MVPN YANG Model

draft-ietf-bess-mvpn-yang-01

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IETF105

Status

- Updated with version 01 since WG adoption
- Updated mainly by adding new tunnel type “bier”

Structure

```
+--rw multicast
   +--rw signaling-mode?           enumeration
   +--rw auto-discovery-mode?      enumeration
   +--rw mvpn-type?                enumeration
   +--rw is-sender-site?           boolean {mvpn-sender}?
   +--rw rpt-spt-mode?             enumeration
   +--rw ecmp-load-balance-mode?
   |      enumeration {mvpn-ecmp-load-balance}?
   +--rw mvpn-route-targets {mvpn-separate-rt}?
   |  +--rw mvpn-route-target* [mvpn-rt-type mvpn-rt-value]
   |     +--rw mvpn-rt-type     enumeration
   |     +--rw mvpn-rt-value    string
   +--rw mvpn-ipmsi-tunnel-ipv4
   |  ...
   |  +--ro (pmsi-tunnel-state-attribute)?
   |  |  ...
   |  +--ro tunnel-role?                    enumeration
   |  +--ro upstream-vpn-label?
   |  |      rt-types:mpls-label {mvpn-aggregation-tunnel}?
   |  +--ro mvpn-pmsi-ipv4-ref-sg-entries
   |     ...
   +--rw mvpn-spmsi-tunnels-ipv4
      +--rw switch-delay-time?          uint8
      +--rw switch-back-holddown-time?  uint16
      +--rw tunnel-limit?               uint16
      +--rw mvpn-spmsi-tunnel-ipv4* [tunnel-type]
         +--rw tunnel-type                    p-tunnel
         +--rw (spmsi-tunnel-attribute)?
         | ...
         +--rw switch-threshold?              uint32
         +--rw per-item-tunnel-limit?         uint16
         +--rw switch-wildcard-mode?
         |      enumeration {mvpn-switch-wildcard}?
         +--rw explicit-tracking-mode?
         |      enumeration {mvpn-explicit-tracking}?
         +--rw (address-mask-or-acl)?
         |  ...
         +--ro (pmsi-tunnel-state-attribute)?
         | ...
         +--ro tunnel-role?                   enumeration
         +--ro upstream-vpn-label?
         |      rt-types:mpls-label {mvpn-aggregation-tunnel}?
         +--ro mvpn-pmsi-ipv4-ref-sg-entries
            ...
```

```
+--rw multicast
   +--rw signaling-mode?           enumeration
   +--rw auto-discovery-mode?      enumeration
   +--rw mvpn-type?                enumeration
   +--rw is-sender-site?           boolean {mvpn-sender}?
   +--rw rpt-spt-mode?             enumeration
   +--rw ecmp-load-balance-mode?
   |      enumeration {mvpn-ecmp-load-balance}?
   +--rw mvpn-route-targets {mvpn-separate-rt}?
   |  +--rw mvpn-route-target* [mvpn-rt-type mvpn-rt-value]
   |     +--rw mvpn-rt-type     enumeration
   |     +--rw mvpn-rt-value    string
   +--rw mvpn-ipmsi-tunnel-ipv6
   |  ...
   |  +--ro (pmsi-tunnel-state-attribute)?
   |  |  ...
   |  +--ro tunnel-role?                    enumeration
   |  +--ro upstream-vpn-label?
   |  |      rt-types:mpls-label {mvpn-aggregation-tunnel}?
   |  +--ro mvpn-pmsi-ipv6-ref-sg-entries
   |     ...
   +--rw mvpn-spmsi-tunnels-ipv6
      +--rw switch-delay-time?          uint8
      +--rw switch-back-holddown-time?  uint16
      +--rw tunnel-limit?               uint16
      +--rw mvpn-spmsi-tunnel-ipv6* [tunnel-type]
         +--rw tunnel-type                    p-tunnel
         +--rw (spmsi-tunnel-attribute)?
         |  ...
         +--rw switch-threshold?              uint32
         +--rw per-item-tunnel-limit?         uint16
         +--rw switch-wildcard-mode?
         |      enumeration {mvpn-switch-wildcard}?
         +--rw explicit-tracking-mode?
         |      enumeration {mvpn-explicit-tracking}?
         +--rw (address-mask-or-acl)?
         |  ...
         +--ro (pmsi-tunnel-state-attribute)?
         |  ...
         +--ro tunnel-role?                   enumeration
         +--ro upstream-vpn-label?
         |      rt-types:mpls-label {mvpn-aggregation-tunnel}?
         +--ro mvpn-pmsi-ipv6-ref-sg-entries
            ...
```

