BIER in IPv6
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BIER WG
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• The advantage of BIER: Achieving multicast by hop-by-hop (BIER capable) forwarding.

• RFC8296 defines two BIER encapsulation ways: MPLS and non-MPLS.

• Ethernet type for BIER is 0xAB37, the silicon support is needed.

• In order to achieve BIER forwarding in IPv6 situation, a new “next protocol” (BIER) in an IPv6 frame is introduced.

• “Next protocol” (BIER) of an IPv6 frame provides a general and simplest way for both “fast forwarding path” and “slow/software forwarding path”.

• Multiple encapsulation supporting
  • In order to indicate that the IPv6 encapsulation is required, a router MUST advertise the BIER IPv6 encapsulation transportation sub-TLV.
  • The router MUST accept all encapsulations that it advertised.
IPv6 header

• For directly connected neighbor
  – The destination address in IPv6 header SHOULD be the neighbor's link-local address on this router's outgoing interface.
  – the source address SHOULD be this router's link-local address on the outgoing interface.
  – the IPv6 TTL MUST be set to 1.

• For non directly connected neighbor
  – The destination address SHOULD be the BIER prefix of the BFR neighbor.
  – The source address SHOULD be this router's BIER prefix.
  – The TTL MUST be large enough to get the packet to the BFR neighbor.

• The Flow-ID in the IPv6 packet SHOULD be copied from the entropy field in the BIER encapsulation.
BIER header

- Aligned with the format defined in RFC8296 for a non-mpls version.

- [dhanaraj-bier-lsr-ethernet-extensions] and [zwzw-bier-prefix-redistribute] can be used for IPv6 encapsulation transportation advertisement associated with BFR-prefixes across IGP areas and protocol boundaries.
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• Thanks Jeffrey Zhang!
• Comments are welcome ^

Thanks!