NodeEdgePoint	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Table 3 – Attributes for class *NepAndPartition*

1.2.4 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:

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

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	TapiCommon::TypeDefinitions::LayerProtocolName	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The layer protocol of the Path.			
direction	TapiCommon::TypeDefinitions::ForwardingDirection	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The forwarding direction of the Path.			
_link <i>Navigable association end of:</i> PathIncludesLinks	TapiTopology::ObjectClasses::Link	1..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The list of Link instances composing the Path instance.			
_nodeEdgePoint <i>Navigable association end of:</i> PathIncludeNodeEdgePoints	TapiTopology::ObjectClasses::NodeEdgePoint	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The associated routing constraints.			
_routingConstraint <i>Navigable association end of:</i> PathHasRoutingConstraints	RoutingConstraint	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The associated routing constraints.			

Attribute Name	Type	Mult.	Access	Stereotypes
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	TapiCommon::TypeDefinitions::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]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	TapiCommon::TypeDefinitions::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 4 – Attributes for class *Path*

1.2.5 PathAsConstraint

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
_includeOrphanPath	Path	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description: The Path instance to be followed by the connectivity route.

Attribute Name	Type	Mult.	Access	Stereotypes
_excludePath	Path	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Path instance to be excluded from the connectivity route.			

Table 5 – Attributes for class *PathAsConstraint*

1.2.6 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:

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

Attribute Name	Type	Mult.	Access	Stereotypes
_pathCompService <i>Navigable association end of:</i> ContextHasPathCompService	PathComputationService	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The included PathComputationService instances.			
_path <i>Navigable association end of:</i> ContextHasPaths	Path	0..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The included Path instances.			

Attribute Name	Type	Mult.	Access	Stereotypes
_pathSet <i>Navigable association end of:</i> ContextHasPathSets	PathSet	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: 			

Table 6 – Attributes for class *PathComputationContext*

1.2.7 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:

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

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	TapiCommon::TypeDefinitions::LayerProtocolName	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The layer protocol of the PathComputationService.			
direction	TapiCommon::TypeDefinitions::ForwardingDirection	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The forwarding direction of the PathComputationService.			

Attribute Name	Type	Mult.	Access	Stereotypes
_path <i>Navigable association end of:</i> PathServiceHasComputedPath	Path	1..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Path instance(s) tracking the state of the identified resources for the support of the PathComputationService.			
_endPoint <i>Navigable association end of:</i> PathServiceHasSEPs	PathServiceEndPoint	2	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The PathServiceEndPoint (PSEP) instances of the PathComputationService.			
_routingConstraint <i>Navigable association end of:</i> PathServiceHasRoutingConstraints	RoutingConstraint	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The associated routing constraints.			
_topologyConstraint <i>Navigable association end of:</i> PathServiceHasTopologyConstraints	TopologyConstraint	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The associated topology constraints. Different instances of TopologyConstraints may be used to specify constraints at different layer networks.			
_objectiveFunction <i>Navigable association end of:</i> PathServiceHasObjectiveFunction	PathObjectiveFunction	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The associated objective functions.			

Attribute Name	Type	Mult.	Access	Stereotypes
<u>_optimizationConstraint</u> <i>Navigable association end of:</i> PathServiceHasOptimizationConstraints	PathOptimizationConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description: The associated optimization constraints.
<u>_pathSet</u> <i>Navigable association end of:</i> PathServiceHasComputedPathSet	PathSet	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description:
<u>_pathSetConstraint</u> <i>Navigable association end of:</i> PathServiceHasPathSetConstraint	PathSetConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description:
<u>_adoptOrphanPath</u> <i>Navigable association end of:</i> PathCompServiceAdoptsPaths	AdoptOrphanPath	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description:
<u>uuid</u> Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	TapiCommon::TypeDefinitions::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]{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>	TapiCommon::TypeDefinitions::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 7 – Attributes for class *PathComputationService*

1.2.8 PathConstraint

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
priority	PrimitiveTypes::Integer	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_routingConstraint <i>Navigable association end of:</i> PathConstraintHasRoutingConstraint	RoutingConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				
_topologyConstraint <i>Navigable association end of:</i> PathConstraintHasTopologyConstraint	TopologyConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
Description:				

Attribute Name	Type	Mult.	Access	Stereotypes
_pathOptimizationConstraint <i>Navigable association end of:</i> PathConstrHasOptimizationConstraint	PathOptimizationConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_pathObjectiveFunction <i>Navigable association end of:</i> PathConstrHasObjectiveConstraint	PathObjectiveFunction	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_pathAsConstraint <i>Navigable association end of:</i> PathConstrHasPathAsConstraints	PathAsConstraint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
_pathServiceEndPoint <i>Navigable association end of:</i> PathConstraintHasSEPs	PathServiceEndPoint	2	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	PrimitiveTypes::String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	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>	TapiCommon::TypeDefinitions::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 8 – Attributes for class *PathConstraint*

1.2.9 PathObjectiveFunction

Description:

- The parameters defining the objective functions.

