YANG Data Models for TE and RSVP

draft-ietf-teas-yang-te-03
draft-ietf-teas-yang-rsvp-03

https://github.com/ietf-mpls-yang/te

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Agenda

• Updates (from previous version)
• Open issues
• Next steps
Update # 1
Regrouping of TE generic model

• Issue - TE generic model need to contain no device specific data
  – The TE generic model may be deployed to model data outside the scope of a device (e.g. TE SDN controller, PCE)
  – TE generic model covers data
    • Global scoped: e.g. tunnels, LSPs
    • device scoped: e.g. TE interfaces properties, device timers, device local policies, etc.
  – Ideally maximize reusability of existing TE generic model

• Resolution -
  – Regroup and extract device-specific data into separate module that augments the TE generic model
TE device data YANG model

```yang
module: ietf-te-device
augment /ietf-te:te:
  +--rw interfaces
    +--rw config
      | +--rw flood-thresholds
      +--rw interface* [interface]
        +--rw interface if:interface-ref
        +--rw config
          | +--rw te-metric?
          | | +--:(value-admin-groups)
          ..
          | | +--:(named-admin-groups)
          | | +--rw (admin-group-type)?
          | | | +--:(value-srlgs)
          ..
          | | +--:(named-srlgs)
        ...
        +--ro te-advertisements_state
          +--ro flood-interval?
          +--ro last-flooded-time?
          +--ro next-flooded-time?
          +--ro last-flooded-trigger?
          +--ro advertised-level-areas*
            + ro level-area uint32
```

```yang
module: ietf-te-device
augment /ietf-te:te:/ietf-te:globals/ietf-te:config:
  +--rw lsp-install-interval? uint32
  +--rw lsp-cleanup-interval? uint32
augment /ietf-te:te:/ietf-te:globals/ietf-te:state:
  +--ro lsp-install-interval? uint32
  +--ro lsp-cleanup-interval? uint32
  +--ro tunnels-counter? uint32
  +--ro lsps-counter? uint32
  +--ro lsp-timers
    | +--ro life-time? uint32
    | +--ro time-to-install? uint32
    | +--ro time-to-die? uint32
    +--ro downstream-info
      | +--ro nhop? inet:ip-address
      | +--ro outgoing-interface? if:interface-ref
      | +--ro neighbor? inet:ip-address
      | +--ro label? uint32
    +--ro upstream-info
      +--ro phop? inet:ip-address
      +--ro neighbor? inet:ip-address
      +--ro label? uint32
```

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Update # 2
Reuse of TE model for different TE technologies

• Issue – Reuse of the TE model for multiple technologies
  – TE model defined at the root TOP
  – Natural way for technology specific data to reside below the technology, e.g. .../mpls/te/.., or .../otn/te/... etc.
  – Reuse the same TE model and only augment with specific technology data (if needed)
  – YANG language currently does not allow attaching same YANG model in multiple places of the YANG tree

• Resolution - OPEN
  – Several proposals to extend this capability to YANG, e.g. using “mounts”
Update # 3
General edits to TE/RSVP data models

- **Issue** – Need to reflect the actual LSP path independent of the signaling protocol (e.g. RSVP-TE)
  - though present in the RSVP-TE model, some applications (e.g. controller) may use other signaling protocols to establish LSP
- Resolution - Add RECORD-ROUTE list in TE generic LSP state data

- **Issue** – Support for tunnel termination point identification
  - LSPs endpoint identified by destination node-identifier (or router ID) or TE interface
  - For some TE technologies LSPs originate/terminate on a specific port within a node – identified by termination point ID
  - Further discussion in update for “draft-ietf-teas-yang-te-topo”

  - Resolution – Added source/destination Tunnel Termination Point identifier in TE general model

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Update # 4
Minor edits/changes

• Added new module ietf-te-mpls.yang
  • Contains packet/mpls TE data
• Renamed “psc” to “mpls” in module names and data node names
  • PSC may (for some) be confused with other acronyms
  • More consistent with other mpls technology protocols (e.g. LDP and SR mpls)
TE/RSVP and MPLS YANG Modules
Structure and Relationship

ietf-te-device.yang

ietf-rsvp.yang

ietf-te-rsvp-ext.yang

ietf-te-rsvp-mpls.yang

ietf-te.yang

ietf-te-spring.yang

ietf-te-spring-mpls.yang

ietf-mpls-base.yang

+------------------------+               +------------------------+
| ietf-te.yang            |               | mount                  |
|                         |               |                        |
+------------------------+               +------------------------+

- augment
- To be defined
- Defined
- YANG module

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Open Issues

1. Close on mechanism to mount the TE generic model for specific technology
   – May require adding new target “mount” node(s) in each technology module that TE generic model hangs from
Next Steps

• Request further review and address comments

• Conclude on open issues

• Complete the augmenting modules for:
  1. PCC-TE data
  2. SR-TE data
Thank You