



BIER-Ethernet

[draft-wang-bier-ethernet](#)

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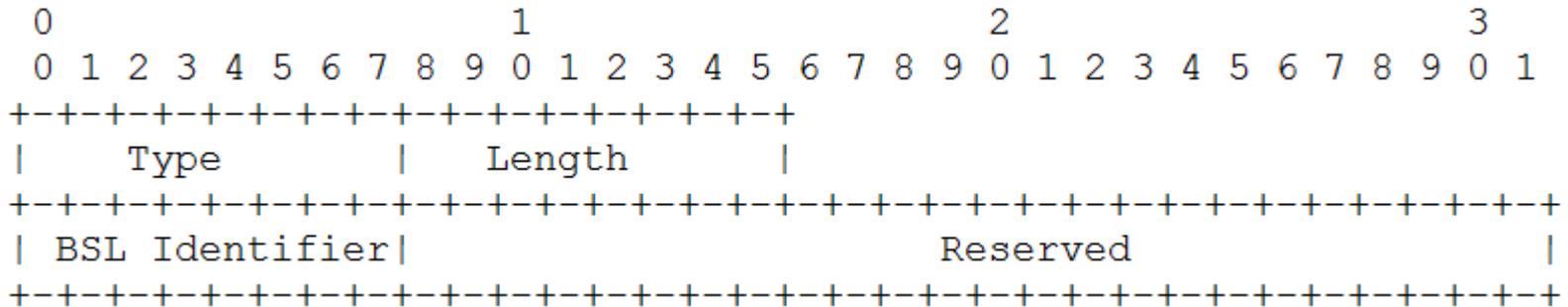
Background

- **BIER-Ethernet: implements BIER forwarding in Ethernet network.**

Control Plane Solution

- **The Main Idea:**

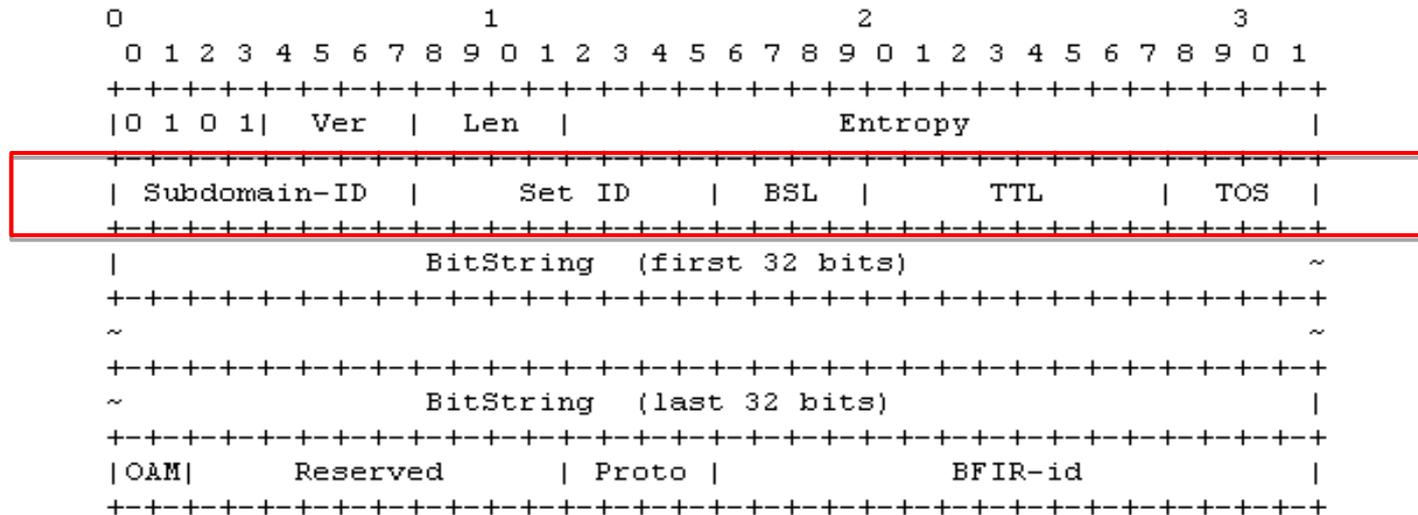
- Define a new sub-sub-TLV to carry BSL information;
- Then advertise this BSL sub-sub-TLV together with BIER Info sub-TLV in IG P extension/BGP extension.
- **Already updated and defined in ISIS extension draft**



- **BSL Identifier:** identifies the BSL information the sending BFR supports. It may include one or several BSLs; For example:
 00000001 identifies BSL is 64;
 00000100 identifies BSL is 256;
 00101001 identifies BSLs are 2048, 512 and 64;

DATA Plane Solution

- Because there requires directions to identify the BIFT table, there should allocate the BSL, sub-domain and SI fields in the updated BIER header, as well as TTL and TOS field. As follow:



- Additionally, mostly, this updated BIER header is immediately after Ethernet header, so there may need a new Ether Type to encode this kind of updated BIER header.

Some updates

1. Why using BIER-Ethernet? --- For more clean cut design

and just let MPLS as an independent layer protocol to help BIER forwarding as it does for IPv4/IPv6/IPmcast traffic. Additionally, the BIER forwarding capability will be also introduced in enterprise/data center, such feature may be newly implemented in switch ASICs, with clean cut design using BIER-ethernet, the implementation will be more clean as well.

2. BIER Ethernet Considerations for NVO3 network

There may be requirements for current switch ASICs in datacenter to implement BIER-Ethernet forwarding. And then, there will be a more efficient way to forward BUM traffic, rather than ingress replication and multicast tree.

Some updates

3. BIER Ethernet Considerations for MVPN

In MVPN, the P-tunnels are used for carrying multicast traffic across backbone. BIER tunnel Type is newly defined in [I-D.ietf-bier-mvpn]. The BIER Encapsulation used for multicast tunnel is independent of the MPLS label. Hence, BIER-Ethernet can also be used as P-Tunnel. In other words, there may need a new Tunnel Type to identify BIER-Ethernet Tunnel type, or a new flag to distinguish BIER-MPLS tunnel and BIER-Ethernet Tunnel.

4. BIER Ethernet Considerations for BIER Traffic Engineering

BIER-TE encapsulation format may be the same as BIER encapsulation. However, how to interpret the BitString is totally different. Hence, BIER-Ethernet encapsulation MUST need one identifier to be assigned to identify the BIER header is for BIER forwarding or BIER-TE forwarding. For example, one bit in Reserved field can be reserved for this purpose.



Next Steps

- Call for adoption? ^ㄴ
- Any comments ^ㄴ