

YANG Data Models for fine grain Optical Transport Network

CCAMP WG, IETF120

draft-tan-ccamp-fgotn-yang-00

Author:

Yanxia Tan (ChinaUnicom)

Yanlei Zheng (ChinaUnicom)

Italo Busi (Huawei)

Chaode Yu (Huawei)

Contributor:

Chen Li (Fiberhome)

Motivation

- ITU-T SG15 has consented fgOTN data plane G.709.20 standard in Dec. 2023.
- Draft for applicability of GMPLS for fine grain OTN was presented at IETF 119, and people agreed that fgOTN should be right in the scope of CCAMP. But the study on the northbound interface of fgOTN is still missing in IETF, so this draft will focus on this missing point.
- To harmonize with the existing study in CCAMP, we propose to define YANG data models augmenting to the existing topology and tunnel model for fgOTN.

What to be Extended in OTN Topology YANG Model?

- Considered that ITU-T suggests to define fgOTN as a new ODU type, so we prefer not to define a new network layer for fgOTN but reuse the OTN network topology.
- An attribute to indicate whether the TP can support fgOTN

```
augment /nw:networks/nw:network/nw:node/nt:termination-point
    /tet:te:
    +--rw supported-fgotn-tp?   boolean
```

➤ Bandwidth Augmentation

- max-link-bandwidth
 - If a link can support traditional OTN switching and fgOTN switching at the same time, we need to know the maximum bandwidth allocated for different switching.

```
augment /nw:networks/nw:network/nt:link/tet:te
    /tet:te-link-attributes/tet:max-link-bandwidth
    /tet:te-bandwidth/otnt:otn-bandwidth/otnt:odulist:
    +--rw fgotn-bandwidth?   string
```

What to be Extended in OTN Topology YANG Model?

➤ Bandwidth Augmentation

- unreserved-bandwidth
 - odu-type
 - odu-ts-number
 - fgotn-bandwidth

```
augment /nw:networks/nw:network/nt:link/tet:te
  /tet:te-link-attributes/tet:unreserved-bandwidth
  /tet:te-bandwidth/otnt:otn-bandwidth:
  +--rw fgotnlist* [odu-type odu-ts-number]
  +--rw odu-type          identityref
  +--rw odu-ts-number     uint16
  +--rw fgotn-bandwidth?  string
```

➤ Label Augmentation

- fgOTN label specific information needs to augment to the existing OTN label-restriction structure.

```
augment /nw:networks/tet:te/tet:templates/tet:link-template
  /tet:te-link-attributes/tet:label-restrictions
  /tet:label-restriction/otnt:otn-label-range:
  +--rw fgts-range* [odu-type odu-ts-number]
  +--rw odu-type          identityref
  +--rw odu-ts-number     string
  +--rw fgts-reserved?    string
  +--rw fgts-unreserved?  string
```

What to be Extended in OTN Tunnel YANG Model?

- We tend to define a new layer for fgOTN tunnel (a new odu-type is needed).
- Bandwidth augmentation for fgOTN tunnel

```
augment /te:te/te:tunnels/te:tunnel/te:te-bandwidth/te:technology
    /otn-tnl:otn:
    +--rw fgoduflex-bandwidth?   string
```

- FgOTN label (fgts-numbers) information is needed to augment to all the TE label-hop, including:
 - Explicit route objects included&excluded
 - LSP

Next Step

- More detailed design on the fgOTN models
- Evaluate how to add new identities for the encoding and switching-capability defined in [I-D.ccamp-teas-te-types-update].

- Call for interest

Github: <https://github.com/YuChaode/draft-tan-ccamp-fgotn-yang>

Weekly call will be applied after IETF120.

Thank You