OPEN NETWORKING
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Transport API (TAPI) 2.0 Features Overview

June 12, 2017

TAPI 2.0 Features/Updates Overview

- TAPI (Re)Naming Updates
  - Information Model
  - Yang Data schema
- Service Interface Point / Service End Point Enhancements
- Topology Refactoring changes
- Connectivity Refactoring changes
- Node Constraints support
- Resilience/Protection/Switch support
- OAM support
- Alarm/TCA support
- Multilayer use case enhancements
- Termination model description
- ODU model updates (triggered by latest ITU-T draft)
- Och → OTSi model transformation (triggered by latest ITU-T draft)
- TAPI Reference Implementation – added ONOS/mininet example

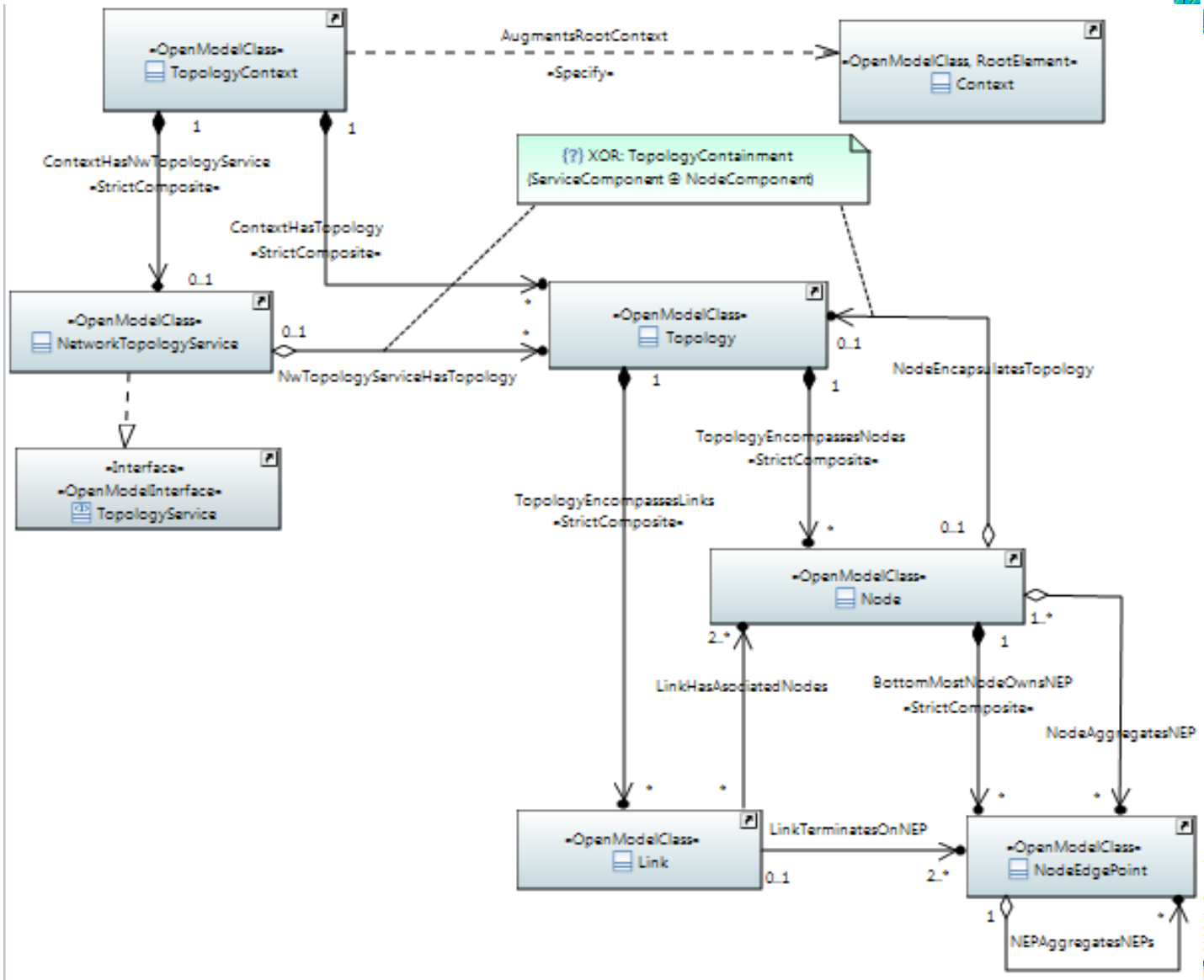
TAPI YANG Data Schema Naming Updates

