L2VPN Service YANG Data Model

draft-hu-bess-l2vpn-service-yang-00.txt

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Motivation

• Define the L2VPN North Bound Service YANG Data Model:
  – Use this model as an input for an orchestration layer which is responsible to translate the application service to orchestrated configuration of network elements which will be part of the service.

• Both E-line service and E-LAN service are defined in this document
SDN based L2VPN Service

Orchestration

APP

OSS

Controller 1

Controller 2

Domain A

Domain C

South Bound interface

North Bound interface

A11
A21
A31
A32
A11
A22

ASBR

ASBR

ASBR

C21
C21

C11
C11

C31
C32

ASBR

ASBR

South Bound interface
L2VPN Service Model Structure

L2VPN Service Model

E-LAN Service
- PW list (optional)
- AC
- Service Policy
- Tunnel Policy

E-Line Service
- PW list (optional)
- AC
- Service Policy
- Tunnel Policy
E-line Service

```mermaid
graph LR
  eline[eline]
  |[name]|
  name[eline-instance]
  |[name]|
  description[eline]
  service-type[eline]
  signaling-type[eline]
  pw*[eline]
  |[name]|
  ac*[eline]
  |[name]|
  name[eline]
  ac-nodeid[eline]
  link-discovery-protocol-type[eline]
  (access-type)[eline]
  (access-action)[eline]
  qos-policy[eline]
  |[id]|
  id[eline]
  communicate-unit[eline]
  ne-id[eline]
  tunnel-policy[eline]
  tunnel-signaling-type[eline]
  tunnel-mode[eline]
  protect-type[eline]
  receive-mode[eline]
  |[revertive-type]|
```
E-LAN Service

```yaml
---rw elan-service
  ---rw elan-instance* [name]
    ---rw name string
    ---rw description? string
    ---rw mac-withdraw? boolean
    ---rw bgp-parameters
    ---rw service-type? l2vpn-service-type
    ---rw signaling-type l2vpn-signaling-type
    ---rw pw* [name]
      | ---rw name string
      | ---rw asbr-id? string
      | ---rw peer? inet:ip-address
      | ---rw hub-spoken? hub-spoken
      | ............
    ---rw ac* [name]
      | ---rw name string
      | ---rw ac-nodeid? string
      | ---rw link-discovery-protocol-type? link-discovery-protocol-type
        | ---rw split-horizon-group? string
      | ---rw qos-policy
      | ............
    ---rw service-policy* [id]
      | ---rw id uint8
      | ............
    ---rw tunnel-policy
```
PW list

• Configure the PW list among different AS domain.
  – Only configured for the inter-domain L2VPN service (E-Line and E-LAN Service).
  – No need to configure the PW for the intra-L2VPN service, for the device YANG data model can deal with it.
PW List

```yang
+-rw pw* [name]
    +-rw name          string
    +-rw asbr-id?      string
    +-rw peer?        inet:ip-address
    +-rw vcid?        uint32
    +-rw type?        pw-type
    +-rw tunnel-policy? string
    +-rw request-vlanid? uint16
    +-rw vlan-tpid?    string
```
AC list

```yang
---rw ac* [name]
  | ---rw name string
  | ---rw ac-nodeid? string
  | ---rw link-discovery-protocol-type? link-discovery-protocol-type
  | ---rw (access-type)?
  |   | ---:(port)
  |   |   | ---:(dot1q)
  |   |   |     | ---rw dot1q-vlan-bitmap? int32
  |   |   | ---:(qinq)
  |   |     | ---rw qinq-svlan-bitmap? int32
  |   |     | ---rw qinq-cvlan-bitmap? int32
  | ---rw (access-action)?
  |   | ---:(keep)
  |   | ---:(push)
  |   |     | ---rw push-vlan-id? int32
  |   | ---:(pop)
  |   | ---:(swap)
  |     | ---rw swap-vlan-id? int32
  | ---rw qos-policy
  |   | ---rw qos-dscp2exp? dscp2exp
  |   | ---rw qos-cos2exp? cos2exp
  |   | ---rw qos-if-cars
  |   |     | ---rw direction? uint32
  |   |     | ---rw cir? uint32
  |   |     | ---rw pir? uint32
  |   |     | ---rw cbs? uint32
  |   |     | ---rw pbs? uint32
```
Service Policy

```yang
++-rw service-policy* [id]
  |  +-rw id          uint8
  |  +-rw communicate-unit?  int32
  |  +-rw ne-id?        string
  |  +-rw (primary)
  |     +-:(primary-pw)
  |     |  +-rw primary-pw* [name]
  |     |     +-rw name        -> ../../pw/name
  |     |     +-:(primary-ac)
  |     |     |  +-rw primary-ac?         -> ../..ac/name
  |     +-rw (backup)?    
  |     |     +-:(backup-pw)
  |     |     |  +-rw backup-pw* [name]
  |     |     |     +-rw name         -> ../../pw/name
  |     |     |     +-rw precedence?       uint32
  |     |     |     +-:(backup-ac)
  |     |     |     |  +-rw backup-ac?            -> ../..ac/name
  |     +-rw protect-type? protect-type
  |     +-rw receive-mode? receive-mode
  |     +-rw (revertive-type)?
```
Tunnel Policy

```yang
tunnel-policy
  tunnel-signaling-type? tunnel-signaling-type
  tunnel-mode? tunnel-mode
  protect-type? protect-type
  receive-mode? receive-mode
  (revertive-type)?
    (never)
    (wtr)
  revert-delay? uint16
```
Next Step

• Comments welcome.
Thanks!