Applied stereotypes:

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

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

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The directive types regarding cost optimization.			
linkUtilization	TapiCommon::TypeDefinitions::DirectiveValue	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The directive types regarding link utilization.			
resourceSharing	TapiCommon::TypeDefinitions::DirectiveValue	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The directive types regarding resource sharing.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	PrimitiveTypes::String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	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>	TapiCommon::TypeDefinitions::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 9 – Attributes for class *PathObjectiveFunction*

1.2.10 PathOptimizationConstraint

Description:

- The parameters defining the optimization constraints.

Applied stereotypes:

- OpenInterfaceModelClass
 - objectCreationNotification: NA

- objectDeletionNotification: NA
- OpenModelClass
 - support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
trafficInterruption	TapiCommon::TypeDefinitions::DirectiveValue	1	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The directive types regarding traffic interruption.			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	PrimitiveTypes::String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	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>	TapiCommon::TypeDefinitions::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 10 – Attributes for class *PathOptimizationConstraint*

1.2.11 PathServiceEndPoint

Description:

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

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
layerProtocolName	TapiCommon::TypeDefinitions::LayerProtocolName	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The layer protocol of the PathServiceEndPoint (PSEP).			
layerProtocolQualifier	TapiCommon::TypeDefinitions::LayerProtocolQualifier	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The layer protocol qualifier of the PathServiceEndPoint (PSEP).			
capacity	TapiCommon::TypeDefinitions::Capacity	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The PathServiceEndPoint (PSEP) capacity.			
role	TapiCommon::TypeDefinitions::PortRole	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The role of the (conceptual) port of the associated PathComputationService.			
direction	TapiCommon::TypeDefinitions::Direction	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The direction of the end point.			

Attribute Name	Type	Mult.	Access	Stereotypes
_serviceInterfacePoint <i>Navigable association end of:</i> SEPTerminatesOnSIP	TapiCommon::ObjectClasses::ServiceInterfacePoint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The supporting ServiceInterfacePoint (SIP) instance.			
_nodeEdgePoint <i>Navigable association end of:</i> SEPTerminatesOnNEP	TapiTopology::ObjectClasses::NodeEdgePoint	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	PrimitiveTypes::String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
	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>	TapiCommon::TypeDefinitions::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 11 – Attributes for class *PathServiceEndPoint*

1.2.12 PathSet

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
<u>_path</u> Navigable association end of: PathSetHasPaths	Path	1..*	R	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: 			
uuid Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::uuid</i>	TapiCommon::TypeDefinitions::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]{12} Example of a UUID in string representation: f81d4fae-7dec-11d0-a765-00a0c91e6bf6			
name Inherited: <i>TapiCommon::ObjectClasses::GlobalClass::name</i>	TapiCommon::TypeDefinitions::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 12 – Attributes for class *PathSet*

1.2.13 PathSetConstraint

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
coroutingPolicy	CoroutingPolicy	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: 			
diversityPolicy	DiversityPolicy	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The diversity policies.			
_pathConstraint <i>Navigable association end of:</i> PathSetConstraintHasPathConstraint	PathConstraint	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: 			

Table 13 – Attributes for class *PathSetConstraint*

1.2.14 RoutingConstraint

Description:

- The parameters of the routing constraints.

Applied stereotypes:

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

Attribute Name	Type	Mult.	Access	Stereotypes
costCharacteristic	TapiTopology::TypeDefinitions::CostCharacteristic	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY

Attribute Name	Type	Mult.	Access	Stereotypes
	Description: The list of costs where each cost relates to some aspect of a topological entity.			
latencyCharacteristic	TapiTopology::TypeDefinitions::LatencyCharacteristic	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	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	TapiTopology::TypeDefinitions::RiskCharacteristic	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The diversity risk characteristics.			
diversityPolicy	DiversityPolicy	0..1	RW	
	Description: The diversity policies.			
routeObjectiveFunction	RouteObjectiveFunction	0..1	RW	
	Description: The route objective functions.			
isExclusive	PrimitiveTypes::Boolean Default value: <i>true</i>	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: To distinguish if the resources are to be exclusive to the service. This attribute is not applicable when used for Path computation.			
tolerableImpact	GradesOfImpact	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: Grades of maximum tolerable disruption to traffic.			