- All identifiers (grouping, enumeration, leaf, etc) naming convention changed from *UpperCamelCase/lowerCamelCase* to *lisp-case*
- Added suffixes
  - class *grouping* → -c
  - complex DataType *grouping* → -d
  - enumeration/DataType *typedef* → -t
  - extensible enum literal *identity* → -id
- Added support for extensible enumeration mapping
  - Non-leaf enumerations mapped to base *identity* & *typedef*
- Enhanced/simplified Specification model
  - <*Specify*> stereotype with a *target* property mapping to yang *augment* statement
  - MEF NRM/NRP leveraging TAPI & being defined as a Specification model
- Numerous bug-fixes for yang compilation & validation
  - TAPI YANG successfully passes validation in YangCatalog
- Deferred config/state model separation

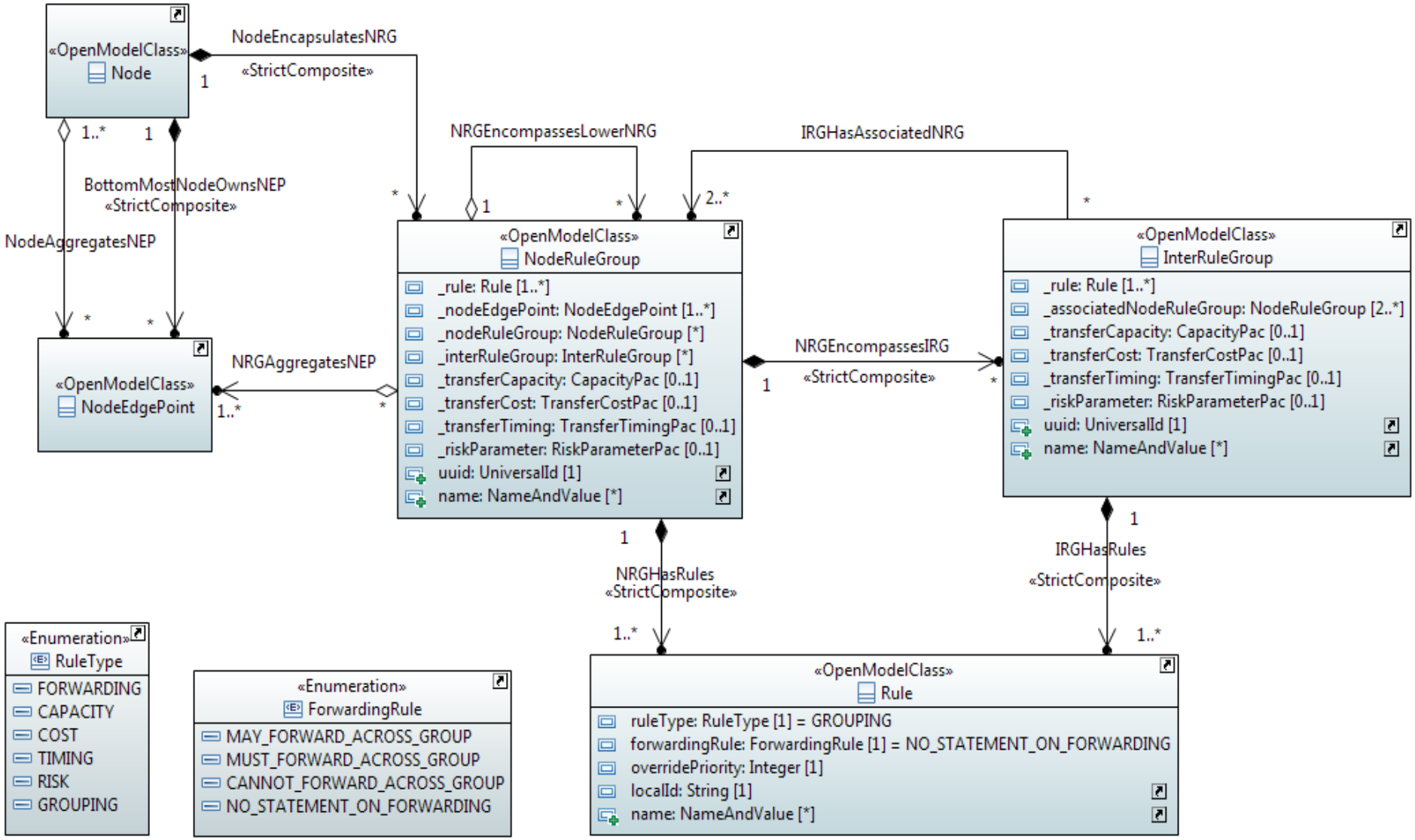
TAPI Generic & Topology Refactoring/ Naming updates

