

draft-ietf-l3sm-l3vpn-service-model

IETF 94 - Yokohama

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Context

- A lot of YANG models for network elements and protocols are in progress
- Need also service models
- Let's start with Layer 3 VPN « famous » service
- L3SM WG set up to follow the work (short live WG)

Changes from last IETF

- Modularity :
 - People expressed at Prague a need to introduce groupings
 - The work is done in current version :
 - Most of branches are now groupings to help reusability

Changes from last IETF

- VPN-policy :
 - Previously : native-vpn + vpn-policy
 - Now : only vpn-policy expressed in a more abstracted way

```
| +--rw vpn-policy
| | +--rw entries* [id]
| | | +--rw id          uint32
| | | +--rw filter
| | | | +--rw lan-prefixes
| | | | | +--rw ipv4-lan-prefixes* [lan]
| | | | | | +--rw lan          inet:ipv4-prefix
| | | | | +--rw ipv6-lan-prefixes* [lan]
| | | | | | +--rw lan          inet:ipv6-prefix
| | | | +--rw lan-tag*         string
| | +--rw vpn
| | | +--rw vpn?              leafref
| | | +--rw site-role?       identityref
```

Changes from last IETF

- Site-template :
 - Previously just a type of site
 - Now using a separate list of site templates thanks to groupings

```
+--rw sites* [site-id]
|  +--rw site-id          string
|  +--rw apply-template? leafref
...
|  +--rw location
|  +--rw site-diversity
|  +--rw availability
|  +--rw management
|  +--rw vpn-policy
...
+--rw site-templates* [site-template-id]
   +--rw site-template-id string
...
   +--rw location
   +--rw site-diversity
   +--rw availability
   +--rw management
   +--rw vpn-policy
...
```

Changes from last IETF

- MPLS leaf at VPN level :
 - MPLS is VPN property, not only an access one
 - Access has only signalling type

```
+--rw l3vpn-svc
  +--rw vpn-svc* [name]
    +--rw mpls?          boolean

  +--rw sites* [site-id]
    +--rw service
      +--rw mpls
        +--rw signalling-type? enumeration
```

Changes from last IETF

- Created OAM container and moved BFD in

```
+--rw l3vpn-svc
  +--rw sites* [site-id]
    +--rw attachment
      +--rw ip-connection
        +--rw oam
          +--rw bfd
            ...
```

Changes from last IETF

- Small things :
 - Some renaming :
 - Identities, leaves, containers ...

Changes from last IETF but not published yet

- Small things :
 - vpn-id moved to STRING and remove vpn-name
 - Close ticket#2
 - Add DSCP matching in flow definition
 - Cloud-access as grouping
 - Close ticket#4
- Multicast : see next slide

Changes from last IETF but not published yet

- Multicast tracked as issue#5

- Eric's comment pointed that proposed multicast modeling does not handle many useful cases

- Multicast VPN has many flavors of usage and it's hard to model it , may need multicast expert help !



- New proposal

```
+--rw l3vpn-svc
  +--rw vpn-svc* [name]
    +--rw multicast
      +--rw tree-flavor*      identity-ref
      +--rw rp
        +--rw rp-group-mapping [rp-address group]
          +--rw rp-address    union
          +--rw provider-managed
            +--rw enabled?    boolean
            +--rw anycast-rp? boolean
          +--rw group          union
          +--rw rp-discovery?  identity-ref
      +--rw sites* [site-id]
        +--rw service
          +--rw multicast
            +--rw multicast-site-type?  enumeration
            +--rw multicast-transport-protocol
              +--rw ipv4?  boolean
              +--rw ipv6?  Boolean
            +--rw protocol-type?      enumeration
```

Other issues status in tracker

- Issue#1 : When is customer-nat-address used
 - Answer provided on the list
 - Leaf used when NAT is required to access cloud VPN and customer wants to use its own IP address. If provider provides the public IP, no need to use the leaf
 - Can we close the issue ?

Other issues status in tracker

- Issue#2 : identify l3vpn svc by ip or name or both
 - Already presented => to be closed ?
- Issue#3 : M to N availability support
 - Currently only primary/backup and loadsharing supported
 - Today no indicator of relations between sites
 - No progress for now
 - Options given on the list :
 - Changing the paradigm of one site = one access, so dual homed is two sites
 - Add « multihomed » identity for site-availability and a « preference » access-type combined with a « preference » leaf
 - Remove site-availability and access-type we have today and just rely on « preference »
 - Is that enough ? Do we need to create a site-group-id to identify sites belonging to the same customer location ?