Attribute Name	Type	Mult.	Access	Stereotypes
maxAllowedCost	ValueOrPriority	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The specification of the maximum allowed cost.			
maxAllowedHops	ValueOrPriority	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The specification of the maximum allowed hops.			
maxAllowedDelay	ValueOrPriority	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The specification of the maximum allowed delay, value in microseconds.			

Table 14 – Attributes for class *RoutingConstraint*

1.2.15 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:

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

Attribute Name	Type	Mult.	Access	Stereotypes
explicitRoute	PrimitiveTypes::Boolean Default value: <i>false</i>	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: If true, indicates that the route constraints are specified with full detail, i.e. no need for further route computation.			
preferredTransportLayer	TapiCommon::TypeDefinitions::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	PrimitiveTypes::Integer	0..1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	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	TapiTopology::ObjectClasses::Topology	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Topology instance to be included in the connectivity route.			
_excludeTopology	TapiTopology::ObjectClasses::Topology	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Topology instance to be excluded from the connectivity route.			

Attribute Name	Type	Mult.	Access	Stereotypes
_includePath	Path	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Path instance to be followed by the connectivity route.			
_excludePath	Path	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Path instance to be excluded from the connectivity route.			
_includeLink	TapiTopology::ObjectClasses::Link	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Link instance to be included in the connectivity route.			
_excludeLink	TapiTopology::ObjectClasses::Link	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Link instance to be excluded from the connectivity route.			
_includeLinkAndPartition <i>Navigable association end of:</i> IncludeLinkAndPartition	LinkAndPartition	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description:			

Attribute Name	Type	Mult.	Access	Stereotypes
_excludeLinkAndPartition <i>Navigable association end of:</i> ExcludeLinkAndPartition	LinkAndPartition	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The LinkAndPartition instance to be excluded from the connectivity route.			
_includeNode	TapiTopology::ObjectClasses::Node	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Node instance to be included in the connectivity route.			
_excludeNode	TapiTopology::ObjectClasses::Node	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The Node instance to be excluded from the connectivity route.			
_includeNodeEdgePoint	TapiTopology::ObjectClasses::NodeEdgePoint	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The NodeEdgePoint (NEP) instance to be included in the connectivity route.			
_excludeNodeEdgePoint	TapiTopology::ObjectClasses::NodeEdgePoint	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The NodeEdgePoint (NEP) instance to be excluded from the connectivity route.			

Attribute Name	Type	Mult.	Access	Stereotypes
_includeNepAndPartition <i>Navigable association end of:</i> IncludeNepAndPartition	NepAndPartition	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description:
_excludeNepAndPartition <i>Navigable association end of:</i> ExcludeNepAndPartition	NepAndPartition	0..*	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
				Description:
localId Inherited: <i>TapiCommon::ObjectClasses::LocalClass::localId</i>	PrimitiveTypes::String	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey: yes – part: 1 • isInvariant: true • valueRange: no range constraint • support: MANDATORY
				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>	TapiCommon::TypeDefinitions::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 15 – Attributes for class *TopologyConstraint*

1.3 Signals

1.4 Associations

1.4.1 AdoptOrphanPathHasPaths

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

Table 16 – Member ends for association *AdoptOrphanPathHasPaths*

1.4.2 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 17 – Member ends for association *ContextHasPathCompService*

1.4.3 ContextHasPathSets

Applied stereotype:

- StrictComposite

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

Table 18 – Member ends for association *ContextHasPathSets*

1.4.4 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 19 – Member ends for association *ContextHasPaths*

1.4.5 ExcludeLinkAndPartition

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_excludeLinkAndPartition	composite	Yes	LinkAndPartition	0..*
topologyconstraint	none	No	TopologyConstraint	1

Table 20 – Member ends for association *ExcludeLinkAndPartition*

1.4.6 ExcludeNepAndPartition

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_excludeNepAndPartition	composite	Yes	NepAndPartition	0..*
topologyconstraint	none	No	TopologyConstraint	1

Table 21 – Member ends for association *ExcludeNepAndPartition*

1.4.7 IncludeLinkAndPartition

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_includeLinkAndPartition	composite	Yes	LinkAndPartition	0..*
topologyconstraint	none	No	TopologyConstraint	1

Table 22 – Member ends for association *IncludeLinkAndPartition*

1.4.8 IncludeNepAndPartition

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_includeNepAndPartition	composite	Yes	NepAndPartition	0..*
topologyconstraint	none	No	TopologyConstraint	1

