TE-Service Mapping Model

• The role of TE-service Mapping model is to create a mapping relationship between -
  • Services – L3SM, L2SM, L1CSM, 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.
Example – Config (L3SM)

1) Customer configures the L3VPN service using the L3SM model with new VN created and binded

Diagram:
- **L3SM**
- **TE-service mapping**
- **ACTN VN**
- **MDSC**
- **PNC**
Example – Config (L3SM)

1) Customer configures the L3VPN service using the L3SM model with new VN created and binded

2) MDSC auto-instantiate the VN based on the end-point information in the service model
Example – Config (L3SM)

1) Customer configures the L3VPN service using the L3SM model with new VN created and binded

2) MDSC auto-instantiate the VN based on the end-point information in the service model

3) Also add a mapping

L3SM → TE-service mapping → ACTN VN

MDSC

PNC

PNC
Example – Operational (L3SM)

Customer finds the VN that maps with the L3SM service
Example – Operational (L3SM)

Customer gets the VN operational state of each VN-member

MDSC

L3SM

TE-service mapping

ACTN VN

PNC

PNC
Example – Config (L1SM)

1) Customer configures or pre-negotiate the customer’s VN topology

MDSC

L1SM

TE-service mapping

ACTN VN

TE Topo

PNC

PNC
Example – Config (L1SM)

1) Customer configures or pre-negotiate the customer’s VN topology

2) Customer configures the L1SM end-points

- L1SM
- TE-service mapping
- ACTN VN
- TE Topo

MDSC

- PNC
- PNC
Example – Config (L1SM)

1) Customer configures or pre-negotiate the customer’s VN topology

2) Customer configures the L1SM end-points

3) Customer configures the VNS Type 2 (VN Topology) – VN member paths

MDSC

L1SM

TE-service mapping

ACTN VN

TE Topo

PNC

PNC
Example – Config (L1SM)

1) Customer configures or pre-negotiate the customer’s VN topology

2) Customer configures the L1SM end-points

3) Customer configures the VNS Type 2 (VN Topology) – VN member paths

4) Customer also map between L1SM and ACTN VN

- L1SM
- TE-service mapping
- ACTN VN
- TE Topo

MDSC

PNC

PNC
Updates since the last version.

• The scope of this document is limited to a set of domains under the same network operator to deliver services requiring TE tunnels.
• Added L1CSM mapping to TE.
• Expanded the Mode of Operation (next page)
Mode of Operations

**New VN/Tunnel Binding**
- Customer could request an L3VPN service [L3SM-YANG] with a new VN/Tunnel not shared with other existing services.
- This is to meet VPN isolation requirement.
- Note that this could be done dynamically.

**VN/Tunnel Selection**
- Customer could request an L3VPN service [L3SM-Yang], new tunnels (or VN) are not created for each VPN. Thus, the tunnels can be shared across multiple VPN.
- Further the mapping yang model described in Section 5 of this document is used to get the mapping between the L3VPN and the tunnels in use.
- No modification is allowed when an existing tunnel is selected.

**VN/Tunnel Modify**
- This mode allows the modification of the properties of the existing VN/tunnel (e.g., bandwidth) when VN/Tunnel Selection Mode is applied.

Other modes of operation can be added once identified.
Sample Flow

- TE-Mapping model provides mapping between service and VN
- VN model provides the abstract provider view to the customer!
Yang Model

• Service Mapping
  • L3SM, L2SM, L1CSM
  • ACTN VN or Tunnel List

• Site Mapping
  • VPN Site
  • ACTN AP or TE Endpoints

module: ietf-te-service-mapping
  +--rw te-service-mapping
    +--rw service-mapping
      |  +--rw mapping-list* [map-id]
      |     +--rw map-id uint32
      |     +--rw map-type? map-type
      |     +--rw (service)?
      |        +--: (l3vpn)
      |           |     +--: (l2vpn)
      |           |        |     +--: (l1vpn)
      |           |        |            |     +--rw 11vpn-ref?  -> /l1:l1cs/service/service-list/subscriber-l1vc-id
      |           |        |            |     +--rw (te)?
      |           |        |            |        +--: (actn-vn)
      |           |        |            |        |     +--rw actn-vn-ref?  -> /vn:actn/vn/vn-list/vn-id
      |           |        |            |        +--: (te)
      |           |        |            |     +--rw te-tunnel-list*  te:tunnel-ref
      +--rw site-mapping
        +--rw mapping-list* [map-id]
          +--rw map-id uint32
          +--rw (service)?
            +--: (l3vpn)
            |     +--rw 13vpn-ref?  -> /l3:l3vpn-svc/sites/site/site-id
            +--: (l2vpn)
            |     +--rw 12vpn-ref?  -> /l2:l2vpn-svc/sites/site/site-id
            +--: (l1vpn)
            |     +--rw 11vpn-ref?  -> /l1:l1cs/access/uni-list/UNI-ID
            +--rw (te)?
              +--: (actn-vn)
              |     +--rw actn-vn-ref?  -> /vn:actn/ap/access-point-list/access-point-id
              +--: (te)
Next Step

• The authors believe that this draft is a good base for WG adoption.
Thank you!