Other issues status in tracker

- Issue #4 : site-service-cloudaccess as grouping
 - We created vpn-service-cloud-access applied in vpn-svc (not published yet)
 - Can we close ?
- Issue #5 : Multicast VPN support
 - Already talked about it
- Issue #6 : Inventory ops state
 - Do we need an operational state to track what sites belong to a VPN or what sites are accessing a cloud ?

 - No progress ...

Other issues status in tracker

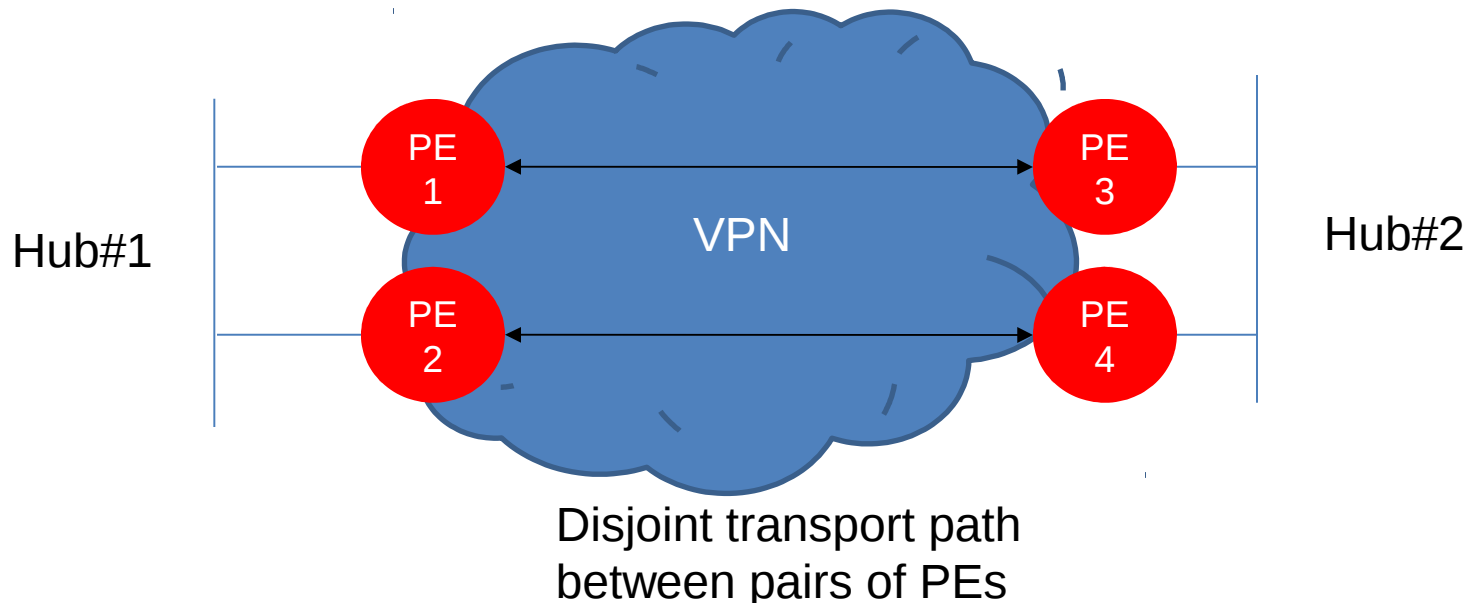
- Issue #7 : Generic VAS
 - Consensus that VAS are not part of this model
 - Only cloud VPN access is kept as it deals with network interconnection
 - Can we close it ?

Other issues status in tracker

- Issue #8 : who keep site location information
 - Service orchestrator must have the knowledge
 - It may retrieve the customer address from customer inputs (self care portal)
 - And may interact with some OSS component to find the best nodes to place the service on
 - Is this enough ?

Other issues status in tracker

- Issue#9 (NEW) : modeling transport constraints ?
 - Some customers are requesting some transport constraints :
 - Low latency between two sites
 - Disjoints path between two Hub sites
 - Do we need to address it in the model ?
 - How to model it ?



Not finished ... next steps ...

- We still need to work on :
 - Security parameters : encryption part to be reviewed !
 - Need to review if the current proposal fits any L3VPN rather than PE-Based only
- What about interAS consideration ?
 - In my mind, nothing to do ... but need to be discussed !
- What about Hybrid VPNs (public+private sites) ?
 - Anything else ?