Both IPv4 and IPv6 branches in a two-level hierarchy: instance level and PMSI tunnel level

Updating Information-1

- Define a new type named p-tunnel for tunnel type referenced by RFC6513 and bier

```
typedef p-tunnel {
   type enumeration {
     enum no-tunnel-present {
       value 0;
       description "No tunnel information present";
     }
     enum rsvp-te-p2mp {
       value 1;
       description "RSVP TE P2MP tunnel";
     }
     enum mldp-p2mp {
       value 2;
       description "MLDP P2MP tunnel";
     }
     enum pim-ssm {
       value 3;
       description "PIM SSM tree in public net";
     }
     enum pim-sm {
       value 4;
       description "PIM SM tree in public net";
     }
     enum bidir-pim {
       value 5;
       description "BIDIR-PIM tree in public net";
     }
     enum ingress-replication {
       value 6;
       description "Ingress Replication p2p tunnel.";
     }
     enum mldp-mp2mp {
       value 7;
       description "MLDP MP2MP tunnel";
     }
     enum bier {
       value 11;
       description "bier underlay";
     }
   }
   description "Provider tunnel type definition.";
 }
```

Updating Information-2

- Add bier tunnel attributes for the new tunnel type “bier” configuration and operational state

Configuration

```
case bier {
    description "bier underlay";
    leaf inclusive-sub-domain-id {
      type uint8;
      description "Subdomain ID of bier.";
    }
    leaf inclusive-bitstring-length {
       type uint16 {
         range "64|128|256|512|1024|2048|4096";
       }
       description "BitString length of bier underlay.";
    }
  }

case bier {
    description "bier underlay";
    leaf selective-sub-domain-id {
      type uint8;
      description "Subdomain ID of bier.";
    }
    leaf selective-bitstring-length {
       type uint16 {
         range "64|128|256|512|1024|2048|4096";
       }
       description "BitString length of bier underlay.";
    }
  }
```

Operational state

```
case bier {
    description "bier underlay";
    leaf sub-domain-id {
      type uint8;
      description "Subdomain ID of bier.";
    }
    leaf bitstring-length {
       type uint16 {
         range "64|128|256|512|1024|2048|4096";
       }
       description "BitString length of bier underlay.";
    }
    leaf bfir-id {
      type uint16;
      description "ID of BIER sender PE of MVPN.";
    }
  }
```

Updating Information-3

- Add the parameters of the new features MVPN explicit-tracking and MVPN aggregation tunnel

```
leaf explicit-tracking-mode {
   if-feature mvpn-explicit-tracking;
   type enumeration {
     enum no-leaf-info-required {
       value 0;
       description "No need to track leaf information.";
     }
     enum leaf-info-required  {
       value 1;
       description "Need to track leaf information.";
     }
     enum {
       value leaf-info-required-per-flow2;
       description
         "Need to track leaf information based on
          per multicast flow.";
     }
   }
   description "Tracking mode for leaf information.";
 }
```

```
leaf upstream-vpn-label {
   if-feature mvpn-aggregation-tunnel;
   type rt-types:mpls-label;
   config false;
   description
   “VPN context label for the multicast data of the VPN

     instance in an aggregation P-tunnel.";
 }
```

Next Step

- More questions and comments are welcomed
- Prepare for yang doctor review