draft-ietf-bess-evpn-etree-02.txt

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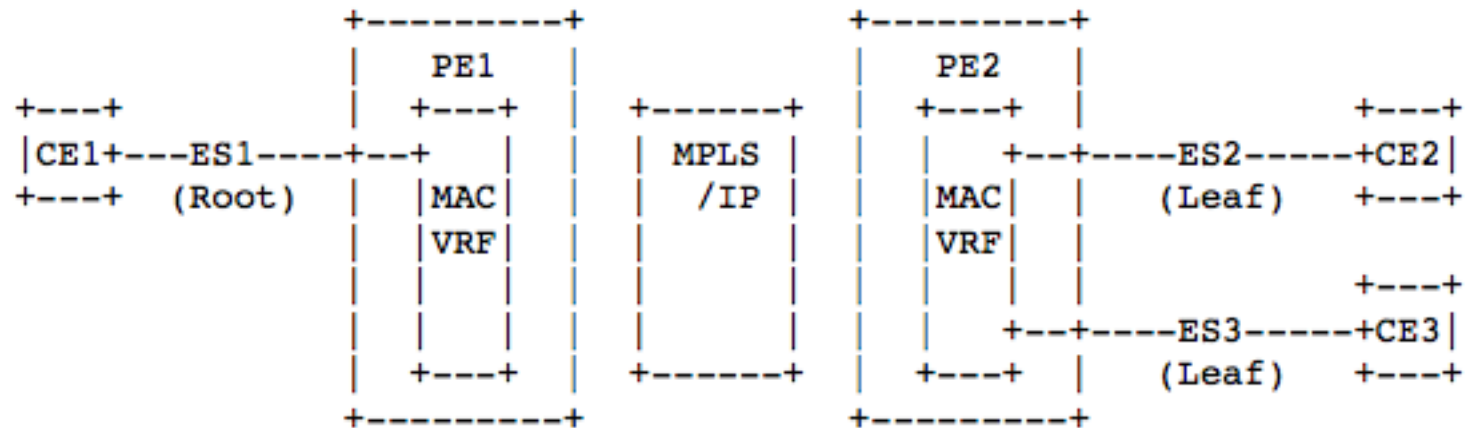IETF 93, July 2015

Prague

Changes since Rev01

- Following Section have changes significantly

  - Section 2 - Scenarios

  - Section 3 – Operation for EVPN

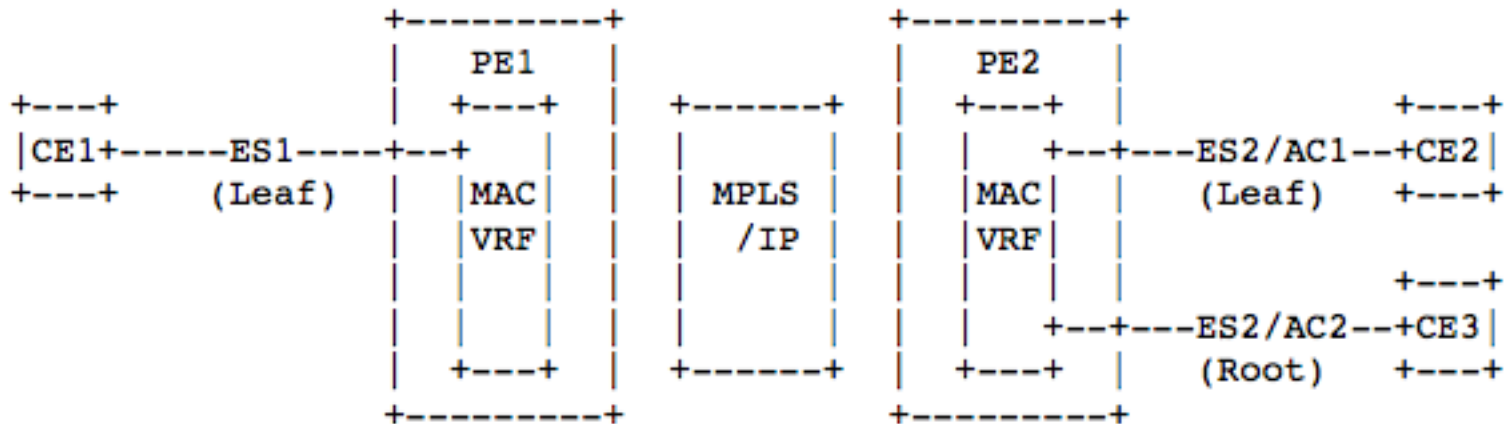 - Section 5 – BGP Encoding

Section 2 - Scenarios

- Renamed/Clarified scenarios:

