BIER in BABEL

draft-zhang-bier-babel-extensions-00

BABEL WG

IETF97# Seoul

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BIER

- Bit Indexed Explicit Replication
- BIER introduces a novel architecture for multicast packet forwarding. It does not require a signaling protocol to explicitly build multicast distribution trees, nor does it require intermediate nodes to maintain any per-flow state.
- In order to forward BIER encapsulated packet, some BIER key parameters should be conveyed by the routing protocol.
- The key parameters include: Sub-domain-id, BFR-id, MPLS info, BSL, etc.
Babel

• Babel defines a distance-vector routing protocol that operates in a robust and efficient fashion both in ordinary wired as well as in wireless mesh networks.

• Babel use several TLVs to carry the routing information. And Babel can also use new TLVs to convey BIER information. This document defines a way to convey BIER information in Babel.
The BIER information can be carried in Babel update message.

The prefix MUST NOT be summarized and the according sub-TLV MUST be treated as optional and transitive.
BIER in Babel

- **BIER sub-TLV**

```
+-----------------+-----------------+-----------------+-----------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+-----------------+-----------------+-----------------+-----------------+
| sub-Type       | Length          |
+-----------------+-----------------+-----------------+-----------------+
| Reserved        | subdomain-id    | BFR-id          |
+-----------------+-----------------+-----------------+-----------------+
```

Figure 1: BIER sub-TLV

- **BIER MPLS Encapsulation sub-sub-TLV**

```
+-----------------+-----------------+-----------------+-----------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+-----------------+-----------------+-----------------+-----------------+
| sub-sub-Type    | Length          |
+-----------------+-----------------+-----------------+-----------------+
| Lbl Range Size  | BS Len          | Label           |
+-----------------+-----------------+-----------------+-----------------+
```

Figure 3: MPLS Encapsulation sub-sub-TLV

- **Optional BIER sub-domain BSL conversion sub-sub-TLV**

```
+-----------------+-----------------+-----------------+-----------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+-----------------+-----------------+-----------------+-----------------+
| sub-sub-Type    | Length          |
+-----------------+-----------------+-----------------+-----------------+
```

Figure 4: BSL conversion sub-sub-TLV
Existed IGP/BGP extensions for BIER

- BIER support via ISIS
draft-ietf-bier-isis-extensions

- OSPF Extensions for BIER
draft-ietf-bier-ospf-bier-extensions

- BGP Extensions for BIER
draft-ietf-bier-idr-extensions
BIER in BABEL

• Any comments are welcome 😊
Thanks!