L2VPN/EVPN/L3VPN
Yang

IETF-96

Berlin

L2VPN

What's new?

- L2VPN yang document is WG adopted
- Operational Data is added

Wait!

- Model is not ready YET!
  - Many feedback from the alias (@ WG adoption)
  - Still need to go thru some change in term of "layout"

EVPN

What's new?

- EVPN yang document is WG adopted

- Updated the author list

- Operational Data is added

- Statistics are added

- Few cosmetic changes

What's next?

- Need feedback from everyone
- Enhancement to cover latest EVPN development
  - Flexible-xconnect-service
  - Some DC functionality
- Add RPC, Notifications

Open questions:

- EVPN routes oper data.
  - Which models should be owning this? BGP or per application?
- BGP common parameters
  - Should we create a separate Yang model?

L3VPN

Update:

- No update has been done since last IETF

- The routing-instance model has changed so we need to align with it.

BACKUP

ietf-ethernet-segment (config)

Old

```
+--rw ethernet-segments
|  +--rw ethernet-segment* [name]
|     +--rw name                           string
|     +--rw (ac-or-pw-or-intf)?
|     |  +--:(ac)
|     |  |  +--rw ac?                       string
|     |  +--:(pw)
|     |  |  +--rw pw?                       string
|     |  +--:(physical-intf)
|     |     +--rw physical-intf?            string
|     +--rw ethernet-segment-identifier?   uint32
|     +--rw (active-mode)
|     |  +--:(single-active)
|     |  |  +--rw single-active-mode?       empty
|     |  +--:(all-active)
|     |     +--rw all-active-mode?          empty
|     +--rw bgp-parameters
|     |  +--rw common
|     |     +--rw rd-rt* [route-distinguisher]
|     |        +--rw route-distinguisher    string
|     |        +--rw vpn-target* [rt-value]
|     |           +--rw rt-value    string
|     |           +--rw rt-type     bgp-rt-type
|     +--rw df-election
|     |  +--rw (df-election-method)?
|     |  |  +--:(highest-random-weight)
|     |  |  |  +--rw enable-hrw?        empty
|     |  |  +--rw election-wait-time?   uint32
```

New

Updated

```
+--rw ethernet-segments
|  +--rw ethernet-segment* [name]
|     +--rw name                           string
|     +--rw (ac-or-pw)?
|     |  +--:(ac)
|     |  |  +--rw ac?                       string
|     |  +--:(pw)
|     |     +--rw pw?                       string
|     +--rw ethernet-segment-identifier?   uint32
|     +--rw (active-mode)
|     |  +--:(single-active)
|     |  |  +--rw single-active-mode?       empty
|     |  +--:(all-active)
|     |     +--rw all-active-mode?          empty
|     +--rw pbb-parameters {ethernet-segment-pbb-params}?
|     |  +--rw backbone-src-mac?    yang:mac-address
|     +--rw bgp-parameters
|     |  +--rw common
|     |     +--rw rd-rt* [route-distinguisher]
|     |        +--rw route-distinguisher    string
|     |        +--rw vpn-target* [rt-value]
|     |           +--rw rt-value    string
|     |           +--rw rt-type     bgp-rt-type
|     +--rw df-election
|     |  +--rw (df-election-method)?
|     |  |  +--:(highest-random-weight)
|     |  |  |  +--rw hrw?              boolean
|     |  |  +--rw election-wait-time?   uint32
```

Moved, but no change

ietf-ethernet-segment (operational state)

