A YANG Data Model for Ethernet TE Topology

CCAMP WG, IETF 108, Virtual Meeting
draft-zheng-ccamp-client-topo-yang-09

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History

- Initially presented at IETF 105
- Updates presented at IETF 106: ready for WG adoption
  - Good support for WG adoption in the room
- Similar draft submitted to OPSAWG (draft-ogondio-opsawg-uni-topology) after IETF 106
  - Initial discussion during CCAMP WG Interim meeting in May 2020
- No further technical changes after IETF 106
  - Just refreshed -08 to avoid expiration
- Draft normatively referenced by the Transport NBI Applicability draft (draft-ietf-ccamp-transport-nbi-app-statement-11)
Problem Statement (1)

• Represents ETH access links
  – Access Link discovery (plug-id)
  – Inter-layer relationship with server-layer TTP (ILL or TL)
  – VLAN classification & operations capabilities
  – Configure access link bandwidth profiles
Problem Statement (2)

- ETH TE Topology Discovery
  - Support path computation & setup for ETH TE Tunnels/LSPs
  - Yet another technology-specific augmentation of TE Topology model
  - Can support ETH client signals
Access link discovery (1)

- The YANG model proposed in this draft augments TE Topology
  - TE topology supports access links (UNIs or inter-domain NNIs) discovery, independently on whether the underlying network is TE or non-TE:

```yang
augment /nw:networks/nw:network/nw:node/nt:termination-point:
  +--rw te-tp-id?  te-types:te-tp-id
  +--rw te!
    +--rw admin-status?
        |              te-types:te-admin-status
    +--rw inter-domain-plug-id?    binary
    +--ro oper-status?
        te-types:te-oper-status
```

- TE Topology also provides inter-layer relationship with server-layer TTP (ILL or TL), needed only when the underlying network is TE
Access link discovery (2)

• The approach is consistent with otn-topology:
  – L1/OTN access links are reported by the OTN topology
  – L1/transparent client access links are reported by the OTN topology
  – L2/ETH client access links are reported by the ETH topology
  – A UNI which is capable to operate as both L1 and L2, will appear in both OTN and ETH topologies
Relationship with draft-ogondio

- The solution in draft-ogondio seems more competing with TE Topology than with this draft
  - Generic solution for discovering UNIs also when the underlying network is non-TE
- TE topology provides additional information, applicable only to underlying TE networks (outside the scope of this draft and of draft-ogondio)
  - Inter-layer relationship with server-layer TTP (ILL or TL)
- This document covers these aspects which are not in the scope of draft-ogondio nor of TE Topology
  - VLAN classification & operations capabilities
  - Configure access link bandwidth profiles
  - ETH technology-specific TE topology augmentations
Possible Way Forward

- CCAMP WG could adopt this document:
  - It is covering aspects which are outside the scope of TE Topology and draft-ogondio

- TEAS WG and OPSAWG should agree on a common model for UNI topology discovery
  - CCAMP WG draft can align to the output of this discussion
  - The rest of the YANG model would not change

Option 1

- TE Topo
  - Client Topo

Option 2

- UNI Topo
  - Client Topo

Option 3

- UNI Topo
  - TE Topo
  - Client Topo
A YANG Model for User-Network Interface (UNI) Topologies

CCAMP WG, IETF 108, Virtual Meeting
draft-ogondio-opsawg-uni-topology-01

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One Service, Many Views

Where to attach/deliver the service?

UNI Reference Points

Mapping Service Requests to Network Resources:
UNI-Augmented Network Topology

Points for Discussion & Relation vs. TE topo I-D

- **draft-ogondio (UNI Topo)** defines *service-attachment-point* concept
  - Augments "/nw:networks/nw:network/nw:node" defined in RFC8345
  - ‘service-attachment-point’ is *not a ‘ttp’ nor a link*

- **UNI Topo** can be seen as *an inventory data* associated with service attachments (e.g., PE nodes)
  - It maintains an inventory of nodes contained in a network based on RFC8345. For design choice, See quoted text in RFC8345: “Although it would be possible to combine both parts into a single data model, the separation facilitates integration of network topology and network inventory data models, because it allows network inventory information to be augmented separately, and without concern for topology, into the network data model.”

- **draft-ogondio** can be used with **TE and non-TE topologies**
  - There is no overlapping with TE topo model

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Source: https://tools.ietf.org/html/rfc8345

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The relation between TE topo and UNI topo