YANG Data Models for TE and RSVP

draft-ietf-teas-yang-te-02
draft-ietf-teas-yang-rsvp-02

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IETF-94, November 2015, Yokohama
Agenda

• Updates (from previous version)
• Open issues
• Next steps
Progress Update

• Weekly team meetings continued since IETF91
• Periodic sync-up meetings with Open-Config MPLS consolidated team
• Latest model at: https://github.com/ietf-mpls-yang/te
Update # 1
Regrouping into base and extended modules

• Base RSVP module:
  - contains core functionality needed to operate RSVP
  - avoids using “if-feature” – contains minimal set that must be supported
  - contains minimal elements per function – e.g. “enable” leaf to turn “on”/”off” functionality
  - defaults for “enable” are not explicitly set - left to vendor implementation

• Extended RSVP module:
  - Augments basic module to add more elements to control RSVP core features
  - Optional – operator may chose not to set such properties
  - Can use “if-feature” to control augmentation
Update # 2
Reusing TE Groupings by PCE Model

• PCE YANG model can benefit from reusing TE model defined tunnels/LSPs groupings
  − Issue: existing groupings for Tunnels/LSPs contains
    • device specific properties (e.g. incoming/outgoing interface)
    • Off the router model can not reference device specific properties
  − Solution: separate (non) device specific properties
    • PCE model can reference LSPs/tunnels state in the device module
    • TE model augments the additional device specific properties
Update # 3
RSVP augments IETF routing

• Similar to other protocols (e.g. OSPF), RSVP augments the IETF routing path:

```yaml
module: ietf-rsvp
augment /rt:routing/rt:routing-instance/rt:routing-protocols/rt:routing-protocol:
  +--rw rsvp!
  +--rw globals
```

• Allows RSVP protocol in per routing instance
Update # 4
Ephemeral Tunnel/LSP states

• Ephemeral tunnel States

module: ietf-te
+-rw te!
...+-rw tunnels
  +-rw tunnel
    +-rw config
      <<intended configuration>>
    +-ro state
      <<applied configuration>>
      <<derived state>>

• Ephemeral LSPs (protocol derived)

module: ietf-te
+- rw te!
...+-ro lsps-state
    <<ephemeral LSPs>>
Open Issue # 1
Enabling RSVP Interface (Possible Options)

1. augment IETF routing interface list
   - enables RSVP for layer-3 interfaces of that specific routing instance
   - **Issue**: RSVP-TE LSP may span interfaces residing in multiple routing instances
   - RSVP state may have to cross routing instance boundary

2. augment IETF interfaces list
   - RSVP augmentation visible on all types of interface
   - can limit augmentation on IP-enabled interfaces only (“when” check)

3. augment IETF MPLS interfaces list
   - applicable to MPLS technology
   - RSVP can be enabled on interfaces that have MPLS pre-enabled

4. create separate RSVP interface list
   - RSVP model has its own list of interfaces (referencing IETF interface list)
Open Issue # 2
Enabling MPLS on MPLS RSVP-TE interface

• Explicit 2-step approach:
  – operator enables MPLS on interface (using ietf-mpls-base)
  – operator enables MPLS RSVP-TE (e.g. using ietf-rsvp-psc.yang)
    • add “must” check to ensure MPLS is previously enabled on interface
    • applicable to MPLS LDP too

• Implicit 1-step approach:
  – Implicitly enable MPLS whenever MPLS RSVP-TE and/or MPLS LDP is enabled on interface
TE/RSVP and MPLS YANG Modules
Structure and Relationship

- ietf-te.yang
- ietf-te-rsvp.yang
- ietf-rsvp.yang
- ietf-te-spring.yang
- ietf-te-rsvp-mpls.yang
- ietf-mpls-base.yang
- ietf-mpls-static.yang
- ietf-te-spring-mpls.yang

Diagram:

- ietf-rsvp-extended.yang
- ietf-te.yang
- ietf-te-rsvp.yang
- ietf-te-spring.yang

Legend:
- augment
- import
- submodule
- module
Next Steps

• Converge on the open issues
• Complete outstanding rpcs/notifications
• Define Segment Routing TE augmentation to TE generic model
Thank You