YANG Model for OTN Topology

draft-ietf-ccamp-otn-topo-yang-02

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Summary of Changes

• Added clarification about interface-independency
  • The applicability of models to interfaces is described in draft-zhang-teas-actn-yang

• For YANG model
  • Removed “name” attributes in network and node as they are covered by TE topology model
  • Removed client-facing-related attributes in LTP
    Client adaptation can be handled by “client-layer-adaptation” in TTP of TE topology model
  • Added “tpn-range”, “ts-range”, and “tsg” to link attribute for multi-domain scenario
Added tpn-range/ts-range/tsg Attributes

• In the context of ACTN, MDSC needs to configure the inter-domain links
  • Information of inter-domain link is needed
YANG Tree

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 available-odu-info* [priority]
    |   +++rw priority     uint8
    |   +++rw odulist* [odu-type]
    |     |   +++rw odu-type    identityref
    |     |   +++rw number?     uint16
    |     |     |   +++rw tpn-range? string
    |     |   +++rw ts-range?   string
  +++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

Covered by “unreserved-bandwidth” in TE topology model, to be removed
Next Step/Discussion

- Remove the attributes covered by TE topology
- Report the multiplexing hierarchy of inter-domain links?
YANG Model for OTN Tunnel
draft-ietf-ccamp-otn-tunnel-model-01

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Summary of Changes

• Aligned with TE tunnel model (NMDA-compliant)
• Added an RPC for path computing
• Renamed “ietf-transport-types” module to “ietf-otn-types”
module: ietf-otn-tunnel
augment /te:te/te:tunnels/te:tunnel:
    ---rw payload-treatment? enumeration
    ---rw src-client-signal? identityref
    ---rw src-tpn?          uint16
    ---rw src-tsg?          identityref
    ---rw src-tributary-slot-count? uint16
    ---rw src-tributary-slots
        |   ---rw values*    uint8
    ---rw dst-client-signal? identityref
    ---rw dst-tpn?          uint16
    ---rw dst-tsg?          identityref
    ---rw dst-tributary-slot-count? uint16
    ---rw dst-tributary-slots
        |   ---rw values*    uint8
RPC: otn-te-tunnel-path-compute

- **Input**
  - General input for a request
  - Constraints for each path
  - Label constraints for each end of a request

- **Output** returns the computed paths

- Some attributes are covered in path computation draft
  - To align with the path computation draft
Input: General Input

---x otn-te-tunnel-path-compute
  +---w input
  |   +---w request* [id]
  |      |   +---w id uint8
  |      |   +---w type? identityref
  |      |   +---w source? inet:ip-address
  |      |   +---w destination? inet:ip-address
  |      |   +---w src-tp-id? binary
  |      |   +---w dst-tp-id? binary
  |      |   +---w switching-layer? identityref
  |      |   +---w encoding? identityref
  |      |   +---w protection-type? identityref
  |      |   +---w restoration-type? identityref
  |      |   +---w provider-id? te-types:te-global-id
  |      |   +---w client-id? te-types:te-global-id
  |      |   +---w te-topology-id? te-types:te-topology-id
  |      |   +---w setup-priority? uint8
  |      |   +---w hold-priority? uint8
  |      |   +---w te-path-metric-type? identityref
  |      |   +---w odu-type? identityref
  |      ....

Next step: align with the path computation draft
Input: Path Constraints

---x otn-te-tunnel-path-compute
  +---w input
  |   +---w request* [id]
  |      +---w p2p-primary-paths
  |             +---w p2p-primary-path* [name]
  |                +---w name string
  |                +---w te-default-metric? uint32
  |                +---w te-delay-metric? uint32
  |                +---w te-hop-metric? uint32
  |                +---w explicit-route-objects
  |                   +---w explicit-route-object* [index]
  |                       +---w explicit-route-usage? identityref
  |                       +---w index uint32
  |                       +---w (type)?
  |                          +---:(numbered)
  |                                         +---w numbered-hop
  |                                                             +---w address? te-types:te-tp-id
  |                                                                 +---w hop-type? te-hop-type
  |                          +---:(as-number)
  |                                         +---w as-number-hop
  |                                                             +---w as-number? binary
  |                                                                 +---w hop-type? te-hop-type
  |                          +---:(unnumbered)
  |                                         +---w unnumbered-hop
  |                                                             +---w node-id? te-types:te-node-id
  |                                                                 +---w link-tp-id? te-types:te-tp-id
  |                                                                 +---w hop-type? te-hop-type
  |                          +---:(label)
  |                                         +---w label-hop
  |                                                             +---w value? rt-types:generalized-label
  |                          +---:(sid)
  |                                         +---w sid-hop
  |                                                             +---w sid? rt-types:generalized-label
  +---w p2p-secondary-paths
     +---w p2p-secondary-path* [name]

Covered by path computation draft
Input: Label Constraints

- For multi-domain connection, TPN value and TS usage can be specified for the end of a tunnel
---ro output
  ---ro return-code?   enumeration
  ---ro result* [id]
    ---ro id           uint8
  ---ro p2p-primary-paths
    ---ro p2p-primary-path* [name]
      ---ro name       string
      ---ro te-default-metric?   uint32
      ---ro te-delay-metric?    uint32
      ---ro te-hop-metric?      uint32
    ---ro explicit-route-objects
      ---ro explicit-route-object* [index]
        ---ro explicit-route-usage? identityref
        ---ro index         uint32
        ---ro (type)?
          ---:(numbered)
            ---ro numbered-hop
              ---ro address?    te-types:te-tp-id
              ---ro hop-type?   te-hop-type
          ---:(as-number)
            ---ro as-number-hop
              ---ro as-number?  binary
              ---ro hop-type?   te-hop-type
          ---:(unnumbered)
            ---ro unnumbered-hop
              ---ro node-id?    te-types:te-node-id
              ---ro link-tp-id?  te-types:te-tp-id
              ---ro hop-type?    te-hop-type
          ---:(label)
            ---ro label-hop
              ---ro value?      rt-types:generalized-label
          ---:(sid)
            ---ro sid-hop
              ---ro sid?        rt-types:generalized-label
    ---ro p2p-secondary-paths
      ......
Next Step

• Align with the path computation draft
• Any comments are welcome
Thank you!