- Renamed *Tapi* model/module to *TapiCommon*
- Refactored the TAPI *Context* definition pattern by defining the *Context* container in *TapiCommon* and augmenting it with specific context definitions (e.g. *TopologyContext*, *ConnectivityContext*, *NotificationContext*, etc) in each of the TAPI module
- Deleted the *extensions* attribute from *GlobalClass* and *LocalClass* allowing for specifications to augment any TAPI class
- Deleted the *label* attribute from the *GlobalClass*
- Deleted the *TerminationDirection* attribute from *SIP, NEP, CEP* classes
- Deleted the *TeLink* class and using the *Link* in the *Path* definition
- Merged *LinkPort* into *NodeEdgePoint*
- Added *NodeConstraints* Model (next slide)

TAPI Topology Skeleton



TAPI Node Constraints Model



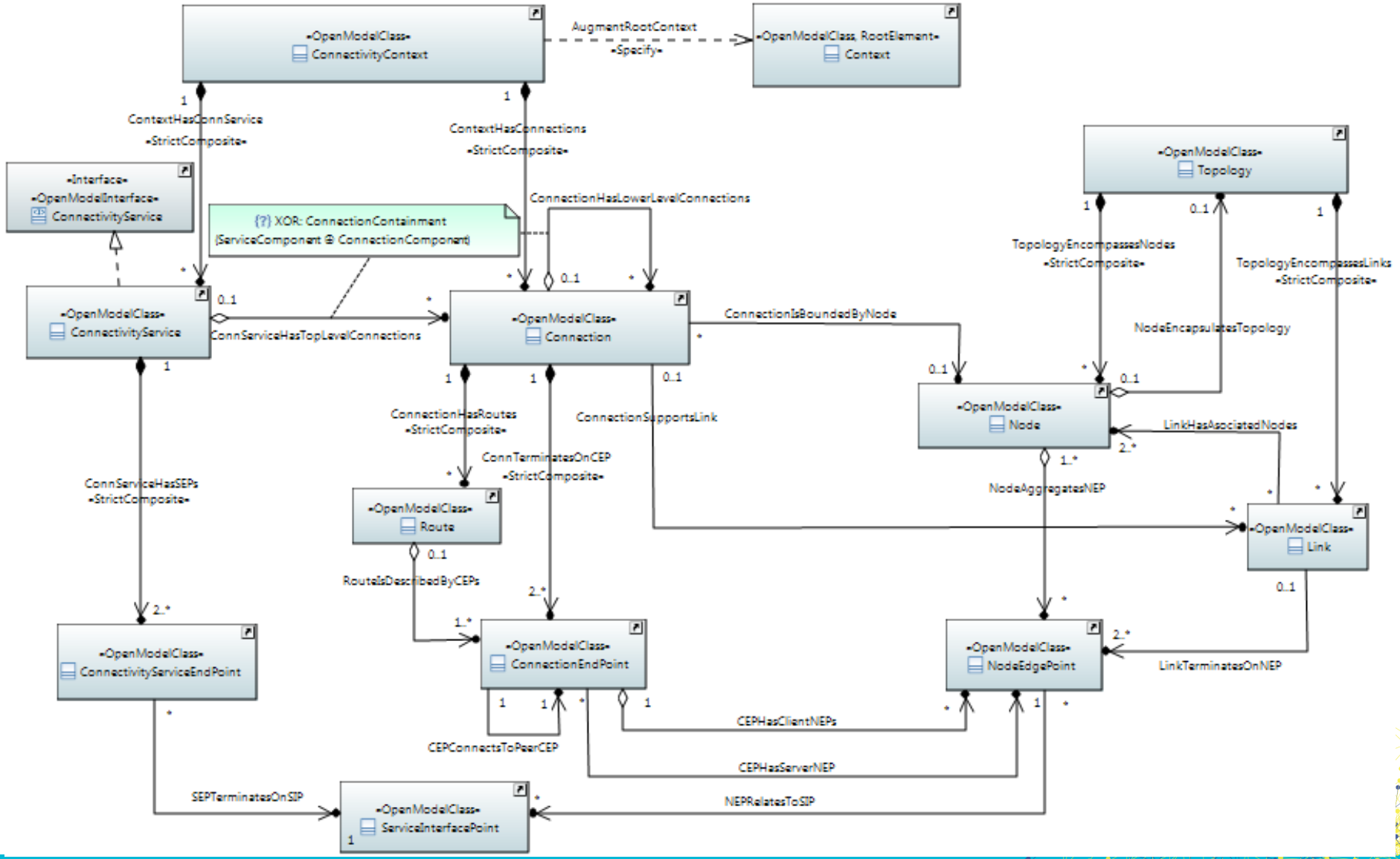
ServiceInterfacePoint / ServiceEndPoint (SIP/CSEP) Enhancements and other Generic changes

- TAPI 1.0 *ServiceEndPoint* renamed to *ServiceInterfacePoint (SIP)*
  - Based on request from MEF to better align with similarly named artifacts and to avoid confusion between the models
- TAPI 1.0 *ConnectivityServicePort* renamed to *ConnectivityServiceEndPoint (CSEP)*
  - Similar naming updates to *PathServicePort* and *VirtualNetworkServicePort*
- Added *CapacityPac* to *ServiceInterfacePoint*
  - Allows for TAPI provider to advertize capacity information in the SIP
- Added *CapacityPac* and *LayerProtocol* to *ConnectivityServiceEndPoint*
  - Called *serviceLayer* in TAPI 1.0 of type *LayerProtocolName*
  - Allows for TAPI client to specify capacity & layer-specific information per individual end-point of *ConnectivtyService* request

