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

```
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?
         |  +--rw (admin-group-type)?
         |  |  +--:(value-admin-groups)
..
         |  |  +--:(named-admin-groups)
         |  +--rw (srlg-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 advertized-level-areas*
```

```
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
augment /ietf-te:te/ietf-te:lsps-state/ietf-te:lsp:
   +--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
```

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

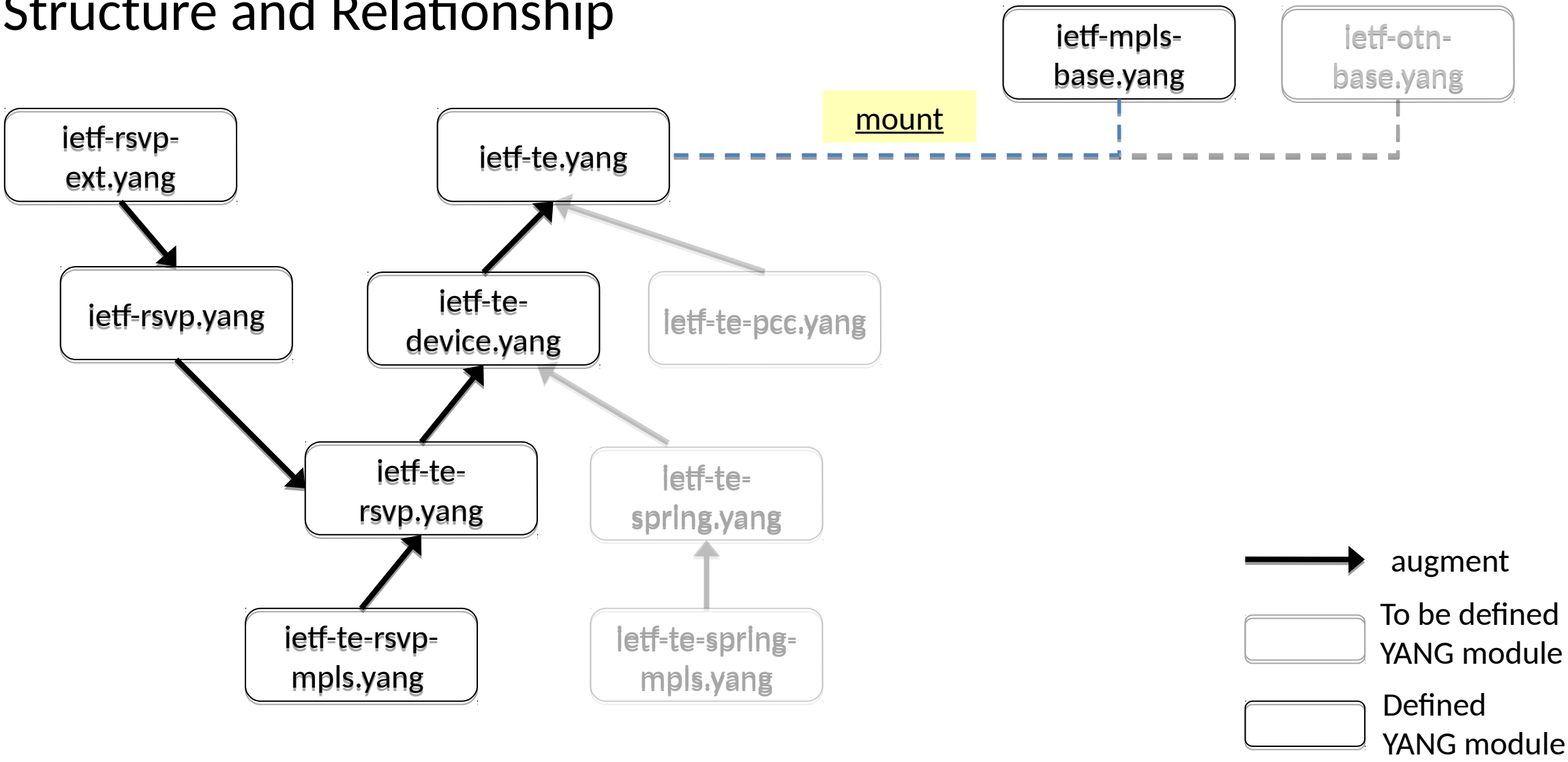
- **Issue** – Need to reflect the actual LSP path independent of the signaling protocol (e.g. RSVP-TE)
  - though present in the RSVP-TE model, some applications (e.g. controller) may use other signaling protocols to establish LSP
- Resolution - Add RECORD-ROUTE list in TE generic LSP state data
- **Issue**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

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



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
2. Issue: schema-mount does not allow referencing outside the “mount” sandbox
   - Some leafrefs in the TE generic model referencing the global tree (e.g. interface list in interface module)

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