A Yang Data Model for L1 Connectivity Service Model (L1CSM)

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Purpose of this draft

• [RFC4847] provides a framework and service level requirements for Layer 1 Virtual Private Networks (L1VPNs).

• This draft provides a YANG data model for L1VPN Connectivity Service Model (L1CSM) in the context of L1VPN [RFC4847].
Deployment Scenario 1: L1VPN for External Customer

- Deployment scenario of the L1VPN SDN control-based service model for an external customer instantiating L1 point-to-point connectivity to the provider.
- With this scenario, the customer service orchestrator interfaces with the network SDN controller of the provider using Customer Service Model.
Deployment Scenario 2: Multi-Service Backbone for Internal Customers

- Deployment scenario for internal customer (e.g., higher-layer service management department(s)) interfacing the layer 1 transport network department.

- With this scenario, a multi-service backbone is characterized such that each service department of a provider (e.g., L2/3 services) that receives the same provider’s L1VPN service provides a different kind of higher-layer service.

- The customer receiving the L1VPN service (i.e., each service department) can offer its own services, whose payloads can be any layer (e.g., ATM, IP, TDM). The layer 1 transport network and each service network belong to the same organization, but may be managed separately.
L1CSM and L2SM/L3SM

- L2SM and L3SM are Service Models
- L1CSM can be the southbound interface of the Service SDN Controller and can be used in same cases:
  - Multi-Service Backbone for Internal Customers: Only L1 connectivity is required and there is the need of an interface between two departments belonging to the same organization.
  - L1VPN for External Customer (less common for now)
module: ietf-l1csm
  +--rw l1cs
    +--rw access
      |  +--rw uni-list* [UNI-ID]
      |     +--rw UNI-ID       string
      |     +--rw protocol?    identityref
      |     +--rw coding?      identityref
      |     +--rw optical_interface? identityref
    +--rw service
      +--rw service-list* [subscriber-l1vc-id]
        +--rw subscriber-l1vc-id    string
        +--rw service-config
          +--rw subscriber-l1vc-id?  string
          +--rw subscriber-l1vc-ep-ingress?  -> /l1cs/access/uni-list/UNI-ID
          +--rw subscriber-l1vc-ep-egress?  -> /l1cs/access/uni-list/UNI-ID
        +--rw client-protocol? identityref
        +--rw time-start?  yang:date-and-time
        +--rw time-interval? int64
        +--rw CoS_Name?    string
        +--rw performance-metric? identityref
Summary & Next Steps

• Operators express the need for IETF L1CSM that can serve L1VPN service deployment scenarios for both external customers as well as internal multi-service Layer 1 backbone for L2/3VPN.

• This is in the scope of CCAMP WG:
  • Home of control plane and YANG modeling for L0/L1 technologies
  • L0/L1 technology experts within IETF are here

• IETF L1CSM could also support L1 Connectivity Services which are under definition by MEF
  • MEF draft is not available to IETF community
  • Should we send a liaison to MEF?

• The YANG model captures the basic models for access and service models and provides a good base for WG adoption.