Traffic Engineering and Service Mapping Yang Model

draft-lee-teas-te-service-mapping-yang-01

Young Lee, Huawei
Dhruv Dhody, Huawei
Daniele Ceccarelli, Ericsson
Overview

- A YANG data model to map service model (e.g. L3SM) and Traffic Engineering model (e.g. TE Tunnel or ACTN VN model).
  - A TE service Mapping Model.
- A seamless control and management of VPN with TE tunnel.
  - Dynamic TE tunnel creation for VPN service
    - Create and bind tunnels to VPN (network slicing)
    - Creation of tunnels only when no suitable tunnel exist
  - Tunnel Selection
- Consistent with 2 core functions of ACTN MDSC
  - Customer mapping/translation function
  - Virtual service coordination function
- The scope of this document is limited to a set of domains under the same network operator to deliver services requiring TE tunnels.
Sample Flow

1. Create a L3VPN between CE1, CE2
   - with a new VN/TE-tunnel creation and binding
2. MDSC creates a new VN dynamically
3. MDSC coordinates with IP/MPLS PNC and Transport PNC
   - Create E2E PE-PE tunnels over the underlay transport
4. MDSC needs to pass VPN information to the IP/MPLS PNC
5. IP/MPLS PNC creates VRF instances on PE
   - Tunnel binding between VPN and TE-tunnel
Mode of Operations (Updated)

- **VN/Tunnel Selection**
  - Customer could request an L3VPN service [L3SM-Yang],
    - The network elements (PE/ASBR) are configured to deliver the service.
    - Each of them would select a tunnel based on the configuration.
    - With this mode, new tunnels (or VN) are not created for each VPN.
  - Thus, the tunnels can be shared across multiple VPN.
  - The mapping yang model is used to get the mapping between the L3VPN and the tunnels in use.
  - No change to any tunnels is possible, need to reuse existing tunnels.

- **VN/Tunnel Binding**
  - Use VPN service model [L3SM-Yang] to deliver a L3VPN service.
  - Based on the sites, QoS, Isolation requirement, etc., the network operator could create a new VN via [ACTN-VN-YANG].
  - The mapping yang model is used to set the mapping between the L3VPN service and the TE tunnels/VN.
    - This could be done dynamically.
  - The VN (and TE tunnels) could be bound to the L3VPN and not used for any other VPN.

- **Other Modes/Policy (added in text)**
  - Change to existing tunnels are possible, but
    - Only the bandwidth of the existing tunnels can be increased.
    - Optical Transport tunnels could not be changed; Change only in the IP/MPLS layer.
    - Optical Transport tunnels can be added on the fly.
  - A new VN/tunnels are setup and bound to the service.
    - New tunnels in IP/MPLS, that can reuse optical transport tunnels.
    - New tunnels in both layer.
TE-Service Mapping Model

- The role of TE-service Mapping model is to create a mapping relationship between -
  - Services – L3SM, L2SM etc
  - TE – TE Tunnel, ACTN VN
- This TE-service mapping model is needed to bind L3VPN, L2VPN specific service model with TE-specific parameters.
- This binding will facilitate a seamless service operation with underlay-TE network visibility.
Yang Model

- Service Mapping
  - L3SM or L2SM
  - ACTN VN or Tunnel List

- Site Mapping
  - VPN Site
  - ACTN AP or TE Endpoints
Next Step

- Continue to enhance the model...Comments are welcomed!
- Ask for WG adoption!
Thank you.