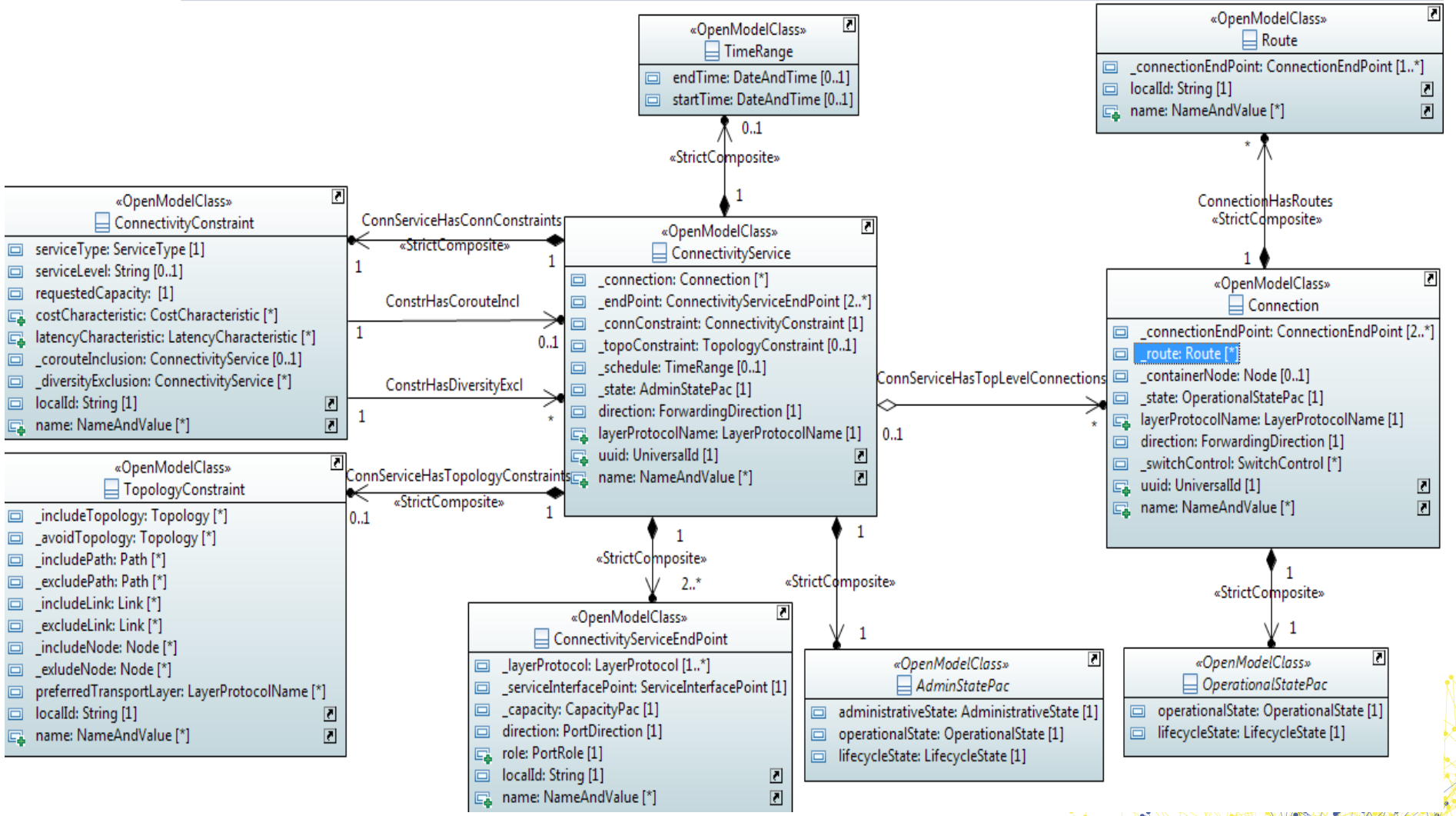
TAPI Connectivity Refactoring Changes

- Redefined connection's *Route* as a series of *ConnectionEndPoints* rather than a series of lower-level *Connections*
  - *Connection* decomposition/partitioning is captured by direct *ConnectionHasLowerLevelConnections* association
  - Also added *ConnectionSupportsLink* association
- Merged *ConnectionPort* into *ConnectionEndPoint*
- Split the *ConnectivityConstraint* class into *ConnectivityConstraint* and *TopologyConstraint*
  - Renamed the *serviceLayer* attribute to *preferredTransportLayer*
  - Added *includePath/excludePath*, *includeLink/excludeLink, includeNode/excludeNode* and *corouteInclusion* constraints
- Added the *Resilience* Model (next slide)
- Added the *Oam* model as a separate model/module that augments *Connectivity* (next slide)