Old

```
+--ro ethernet-segments-state
    +--ro ethernet-segment-state* [name]
       +--ro name                          string
       +--ro service-type?                 string
       +--ro status?                       status-type
       +--ro (ac-or-pw-or-intf)?
       |  +--:(ac)
       |  |  +--ro ac?                      string
       |  +--:(pw)
       |  |  +--ro pw?                      string
       |  +--:(physical-intf)
       |     +--ro physical-intf?           string
       +--ro intf-status?                  status-type
       +--ro ethernet-segment-identifier?  uint32
       +--ro active-mode?                  string
       +--ro df-election
       |  +--ro enable-hrw?               empty
       |  +--ro election-wait-time?       uint32
       +--ro pbb-parameters
       |  +--ro backbone-src-mac?   yang:mac-address
       +--ro ead-evi-route?                boolean
       +--ro rt?                           string
       +--ro esi-label?                    string
       +--ro member*
       |  +--ro ip-address?   inet:ip-address
       +--ro df*
          +--ro evpn-instance-identifier?   uint32
          +--ro vlan?                       uint32
          +--ro ip-address?                 inet:ip-address
```
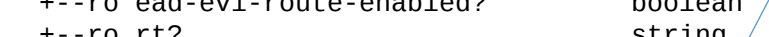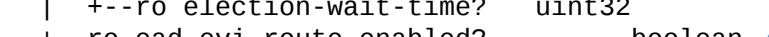
New

```
+--ro ethernet-segments-state
    +--ro ethernet-segment-state* [name]
       +--ro name                          string
       +--ro service-type?                 string
       +--ro status?                       status-type
       +--ro (ac-or-pw)?
       |  +--:(ac)
       |  |  +--ro ac?                      string
       |  +--:(pw)
       |     +--ro pw?                      string
       +--ro interface-status?             status-type
       +--ro ethernet-segment-identifier?  uint32
       +--ro active-mode?                  string
       +--ro pbb-parameters {ethernet-segment-pbb-params}?
       |  +--ro backbone-src-mac?   yang:mac-address
       +--ro bgp-parameters
       |  +--ro common
       |     +--ro rd-rt* [route-distinguisher]
       |        +--ro route-distinguisher    string
       |        +--ro vpn-target* [rt-value]
       |           +--ro rt-value    string
       |           +--ro rt-type     bgp-rt-type
       +--ro df-election
       |  +--ro hrw-enabled?             boolean
       |  +--ro election-wait-time?      uint32
       +--ro ead-evi-route-enabled?        boolean
       +--ro rt?                           string
       +--ro esi-label?                    string
       +--ro member*
       |  +--ro ip-address?    inet:ip-address
       +--ro df*
```
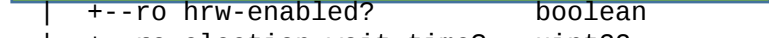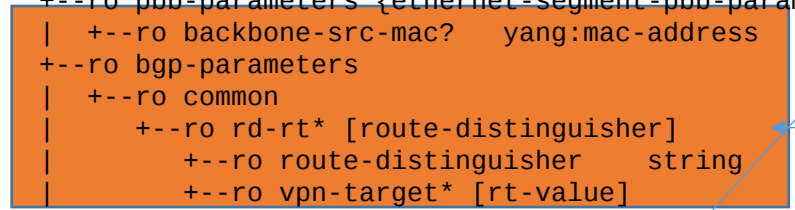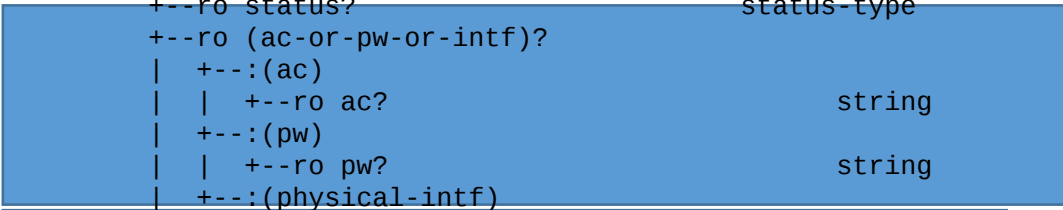
Renamed

Also type change

Added to match

ietf-evpn (config)