Table 23 – Member ends for association *IncludeNepAndPartition*

1.4.9 LinkAndPositionRefersToLink

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_link	none	Yes	TapiTopology::ObjectClasses::Link	1
linkandposition	none	No	LinkAndPartition	1

Table 24 – Member ends for association *LinkAndPositionRefersToLink*

1.4.10 NepAndPartitionRefersToNep

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	none	Yes	TapiTopology::ObjectClasses::NodeEdgePoint	1
nepandposition	none	No	NepAndPartition	1

Table 25 – Member ends for association *NepAndPartitionRefersToNep*

1.4.11 PathCompServiceAdoptsPaths

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_adoptOrphanPath	composite	Yes	AdoptOrphanPath	0..1
pathcomputationsservice	none	No	PathComputationService	1

Table 26 – Member ends for association *PathCompServiceAdoptsPaths*

1.4.12 PathConstrHasObjectiveConstraint

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathObjectiveFunction	composite	Yes	PathObjectiveFunction	0..1
pathconstraint	none	No	PathConstraint	1

Table 27 – Member ends for association *PathConstrHasObjectiveConstraint*

1.4.13 PathConstrHasOptimizationConstraint

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
pathOptimizationConstraint	composite	Yes	PathOptimizationConstraint	0..1
pathconstraint	none	No	PathConstraint	1

Table 28 – Member ends for association *PathConstrHasOptimizationConstraint*

1.4.14 PathConstrHasPathAsConstraints

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathAsConstraint	composite	Yes	PathAsConstraint	0..1
pathconstraint	none	No	PathConstraint	1

Table 29 – Member ends for association *PathConstrHasPathAsConstraints***1.4.15 PathConstraintHasRoutingConstraint**

Applied stereotype:

- StrictComposite

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

Table 30 – Member ends for association *PathConstraintHasRoutingConstraint***1.4.16 PathConstraintHasSEPs**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathServiceEndPoint	composite	Yes	PathServiceEndPoint	1
pathconstraint	none	No	PathConstraint	1

Table 31 – Member ends for association *PathConstraintHasSEPs***1.4.17 PathConstraintHasTopologyConstraint**

Applied stereotype:

- StrictComposite

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

Table 32 – Member ends for association *PathConstraintHasTopologyConstraint***1.4.18 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 33 – Member ends for association *PathHasRoutingConstraints*

1.4.19 PathIncludeNodeEdgePoints

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	none	Yes	TapiTopology::ObjectClasses::NodeEdgePoint	0..*
path	none	No	Path	0..*

Table 34 – Member ends for association *PathIncludeNodeEdgePoints*

1.4.20 PathIncludesLinks

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

Table 35 – Member ends for association *PathIncludesLinks*

1.4.21 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 36 – Member ends for association *PathServiceHasComputedPath*

1.4.22 PathServiceHasComputedPathSet

Applied stereotype:

- LifecycleAggregate

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
pathSet	shared	Yes	PathSet	0..*
pathcomputationservice	none	No	PathComputationService	1

Table 37 – Member ends for association *PathServiceHasComputedPathSet*

1.4.23 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 38 – Member ends for association *PathServiceHasObjectiveFunction***1.4.24 PathServiceHasOptimizationConstraints**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_optimizationConstraint	composite	Yes	PathOptimizationConstraint	0..1
_path	none	No	PathComputationService	1

Table 39 – Member ends for association *PathServiceHasOptimizationConstraints***1.4.25 PathServiceHasPathSetConstraint**

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathSetConstraint	composite	Yes	PathSetConstraint	0..1
pathcomputationservice	none	No	PathComputationService	1

Table 40 – Member ends for association *PathServiceHasPathSetConstraint***1.4.26 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 41 – Member ends for association *PathServiceHasRoutingConstraints***1.4.27 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 42 – Member ends for association *PathServiceHasSEPs*

1.4.28 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 43 – Member ends for association *PathServiceHasTopologyConstraints*

1.4.29 PathSetConstraintHasPathConstraint

Applied stereotype:

- StrictComposite

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_pathConstraint	composite	Yes	PathConstraint	0..*
pathsetconstraint	none	No	PathSetConstraint	1

Table 44 – Member ends for association *PathSetConstraintHasPathConstraint*

1.4.30 PathSetHasPaths

Applied stereotype:

- LifecycleAggregate

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

Table 45 – Member ends for association *PathSetHasPaths*

1.4.31 SEPTerminatesOnNEP

Association end role name	Aggreg. type	Navigable	Target Class	Mult.
_nodeEdgePoint	none	Yes	TapiTopology::ObjectClasses::NodeEdgePoint	0..1
pathserviceendpoint	none	No	PathServiceEndPoint	0..*