  – Leaf OR Root site(s) per PE -> same

  – Leaf AND Root site(s) per PE -> Leaf OR Root site(s) per AC

  – Leaf AND Root site(s) per ES -> Leaf or Root site(s) per MAC

2.1 – Leaf or Root Site(s) per PE

```
                    +---------+              +---------+
                    |   PE1   |              |   PE2   |
 +---+              |  +---+  |  +------+     |  +---+  |              +---+
 |CE1+---ES1----+--+  |   |  |  |MPLS  |     |  |   +--+----ES2-----+CE2|
 +---+  (Root)  |  |MAC|  |  |  | /IP  |     |  |MAC|  |    (Leaf)   +---+
                |  |VRF|  |  |  |      |     |  |VRF|  |
                |  |   |  |  |  |      |     |  |   |  |              +---+
                |  |   |  |  |  |      |     |  |   +--+----ES3-----+CE3|
                |  +---+  |  +------+     |  +---+  |    (Leaf)   +---+
                +---------+              +---------+
```

2.2 – Leaf or Root Sites per AC

```
                       +---------+               +---------+
                       |   PE1   |               |   PE2   |
+---+                  |  +---+  |  +-------+     |  +---+  |              +---+
|CE1+-----ES1----+--+  |        |  |       |     |  |   +--+---ES2/AC1--+CE2|
+---+    (Leaf)  |  |MAC|  |     | MPLS  |     |  |MAC|  |     (Leaf)    +---+
                 |  |VRF|  |     |  /IP  |     |  |VRF|  |
                 |  |   |  |     |       |     |  |   |  |              +---+
                 |  |   |  |     |       |     |  |   +--+---ES2/AC2--+CE3|
                 |  +---+  |     +-------+     |  +---+  |     (Root)    +---+
                 +---------+                   +---------+
```

2.3 – Leaf or Root Site(s) per MAC

```
                        +---------+             +---------+
                        |  PE1    |             |  PE2    |
   +---+                | +---+   |  +------+   | +---+   |              +---+
   |CE1+-----ES1----+--+|   |   |  |      |   | |   +--+---ES2/AC1--+CE2|
   +---+     (Root) |   | E |   |  | MPLS |   | | E |  | (Leaf/Root)+---+
                    |   | V |   |  | /IP  |   | | V |  |   M1/M2
                    |   | I |   |  |      |   | | I |  |              +---+
                    |   |   |   |  |      |   | |   +--+---ES2/AC2--+CE3|
                    |   +---+   |  +------+   | +---+  |   (Leaf)    +---+
                    +---------+             +---------+
```
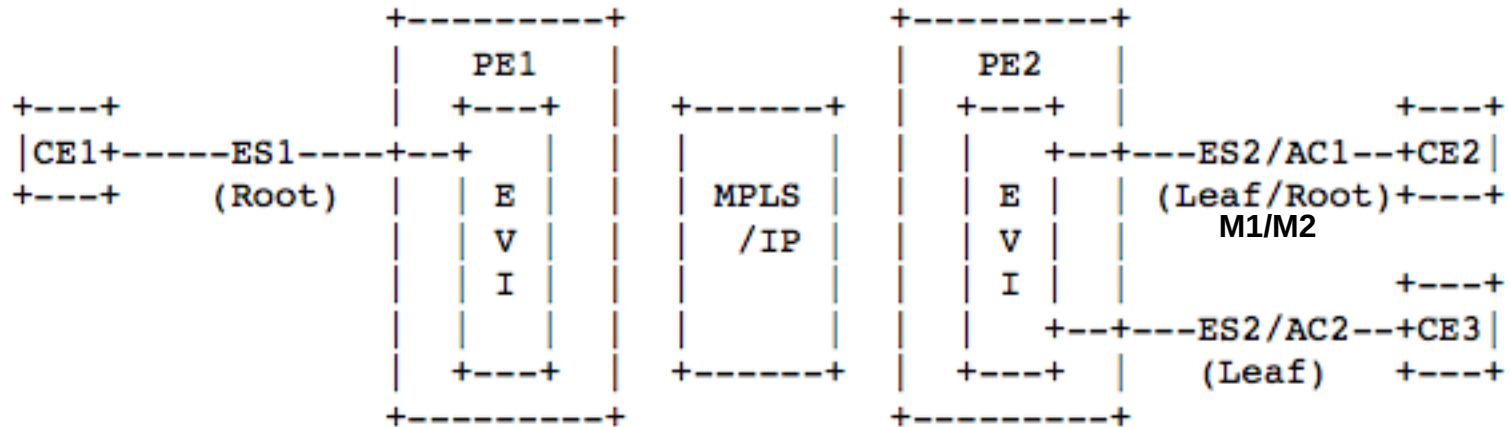
Section 3 – EVPN Operation