Old

```
+--rw evpn
   +--rw common
   |  +--rw (replication-type)?
   |     +--:(ingress-replication)
   |     |  +--rw ingress-replication?   boolean
   |     +--:(p2mp-replication)
   |        +--rw p2mp-replication?      boolean
   +--rw evpn-instances
   |  +--rw evpn-instance* [name]
   |     +--rw name                              string
   |     +--rw evi?                              uint32
   |     +--rw source-bmac?                      yang:hex-string
   |     +--rw bgp-parameters
   |     |  +--rw common
   |     |     +--rw rd-rt* [route-distinguisher]
   |     |        +--rw route-distinguisher    string
   |     |        +--rw vpn-target* [rt-value]
   |     |           +--rw rt-value    string
   |     |           +--rw rt-type     bgp-rt-type
   |     +--rw arp-proxy?                        boolean
   |     +--rw arp-suppression?                  boolean
   |     +--rw nd-proxy?                         boolean
   |     +--rw nd-suppression?                   boolean
   |     +--rw underlay-multicast?               boolean
   |     +--rw flood-unknown-unicast-supression?   boolean
```

New

Added pbb-parameters sub-mode
This matches bgp-parameters sub-mode

```
+--rw evpn
   +--rw common
   |  +--rw (replication-type)?
   |     +--:(ingress-replication)
   |     |  +--rw ingress-replication?   boolean
   |     +--:(p2mp-replication)
   |        +--rw p2mp-replication?      boolean
   +--rw evpn-instances
   |  +--rw evpn-instance* [name]
   |     +--rw name                              string
   |     +--rw evi?                              uint32
   |     +--rw pbb-parameters {evpn-pbb-params}?
   |     |  +--rw source-bmac?   yang:hex-string
   |     +--rw bgp-parameters
   |     |  +--rw common
   |     |     +--rw rd-rt* [route-distinguisher]
   |     |        +--rw route-distinguisher    string
   |     |        +--rw vpn-target* [rt-value]
   |     |           +--rw rt-value    string
   |     |           +--rw rt-type     bgp-rt-type
   |     +--rw arp-proxy?                        boolean
   |     +--rw arp-suppression?                  boolean
   |     +--rw nd-proxy?                         boolean
   |     +--rw nd-suppression?                   boolean
   |     +--rw underlay-multicast?               boolean
   |     +--rw flood-unknown-unicast-supression?   boolean
```

ietf-evpn (operation state)

Added pbb-parameters sub-mode
This matches bgp-parameters sub-mode

Old

New

```
+--ro evpn-instances-state
    +--ro evpn-instance-state*
        +--ro name?                                  string
        +--ro evi?                                   uint32
        +--ro source-bmac?                           yang:hex-string
        +--ro bgp-parameters
        |   +--ro common
        |       +--ro rd-rt* [route-distinguisher]
        |           +--ro route-distinguisher    string
        |           +--ro vpn-target* [rt-value]
        |               +--ro rt-value    string
        |               +--ro rt-type     bgp-rt-type
        +--ro advertise-mac-suppression?             boolean
        +--ro arp-proxy?                             boolean
        +--ro arp-suppression?                       boolean
        +--ro nd-proxy?                              boolean
        +--ro nd-suppression?                        boolean
        +--ro underlay-multicast?                    boolean
        +--ro flood-unknown-unicast-suppression?     boolean
        +--ro routes
            +--ro /* skipped */
        +--ro statistics
            +--ro tx-count?    uint32
            +--ro rx-count?    uint32
```

```
+--ro evpn-instances-state
    +--ro evpn-instance-state*
        +--ro name?                                  string
        +--ro evi?                                   uint32
        +--ro pbb-parameters
        |   +--ro source-bmac?    yang:hex-string
        +--ro bgp-parameters
        |   +--ro common
        |       +--ro rd-rt* [route-distinguisher]
        |           +--ro route-distinguisher    string
        |           +--ro vpn-target* [rt-value]
        |               +--ro rt-value    string
        |               +--ro rt-type     bgp-rt-type
        +--ro advertise-mac-suppression-enabled?         boolean
        +--ro arp-proxy-enabled?                         boolean
        +--ro arp-suppression-enabled?                   boolean
        +--ro nd-proxy-enabled?                          boolean
        +--ro nd-suppression-enabled?                    boolean
        +--ro underlay-multicast-enabled?                boolean
        +--ro flood-unknown-unicast-suppression-enabled?   boolean
        +--ro routes
            +--ro /* skipped---no change since last version */
        +--ro statistics
            +--ro tx-count?    uint32
            +--ro rx-count?    uint32
            +--ro detail
                +--ro broadcast-tx-count?    uint32
                +--ro broadcast-rx-count?    uint32
                +--ro multicast-tx-count?    uint32
                +--ro multicast-rx-count?    uint32
                +--ro unicast-tx-count?      uint32
```

