YANG Model for OTN Topology

CCAMP WG, IETF 102, Montreal, Canada
draft-ietf-ccamp-otn-topo-yang-03

Haomian Zheng, Aihua Guo, Italo Busi (Huawei)
Anurag Sharma (Google)
Xufeng Liu (Jabil)
Sergio Belotti (Nokia)
Yunbin Xu (CAICT)
Lei Wang (China Mobile)
Oscar Gonzalez de Dios (Telefonica)

Contributors:
Baoquan Rao, Xian Zhang, Huub van Helvoort,
Victor Lopez, Yunbo Li, Dieter Beller, Yanlei Zheng
Summary of Changes (with -02)

• Text Changes:
  • Highlight the augmentation needed for OTN technology-specific model

• YANG model Changes:
  • Augment to the latest TE-topology model;
    – OTN specific attributes augmenting to TE topology models;
    – OTN specific TE bandwidth augmented to te-bandwidth;
    – OTN specific TE label augmented to te-label;
## YANG Augmentation Motivation

### Attributes Augmentation

```
module: ietf-otn-topology
augment /nw:networks/nw:network/nw:network-types/tet:te-topology:
  ++-rw otn-topology!
augment /nw:networks/nw:network/nt:link/tet:te/tet:te-link-attributes:
  ++-rw tsg?   identityref
  ++-rw distance?  uint32
augment /nw:networks/nw:network/nw:node/nt:termination-point/tet:te:
  ++-rw supported-payload-types* [index]
      |  ++-rw index    uint16
      |  ++-rw payload-type?  string
  ++-rw client-facing?  boolean
```

### Bandwidth Augmentation

```
++-:(otn)
  ++-rw odulist* [odu-type]
      ++-rw odu-type   identityref
      ++-rw number?    uint16
```

### Label Augmentation

#### For label-start/label-end;

```
++-:(otn)
  ++-rw (otn-label-type)?
      ++-:(tributary-port)
          |  ++-rw tpn?    uint16
      ++-:(tributary-slot)
          ++-rw ts?    uint16
```

#### For label-hop;

```
++-:(otn)
  ++-ro tpn?    uint16
  ++-ro tsg?    identityref
  ++-ro ts-list?    string
```

#### For label-restriction;

```
++-ro range-type?  identityref
++-ro tsg?    identityref
++-ro priority?  uint8
```
YANG Augmentation in the draft

- Attributes Augmentation is fine;
- Concerns with too many entries in te-bandwidth and te-label augmentation;

- The issue has been pro-actively discussed with netmod;
  - This draft is aligned with the outcome of that discussion;
  - This is consistent with the guidance in Section 6 of TE topology draft;

```
augment /nw:networks/nw:network/nw:node/tet:te
 /tet:tunnel-termination-point/tet:local-link-connectivities
 /tet:label/tet:label-hop/tet:te-label/tet:technology:
  +=(otn)
  ---- r o odulist* [odu-type]
  ---- r o odu-type identityref
  ---- r o number? uint16

augment /nw:networks/nw:network/nw:node/tet:te
 /tet:tunnel-termination-point/tet:client-layer-adaptation
 /tet:switching-capability/tet:te-bandwidth/tet:technology:
  +=(otn)
  ---- r o odulist* [odu-type]
  ---- r o odu-type identityref
  ---- r o number? uint16

augment /nw:networks/nw:network/nw:node/tet:te
 /tet:tunnel-termination-point/tet:local-link-connectivities
 /tet:path-constraints/tet:te-bandwidth/tet:technology:
  +=(otn)
  ---- r o odulist* [odu-type]
  ---- r o odu-type identityref
  ---- r o number? uint16
```

Next Step

• This work is technically stable;
  – Readability problem need to be discussed;

• Request for WG LC/YANG Doctor Review;

• Model available at:
YANG Model for OTN Tunnel

CCAMP WG, IETF 102, Montreal, Canada
draft-ietf-ccamp-otn-tunnel-model-03

Haomian Zheng, Aihua Guo, Italo Busi (Huawei)
Anurag Sharma (Google)
Rajan Rao (Infinera)
Sergio Belotti (Nokia)
Victor Lopez (Telefonica)
Yunbo Li (China Mobile)
Yunbin Xu (CAICT)

Contributors:
Dieter Beller, Yanlei Zheng, Xian Zhang,
Lei Wang, Oscar Gonzalez de Dios
Summary of Changes (with -01)

- **Text Changes:**
  - Simplify the introduction/overview to align with latest model;
  - Highlight the OTN-specific tunnel attributes and RPC;

- **YANG Model changes:**
  - Augment to the latest TE Tunnel model;
    - OTN client signal types augmenting to TE tunnel models;
    - OTN specific ODU types augmented to te-bandwidth;
    - OTN specific TE label augmented to te-label;
  - Updating RPC according to models;
  - Adding comments in ietf-otn-types.yang, as open issue;
YANG Augmentation Motivation

Attributes Augmentation

```yang
module: ietf-otn-tunnel
    augment /te:te/te:tunnels/te:tunnel:
        +--rw src-client-signal? identityref
        +--rw dst-client-signal? identityref
```

Bandwidth Augmentation

```yang
+--:(otn)
    +--rw odu-type? identityref
```

Label Augmentation

```yang
+--:(otn)
    +--rw (otn-label-type)?
        +--:(tributary-port)
            |   +--rw tpn? uint16
        +--:(tributary-slot)
            +--rw ts? uint16
```

For label-start & label-end;

```yang
+--:(otn)
    +--rw range-type? identityref
    +--rw tsg? identityref
    +--rw priority? uint8
```

For label-restriction;

```yang
+--ro tpn? uint16
+--ro tsg? identityref
+--ro ts-list? string
```

For label-hop in path-route-object
YANG Augmentation in the draft

- Attributes Augmentation is fine;
- Concerns with too many entries in te-bandwidth and te-label augmentation;

```
augment /te:te:globals/te:named-path-constraints
    /te:named-path-constraint/te:te-bandwidth/te:technology:
    +++:(otn)
        +++rw odu-type? identityref
    augment /te:te:tunnels/te:tunnel/te:te-bandwidth/te:technology:
    +++:(otn)
        +++rw odu-type? identityref
    augment /te:te:tunnels/te:tunnel/te:p2p-primary-paths
        /te:p2p-primary-path/te:te-bandwidth/te:technology:
        +++:(otn)
            +++rw odu-type? identityref
```

- The issue has been pro-actively discussed with netmod;
- This draft is aligned with the outcome of that discussion;
- Proposal: we wish to have same principle as te-topology for the tunnel augmentation;
Open Issue in ietf-otn-types.yang

• The authors agreed the following change:
  – Changing misleading term:
    – From ‘tributary-protocol-type’ to ‘odu-type’;
      
      ```
      identity tributary-protocol-type
      description
      "Base identity for protocol framing used by tributary signals";
      }
      ```
  – Reconsider the prefix ‘prot-’;
    • Remove all the ‘prot-OTUx’
    • Keep all the ‘prot-ODUX’, replaced with ‘ODUx’;
    • Remove all the ‘prot-xGbE’
  – Reconsider the prefix ‘client-signal’
    • Rename to better align with other works? E.g., L1csm;
    • Example: ‘client-signal-OC3_STM1’ changed to ‘STM-1’;
Next Step

• This work is technically stable;
  – May need further update per change of TE tunnel model;
  – Need to be further aligned with draft-ietf-teas-yang-path-computation;

• Request for Yang Doctor Review;
• Expected to request WG LC in next IETF;
Thank you!