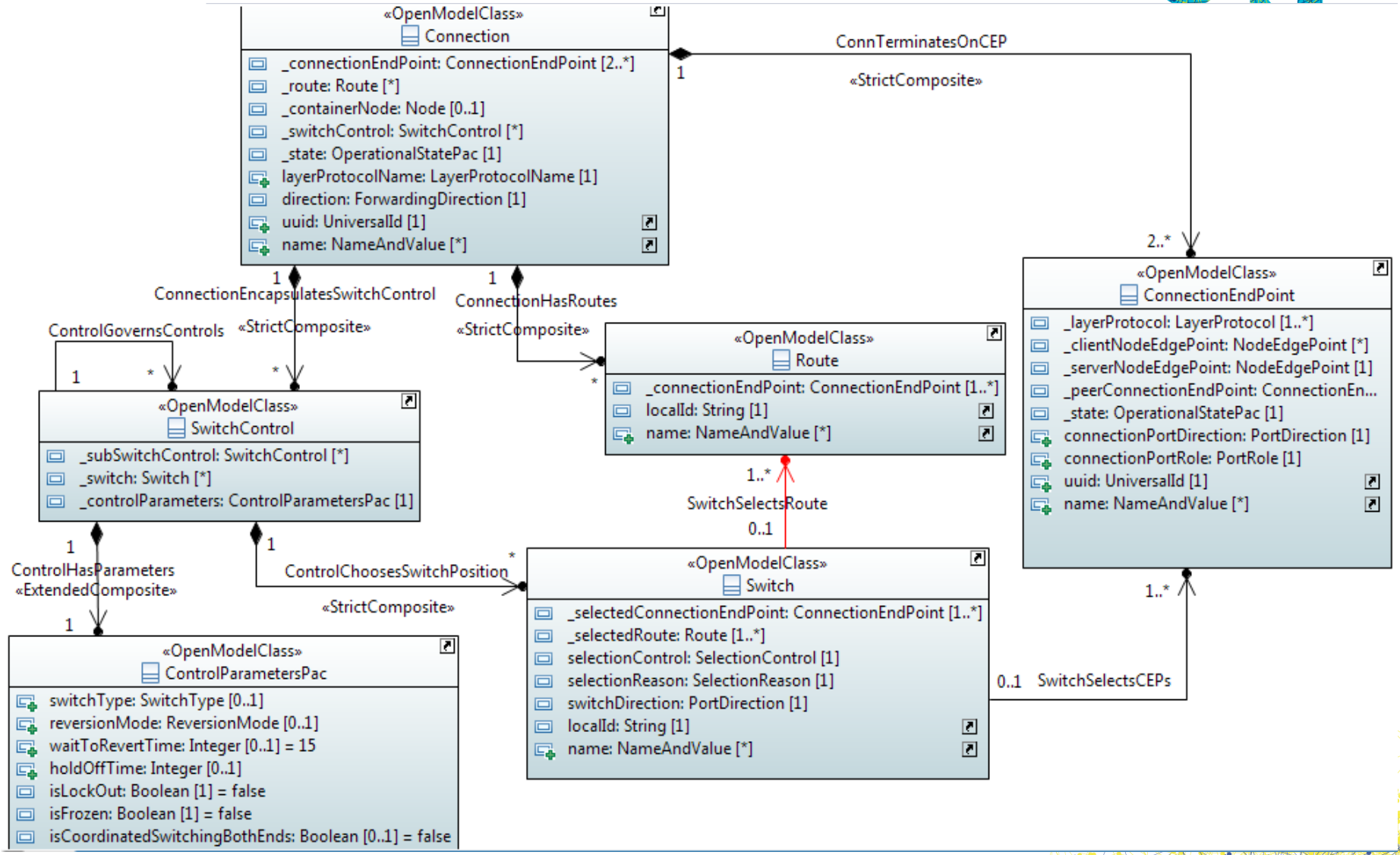
TAPI Connectivity Skeleton



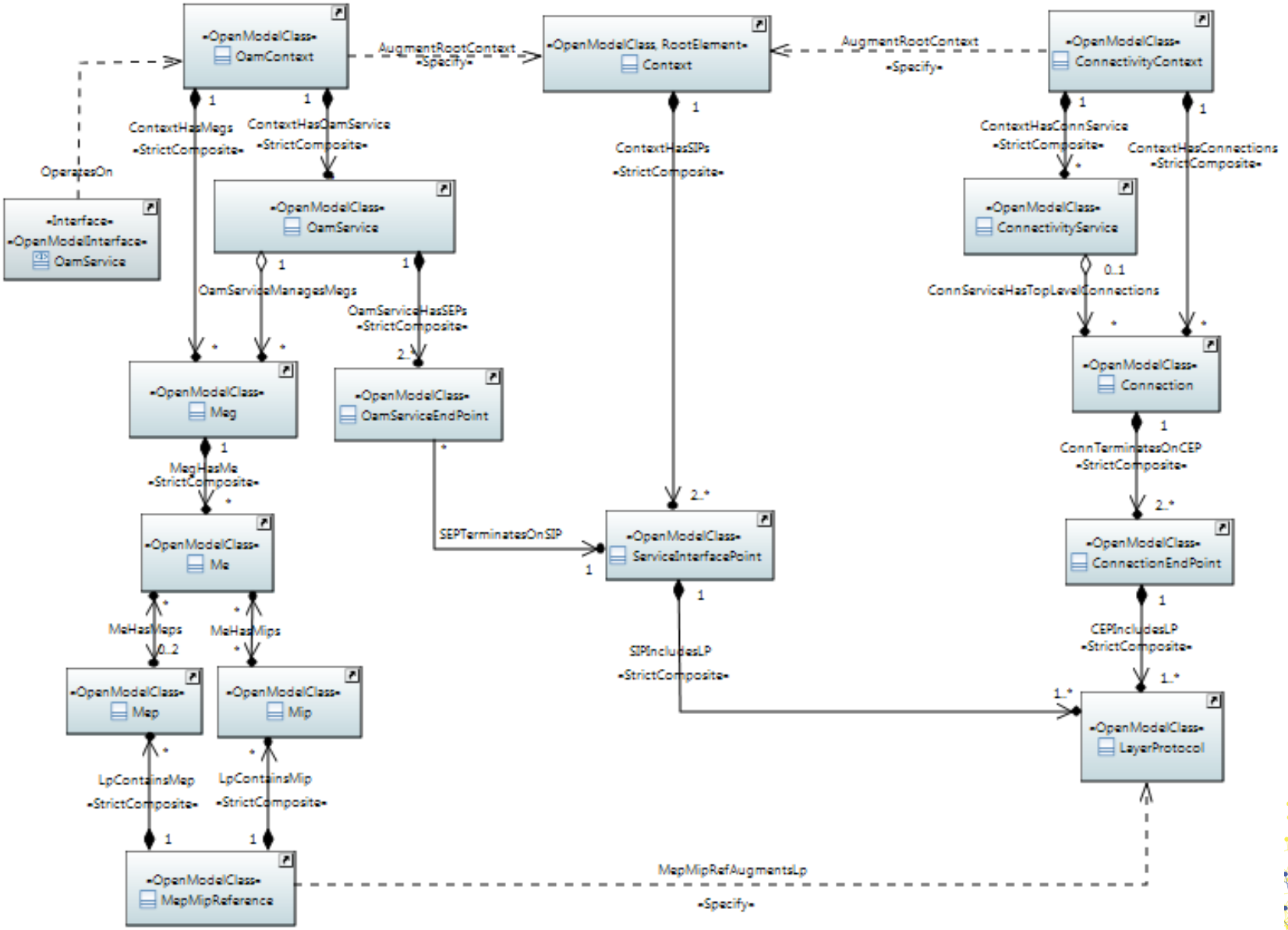
TAPI Connectivity Model



TAPI Resilience Model



TAPI OAM Skeleton



TAPI Notification Model