Table 46 – Member ends for association *SEPTerminatesOnNEP*

1.4.32 SEPTerminatesOnSIP

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

Table 47 – Member ends for association *SEPTerminatesOnSIP*

1.5 Abstractions

1.5.1 AugmentRootContext

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

Table 48 – Member ends for class abstraction *AugmentRootContext*

1.5.2 PathAugmentsEventNotif

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

Table 49 – Member ends for class abstraction *PathAugmentsEventNotif*

1.5.3 PathAugmentsEventNotifSignal

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

Table 50 – Member ends for class abstraction *PathAugmentsEventNotifSignal*

1.5.4 PathAugmentsLogRecordBody

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

Table 51 – Member ends for class abstraction *PathAugmentsLogRecordBody*

1.5.5 PathComputationObjectTypeAugmentsObjectType

Augmenting Enumeration	Augmented Enumeration
PathComputationObjectType - PATH - PATH_COMPUTATION_SERVICE - PATH_COMP_PATH_SERVICE_END_POINT - PATH_OBJECTIVE_FUNCTION - PATH_OPTIMIZATION_CONSTRAINT - TOPOLOGY_CONSTRAINT	ObjectType - PROFILE - SERVICE_INTERFACE_POINT - TAPI_CONTEXT
Comment Enumeration Augment.	

Table 52 – Member ends for enum abstraction *PathComputationObjectTypeAugmentsObjectType*

1.5.6 PathComputationServiceAugmentsEventNotif

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

Table 53 – Member ends for class abstraction *PathComputationServiceAugmentsEventNotif*

1.5.7 PathComputationServiceAugmentsEventNotifSignal

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

Table 54 – Member ends for class abstraction *PathComputationServiceAugmentsEventNotifSignal*

1.5.8 PathComputationServiceAugmentsLogRecordBody

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

Table 55 – Member ends for class abstraction *PathComputationServiceAugmentsLogRecordBody*

1.5.9 PathObjectiveFunctionAugmentsEventNotif

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

Table 56 – Member ends for class abstraction *PathObjectiveFunctionAugmentsEventNotif*

1.5.10 PathObjectiveFunctionAugmentsEventNotifSignal

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

Table 57 – Member ends for class abstraction *PathObjectiveFunctionAugmentsEventNotifSignal*

1.5.11 PathObjectiveFunctionAugmentsLogRecordBody

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

Table 58 – Member ends for class abstraction *PathObjectiveFunctionAugmentsLogRecordBody*

1.5.12 PathOptimizationConstrAugmentsEventNotif

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

Table 59 – Member ends for class abstraction *PathOptimizationConstrAugmentsEventNotif*

1.5.13 PathOptimizationConstrAugmentsEventNotifSignal

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

Table 60 – Member ends for class abstraction *PathOptimizationConstrAugmentsEventNotifSignal*

1.5.14 PathOptimizationConstraintAugmentsLogRecordBody

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

Table 61 – Member ends for class abstraction *PathOptimizationConstraintAugmentsLogRecordBody*

1.5.15 PathServiceEndPointAugmentsLogRecordBody

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

Table 62 – Member ends for class abstraction *PathServiceEndPointAugmentsLogRecordBody*

1.5.16 PsepAugmentsEventNotif

Augmenting Class	Augmented Class	Comment
PathServiceEndPoint	TapiNotification::Notifications::EventNotification	
target: "/TapiCommon:Context: context/TapiNotification:NotificationContext: notificationContext/TapiNotification:NotificationContext: eventNotification"		

Table 63 – Member ends for class abstraction *PsepAugmentsEventNotif*

1.5.17 PsepAugmentsEventNotifSignal

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

Table 64 – Member ends for class abstraction *PsepAugmentsEventNotifSignal*

1.6 Data Types

1.6.1 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	PrimitiveTypes::Integer Default value: 0	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The specified value.			
priority	PrimitiveTypes::Integer Default value: 0	1	RW	OpenInterfaceModelAttribute • AVC: NA OpenModelAttribute • isKey:No • isInvariant: false • valueRange: no range constraint • support: MANDATORY
	Description: The specified priority.			

Table 65 – Attributes for data type *ValueOrPriority*

1.7 Enumerations

1.7.1 CoroutingPolicy

Contains Enumeration Literals:

- NODE
- SRG

1.7.2 DiversityPolicy

Description:

- The types of routing diversity policies.

Contains Enumeration Literals:

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

1.7.3 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.

1.7.4 PartitionType

Contains Enumeration Literals:

- LABEL_VLAN_ID
- TIME_SLOT
- FREQUENCY_SPECTRUM

1.7.5 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.

1.7.6 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.

1.8 Primitives