YANG Data model for BIER

draft-chh-bier-bier-yang

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Goals

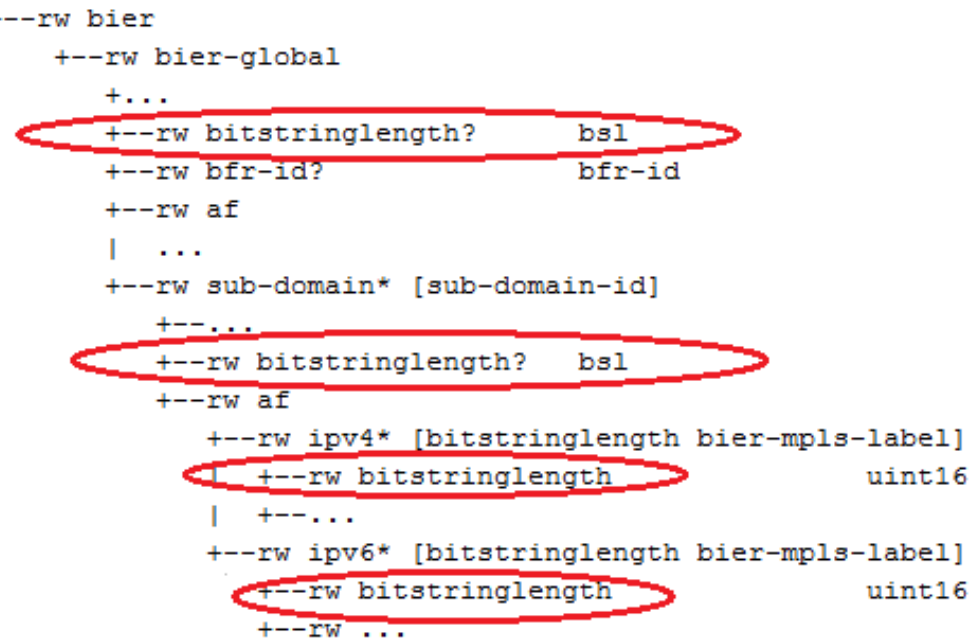
- Define the BIER data model
- Help for product implementation for BIER

Changes from -00 to -01

- Add Mahesh Sivakumar as co-author.
- BFR-ID configuration :
  - Add default BFR-ID in bier-global.
- Import ietf-mpls model and change the type of bi er-label from uint 32 to mpls-label.
- Redefine the operational state of BIRT.

Changes from -00 to -01

- BitStringLength configuration :
  - Define two types of bitstringLenths(imposition a nd disposition) instead of one just for more flexi bili...



Typedef

Typedef the BIER basic parameters.

```
/* Type definitions */

typedef sub-domain-id {
 type uint16;
 description
  "The type for sub-domain-id";
 }

typedef si {
 type uint16;
 description
  "The type for set identifier";
 }

 typedef bfr-id {
 type uint16;
 description
  "The type for bfr identifier";
 }
```

```
typedef bsl {
   type enumeration{
     enum 64-bit{
          description "bitstringlength is 64";
         }
     enum 128-bit{
          description "bitstringlength is 128";
          }
     enum 256-bit{
          description "bitstringlength is 256";
          }
     enum 512-bit{
          description "bitstringlength is 512";
          }
     enum 1024-bit{
          description "bitstringlength is 1024";
          }
     enum 2048-bit{
          description "bitstringlength is 2048";
          }
     enum 4096-bit{
          description "bitstringlength is 4096";
          }
      }
     description
       "The bitstringlength type for imposition mode";
}
```

Data Configure Tree Structure

```
module: ietf-bier
augment /rt:routing:
   +--rw bier
      +--rw bier-global
         +--rw encapsulation-type?   identityref
         +--rw bitstringlength?      bsl
         +--rw bfr-id?               bfr-id
         +--rw af
         |  +--rw ipv4
         |  |  +--rw ipv4-bfr-prefix?   inet:ipv4-prefix
         |  +--rw ipv6
         |     +--rw ipv6-bfr-prefix?   inet:ipv6-prefix
         +--rw sub-domain* [sub-domain-id]
            +--rw sub-domain-id      sub-domain-id
            +--rw mt-id?             uint16
            +--rw bfr-id?            bfr-id
            +--rw frr?               boolean
            +--rw bitstringlength?   bsl
            +--rw af
               +--rw ipv4* [bitstringlength bier-mpls-label]
               |  +--rw bitstringlength               uint16
               |  +--rw bier-mpls-label               mpls:mpls-label
               |  +--rw bier-mpls-label-range-size?   uint8
               +--rw ipv6* [bitstringlength bier-mpls-label]
                  +--rw bitstringlength               uint16
                  +--rw bier-mpls-label               mpls:mpls-label
                  +--rw bier-mpls-label-range-size?   uint8
```

Control Plane Configuration

- Protocol extensions:

```
augment /rt:routing/rt:routing-instance/rt:routing-protocols
/rt:routing-protocol/isis:isis/isis:instance:
   +--rw mt
      +--rw mt-id           uint16
      +--rw bier-global
         +--rw enable?       boolean
         +--rw advertise?    boolean
         +--rw receive?      boolean

augment /rt:routing/rt:routing-instance/rt:routing-protocols
/rt:routing-protocol/ospf:ospf/ospf:instance:
   +--rw mt
      +--rw mt-id           uint16
      +--rw bier-global
         +--rw enable?       boolean
         +--rw advertise?    boolean
         +--rw receive?      boolean
```

Operational State Structure

```
augment /rt:routing-state:
   +--ro bier-global
   |  +--ro bfr-id?             bfr-id
   |  +--ro ipv4-bfr-prefix?    inet:ipv4-prefix
   |  +--ro ipv6-bfr-prefix?    inet:ipv6-prefix
   |  +--ro sub-domain* [sub-domain-id]
   |     +--ro sub-domain-id       sub-domain-id
   |     +--ro mt-id?              uint16
   |     +--ro bfr-id?             bfr-id
   |     +--ro bitstringlength?    uint16
   |     +--ro ipv4* [bitstringlength label]
   |     |  +--ro bitstringlength     uint16
   |     |  +--ro label               mpls:mpls-label
   |     |  +--ro label-range-size?   uint8
   |     +--ro ipv6* [bitstringlength label]
   |        +--ro bitstringlength     uint16
   |        +--ro label               mpls:mpls-label
   |        +--ro label-range-size?   uint8
   +--ro birts
      +--ro birt-subdomain* [sub-domain-id]
      |  +--ro sub-domain-id            sub-domain-id
      |  +--ro birt-bitstringlength* [bitstringlength]
      |     +--ro bitstringlength    uint16
      |     +--ro birt-si* [si]
      |        +--ro si    si
      +--ro f-bm?                   uint16
      +--ro bier-mpls-in-label?     mpls:mpls-label
      +--ro bfr-nbr?                inet:ip-address
      +--ro bier-mpls-out-label?    mpls:mpls-label
```

Notifications

```
notifications:
   +---n bfr-id-collision
   |  +--ro bfr-id?   bfr-id
   +---n bfr-zero
   |  +--ro ipv4-bfr-prefix?   inet:ipv4-prefix
   |  +--ro ipv6-bfr-prefix?   inet:ipv6-prefix
   +---n sub-domain-id-collision
      +--ro sub-domain-id?   sub-domain-id
      +--ro mt-id?           uint16
```

Next Step

- Comments welcome.
- Ask for WG adoption.

Thanks!