SRv6 Network Programming
Ethernet NH allocation
draft-ietf-spring-srv6-network-programming-05

Authors:
C. Filsfils (Cisco Systems, Inc.)
P. Camarillo (Cisco Systems, Inc.)
J. Leddy
D. Voyer (Bell Canada)
S. Matsushima (SoftBank)
Z. Li (Huawei Technologies)
New allocation for Ethernet

- No available NextHeader value for Ethernet frames
  - Former revisions of this draft used IPv6 NoNextHeader (59)
  - ...but after WG discussion in 6man/SPRING it was decided to allocate a new codepoint

- Several options discussed in 6man/SPRING
  - Conclusion was to allocate a new codepoint for “Ethernet”

- Ethernet processing:
  - Preamble and Frame Check Sequence are stripped off from the packet upon encapsulation

- Early allocation:
  - Authors have requested early allocation based on RFC7120 procedure
  - Current industry status:
    - Several existing hardware(18) and opensource(8) implementations
    - Several deployments(7)
    - Need to update them to use the new value
Any question?

• Thanks!
SRv6 recap (I)

- New IPv6 Routing Extension Header
  - draft-ietf-6man-segment-routing-header-26
  - Proposed standard

The Segment Routing Header (SRH) is defined as follows:

```
+-----------------+-----------------+-----------------+-----------------+
| 0               | 1               | 2               | 3               |
+-----------------+-----------------+-----------------+-----------------+
| Next Header     | Hdr Ext Len     | Routing Type    | Segments Left   |
+-----------------+-----------------+-----------------+-----------------+
| Last Entry      | Flags           | Tag             |                 |
+-----------------+-----------------+-----------------+-----------------+
```

Segment List[0] (128 bits IPv6 address)

```
/+-----------------+-----------------+-----------------+-----------------+
|                 |                 |                 |                 |
|                 |                 |                 |                 |
|                 |                 |                 |                 |
|                 |                 |                 |                 |
+-----------------+-----------------+-----------------+-----------------+
```

... 

Segment List[n] (128 bits IPv6 address)

```
/+-----------------+-----------------+-----------------+-----------------+
|                 |                 |                 |                 |
|                 |                 |                 |                 |
//                //                //                //                //
//                //                //                //                //
Optional Type Length Value objects (variable)
/+-----------------+-----------------+-----------------+-----------------+
|                 |                 |                 |                 |
|                 |                 |                 |                 |
+-----------------+-----------------+-----------------+-----------------+
```
SRv6 recap (II)

- **draft-ietf-spring-srv6-network-programming-05**
  - Defines segment behaviors for Traffic Engineering, L3VPN and L2VPN

- General design:
  - Ingress PE encapsulates a packet received from the customer
    - Outer IPv6 header includes SRH with segments for TE and VPN
  - Transit P routers do not perform any SRv6/SRH processing
  - SR Endpoints perform SR processing
  - Egress PE decapsulates packet and forwards based on VRF/CE