YANG Data Models for TE and RSVP

draft-ietf-teas-yang-te-06

draft-ietf-teas-yang-rsvp-07

draft-ietf-teas-yang-rsvp-te-00

draft-ietf-mpls-base-yang-04

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

Tarek Saad (Presenter) and Rakesh Gandhi, Cisco Systems

Vishnu Pavan Beeram, Juniper Networks

Xufeng Liu, Jabil

Igor Bryskin, Huawei

Himanshu Shah, Ciena

IETF-98, Mar 2017, Chicago

Agenda

- Updates to I-Ds (since IETF97)
- Next steps

I-D: draft-ietf-teas-yang-te-06

Summary of Changes

- Credits:
  - Thanks to Sergio Belotti and Italo Busi et. al for discussions and providing review comments
  - Thanks to multi-vendor team for continued discussions during meetings
- High-level model changes:
  - further alignment of names/types with OC-MPLS models
  - Added new leafs under TE tunnel container
  - Replaced types by newly defined routing types where necessary
  - Introduced path-signaling-type per tunnel and per path
  - Added new leafs under named-path-constraints (exclude/include ERO list)
  - Made modification to explicit-route-object

Next Steps

- Complete definition of tunnel RPCs
- Request further review and address comments

I-D: draft-ietf-teas-yang-rsvp-07

I-D: draft-ietf-teas-yang-rsvp-te-00

I-D: draft-ietf-teas-yang-rsvp-te-mpls-00

Summary of Changes

- Document reorganization:
  - Split the modules into new documents:
  - draft-ietf-teas-yang-rsvp: contains RSVP base and RSVP extended YANG module definition
  - draft-ietf-teas-yang-rsvp-te: contains RSVP-TE generic YANG module definition
  - draft-ietf-teas-yang-rsvp-te-mpls: contains RSVP-TE MPLS YANG module definition
- Model changes
  - Added parameters in RSVP sessions
  - Added parameters in RSVP neighbor
  - Added a leafref in TE model from LSP to RSVP session
  - Integrated with changes in key-chain model

Next Steps

- RSVP base/extended in I-D: draft-ietf-teas-yang-rsvp model is stable and ready for WGLC
- We request further review from WG and welcome comments

I-D: draft-ietf-mpls-base-04

Summary of Changes

- Modelled additional parameters in MPLS base model
- MPLS augmentation to IETF routing YANG model for IP routes (AF=IPv4/IPv6)
- MPLS augmentation to IETF routing YANG for (non-IP) “MPLS” routes

Update # 1 < draft-ietf-mpls-base-04>

Additional MPLS base parameters

```
rw mpls:mpls
+--rw mpls:config
|  +--rw mpls:ttl-propagate?   boolean
+--ro mpls:state
|  +--ro mpls:ttl-propagate?   boolean
+--rw mpls:label-blocks
|  +--rw mpls:label-block* [index]
|     +--rw mpls:index          -> ../config/index
|     +--rw mpls:start-label?   -> ../config/start-label
|     +--rw mpls:end-label?     -> ../config/end-label
|     +--rw mpls:config
|     |  +--rw mpls:index?                  string
|     |  +--rw mpls:start-label?            rt-types:mpls-label
|     |  +--rw mpls:end-label?              rt-types:mpls-label
|     |  +--rw mpls:block-allocation-mode?  identityref
|     +--ro mpls:state
|        +--ro mpls:index?                  string
|        +--ro mpls:start-label?            rt-types:mpls-label
|        +--ro mpls:end-label?              rt-types:mpls-label
|        +--ro mpls:block-allocation-mode?  identityref
|        +--ro mpls:free-labels-count?      uint32
|        +--ro mpls:inuse-labels-count?     uint32
```

- Changes to use rt-types
- Add TTL-propagate leaf
- Add support for MPLS label blocks

Update # 2 < draft-ietf-mpls-base-04>

Augmentation to RIB for MPLS routes

```
+--ro ribs
  +--ro rib* [name]
     +--ro name              string
     +--ro address-family    identityref
     +--ro default-rib?      boolean {multiple-ribs}?
     +--ro routes
     |  +--ro route*
     |     +--ro route-preference?         route-preference
     |     +--ro next-hop
     |     |  +--ro (next-hop-options)
     |     |     +--:(simple-next-hop)
     |     |     |  +--ro outgoing-interface?     if:interface-state-ref
     |     |     |  +--ro mpls:remote-labels*     rt-types:mpls-label
     |     |     |  +--ro v4ur:next-hop-address?  inet:ipv4-address
     |     |     +--:(special-next-hop)
     |     |     |  +--ro special-next-hop?       enumeration
     |     |     +--:(next-hop-list)
     |     |        +--ro next-hop-list
     |     |           +--ro next-hop*
     |     |              +--ro outgoing-interface?   if:interface-state-ref
     |     |              +--ro mpls:index?           string
     |     |              +--ro mpls:backup-index?    string
     |     |              +--ro mpls:loadshare?       uint16
     |     |              +--ro mpls:role?            nhlfe-role
     |     |              +--ro mpls:remote-labels*   rt-types:mpls-label
     |     |              +--ro v4ur:address?         inet:ipv4-address
     |     +--ro source-protocol           identityref
     |     +--ro active?                   empty
     |     +--ro last-updated?             yang:date-and-time
     |     +--ro mpls:local-label?         rt-types:mpls-label
     |     +--ro v4ur:destination-prefix?  inet:ipv4-prefix
```

- Augmentation show IPv4-RIB augmentation for AF IPv4 prefixes
- Types of routes:
  - IP routes – identified by IP destination prefixes
  - MPLS routes – identified by application FECs, e.g
    - per-VRF label
    - per-CE label
    - etc.

Next Steps

- MPLS base I-D:<draft-ietf-mpls-base> is stable and ready for WGLC
- We request further review from WG and welcome comments

Thank You

TE/RSVP and MPLS YANG Modules

Structure and Relationship