Renamed

New detailed stats

Naming Convention: "enabled" in operational state

Old

```
+--ro evpn-instances-state
    +--ro evpn-instance-state*
        +--ro name?                              string
        +--ro evi?                               uint32
        +--ro source-bmac?                       yang:hex-string
        +--ro bgp-parameters
        |   +--ro common
        |       +--ro rd-rt* [route-distinguisher]
        |           +--ro route-distinguisher    string
        |           +--ro vpn-target* [rt-value]
        |               +--ro rt-value    string
        |               +--ro rt-type     bgp-rt-type
        +--ro advertise-mac-suppression?         boolean
        +--ro arp-proxy?                         boolean
        +--ro arp-suppression?                   boolean
        +--ro nd-proxy?                          boolean
        +--ro nd-suppression?                    boolean
        +--ro underlay-multicast?                boolean
        +--ro flood-unknown-unicast-suppression? boolean
        +--ro routes
        |   +--ro /* skipped */
        +--ro statistics
            +--ro tx-count?   uint32
            +--ro rx-count?   uint32
```

New

```
+--ro evpn-instances-state
    +--ro evpn-instance-state*
        +--ro name?                                        string
        +--ro evi?                                         uint32
        +--ro pbb-parameters
        |   +--ro source-bmac?   yang:hex-string
        +--ro bgp-parameters
        |   +--ro common
        |       +--ro rd-rt* [route-distinguisher]
        |           +--ro route-distinguisher    string
        |           +--ro vpn-target* [rt-value]
        |               +--ro rt-value    string
        |               +--ro rt-type     bgp-rt-type
        +--ro advertise-mac-suppression-enabled?           boolean
        +--ro arp-proxy-enabled?                           boolean
        +--ro arp-suppression-enabled?                     boolean
        +--ro nd-proxy-enabled?                            boolean
        +--ro nd-suppression-enabled?                      boolean
        +--ro underlay-multicast-enabled?                  boolean
        +--ro flood-unknown-unicast-suppression-enabled?   boolean
        +--ro routes
        |   +--ro /* skipped---no change since last version */
        +--ro statistics
            +--ro tx-count?   uint32
            +--ro rx-count?   uint32
            +--ro detail
                +--ro broadcast-tx-count?   uint32
                +--ro broadcast-rx-count?   uint32
                +--ro multicast-tx-count?   uint32
                +--ro multicast-rx-count?   uint32
                +--ro unicast-tx-count?     uint32
```

Renamed

Naming Convention: "enabled" in operational state (2)

Config

```
<evpn-instance>
  <name>1</name>
  <arp-proxy>
    true
  </arp-proxy>
  <arp-suppression>
    false
  </arp-suppression>
  <nd-proxy>
    false
  </nd-proxy>
  <underlay-multicast>
    false
  <underlay-multicast>
  <flood-unknown-unicast-suppression>
    true
  </flood-unknown-unicast-suppression>
</evpn-instance>
```

Operational State

```
<evpn-instance>
  <name>1</name>
  <arp-proxy-enabled>
    true
  </arp-proxy-enabled>
  <arp-suppression-enabled>
    false
  </arp-suppression-enabled>
  <nd-proxy-enabled>
    false
  </nd-proxy-enabled>
  <underlay-multicast-enabled>
    false
  <underlay-multicast-enabled>
  <flood-unknown-unicast-suppression-enabled>
    true
  </flood-unknown-unicast-suppression-enabled>
</evpn-instance>
```

I find that "enabled" sounds correct only operational state…