A YANG Data Model for WDM Tunnels

draft-ietf-ccamp-wdm-tunnel-yang-03

Co-authors:

Aihua Guo (Futurewei)

Sergio Belotti (Nokia)

G. Galimberti (Individual)

J.E.L.d.V. Mendez (Naudit HPCN)

D.P. Burrero (Universidad Autonoma de Madrid)

Contributors:

Daniel King (Olddog Consulting)

Haomian Zheng (Huawei)

Italo Busi (Huawei)

Victor Lopez (Nokia)

Contributors:

Dieter Beller (Nokia)

Ricard Vilalta (CTTC)

Young Lee (Samsung)

Bin Yeong Yoon (ETRI)

Daniel Michaud Vallinoto (Universidad Autonoma de Madrid)

Zafar Ali (Cisco)

Esther Le Rouzic (Orange)

Julien Meuric (Orange)

Gert Grammel (Juniper)

Roberto Manzotti (Cisco)

Summary of Updates in -03

- YANG model updates
  - Updated transceiver modelling to align with the regen-group definition in draft-ietf-ccamp-optical-impairment-topology-yang
    - Separate container for source, destination and regen transceivers specification in a WDM tunnel path
    - Reference the regen-group-id discovered by optical impairment topology
- No updates on draft text

Transceiver Modelling

```
+--rw (node-position)?
   +--:(source)
   |  +--rw source-transceiver
   |     +--rw transponder-id?   uint32
   |     +--rw transceivers* [transceiver-id]
   |        +--rw transceiver-id                uint32
   |        +--rw otsi-carrier-id?              uint16
   |        +--rw operational-modes*            string
   |        +--rw otsi-carrier-frequency?
   |        |       l0-types:frequency-thz
   |        +--rw tx-tune-constraints
   |        |  +--rw min-central-frequency?    frequency-thz
   |        |  +--rw max-central-frequency?    frequency-thz
   |        |  +--rw transceiver-tunability?   frequency-ghz
   |        +--rw line-coding-bitrate*          identityref
   |        +--rw tx-channel-power?
   |        |       l0-types:power-dbm
   |        +--rw preferred-rx-channel-power?
   |        |       l0-types:power-dbm
   |        +--rw gsnr-extra-margin?            snr
   +--:(destination)
   |  +--rw destination-transceiver
   |     +--rw transponder-id?   uint32
   |     +--rw transceivers* [transceiver-id]
   |        +--rw transceiver-id                uint32
   |        +--rw otsi-carrier-id?              uint16
   |        +--rw operational-modes*            string
   |        +--rw otsi-carrier-frequency?
   |        |       l0-types:frequency-thz
   |        +--rw tx-tune-constraints
   |        |  +--rw min-central-frequency?    frequency-thz
   |        |  +--rw max-central-frequency?    frequency-thz
   |        |  +--rw transceiver-tunability?   frequency-ghz
   |        +--rw line-coding-bitrate*          identityref
   |        +--rw tx-channel-power?
   |        |       l0-types:power-dbm
   |        +--rw preferred-rx-channel-power?
   |        |       l0-types:power-dbm
   |        +--rw gsnr-extra-margin?            snr
```

```
+--:(transit)
      +--rw regen-transceivers
         +--rw regen-group-id?         uint32
         +--rw incoming-transceiver
         |  +--rw transponder-id?   uint32
         |  +--rw transceivers* [transceiver-id]
         |     +--rw transceiver-id                uint32
         |     +--rw otsi-carrier-id?              uint16
         |     +--rw operational-modes*            string
         |     +--rw otsi-carrier-frequency?
         |     |       l0-types:frequency-thz
         |     +--rw tx-tune-constraints
         |     |  +--rw min-central-frequency?    frequency-thz
         |     |  +--rw max-central-frequency?    frequency-thz
         |     |  +--rw transceiver-tunability?   frequency-ghz
         |     +--rw line-coding-bitrate*          identityref
         |     +--rw tx-channel-power?
         |     |       l0-types:power-dbm
         |     +--rw preferred-rx-channel-power?
         |     |       l0-types:power-dbm
         |     +--rw gsnr-extra-margin?            snr
         +--rw outgoing-transceiver
            +--rw transponder-id?   uint32
            +--rw transceivers* [transceiver-id]
               +--rw transceiver-id                uint32
               +--rw otsi-carrier-id?              uint16
               +--rw operational-modes*            string
               +--rw otsi-carrier-frequency?
               |       l0-types:frequency-thz
               +--rw tx-tune-constraints
               |  +--rw min-central-frequency?    frequency-thz
               |  +--rw max-central-frequency?    frequency-thz
               |  +--rw transceiver-tunability?   frequency-ghz
               +--rw line-coding-bitrate*          identityref
               +--rw tx-channel-power?
               |       l0-types:power-dbm
               +--rw preferred-rx-channel-power?
               |       l0-types:power-dbm
               +--rw gsnr-extra-margin?            snr
```

Open Issues

- Draft text needs further refinement to describe e.g. the steps for WDM tunnel provisioning and maintenance, and to align with the YANG model changes

- Possible impact from L0/L1 boundary issue discussion
  - May need additional parameter to describe the type of digital termination for client signals (ETH, OTN, Flex-O etc.)
  - May need additional parameter on multiplexing types to support non-default configuration for mux-ponders
    - Support for muxponder interoperability with the same multiplexing type
  - May need additional parameter on the level of regen signal handling for non-default regen configuration
    - default is always to regen signals at the lowest level

- Gap analysis on the pluggables modelling may lead to additional parameter definitions

Next Steps and Actions

- Address the open issues
- Align WDM path computation with the modeling changes in this draft
  - Reuse the same grouping
- Seek feedbacks from the WG

Weekly team meeting:

Thursday, 14:00 (CET)

CCAMP WebEx Details

https://ietf.webex.com/ietf/j.php?MTID=ma1ca3bcec716fe1ff93e0a28b3558294

Join by meeting number

Meeting number (access code): 2422 698 1495

Meeting password: 6UbM2tEJJd6

Thank you!