- 3.1 Known Unicast:

  - To provide ingress filtering for known unicast packets, a PE must indicate to other PEs, what kind of sites (Root or Leaf) its MAC addresses are associated with based on one of the following schemes:

  - 1) For single-homing scenarios of sec. 2.2 & 2.3, PE advertises the indication along with MAC routes
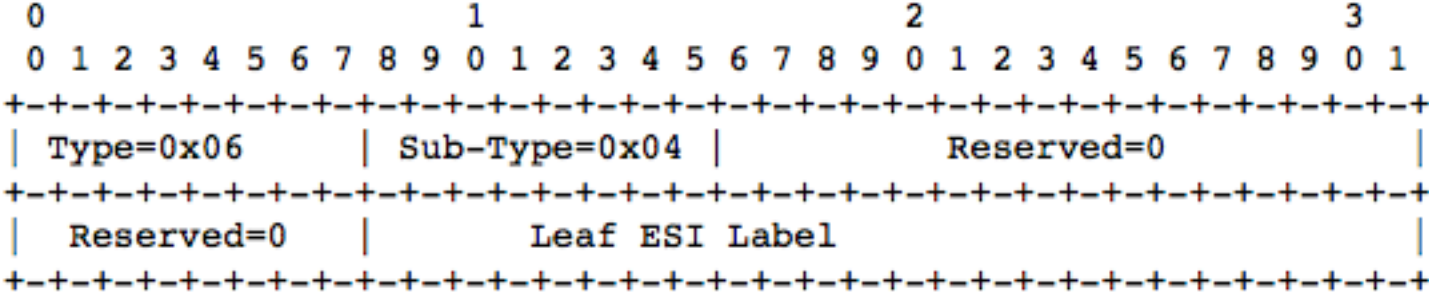
Section 3 – EVPN Operation – Cont.

- 3.1 Known Unicast – Cont.

  - 2) for multi-homing of sec 2.2, PE advertises the indication along with Ethernet AD per EVI routes

    - What happens when two PE advertise different indication for the same AC <ES,VLAN> ?

  - 3) for multi-homing of sec 2.3, PE advertises the indication along with MAC route
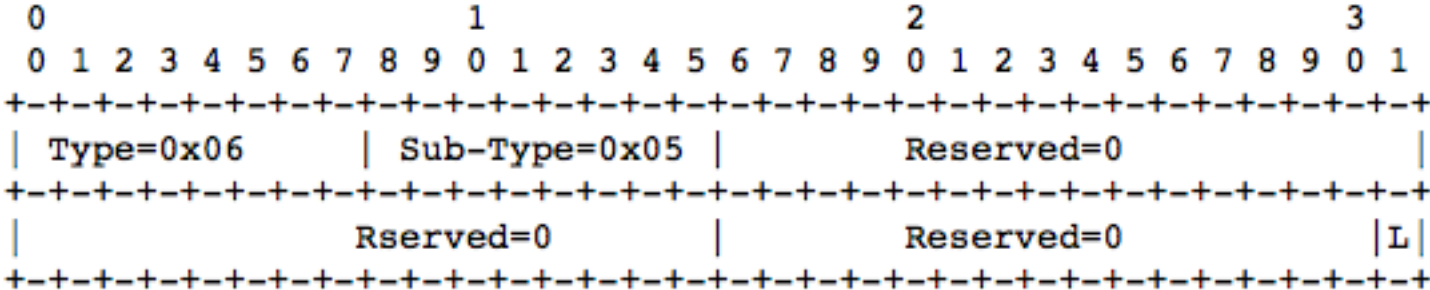
Section 3 – EVPN Operation – Cont.

- 3.2 – BUM Traffic

  - BUM traffic originated from a single-homed site on a leaf AC (Add a Leaf ESI MPLS label per PE !)

  - BUM traffic originated from a single-homed site on a root AC

  - BUM traffic originated from a multi-homed site on a leaf AC (Add a Leaf ESI MPLS label per ES – under discussion)

  - BUM traffic originated from a multi-homed site on a root AC

BGP Encoding

Leaf ESI Label Extended Community

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Type=0x06     | Sub-Type=0x04 |         Reserved=0            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|  Reserved=0   |           Leaf ESI Label                     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

E-TREE Extended Community

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Type=0x06     | Sub-Type=0x05 |         Reserved=0            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|              Rserved=0         |       Reserved=0          |L|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Conclusion

- Need to finalize the approach for bullet-2 of section 3.2 (BUM traffic originated from a multi-homed site on a leaf AC)

- After this, the draft should be ready for WG LC