Goals

• Define the BIER data model
• Help for product implementation for BIER
Changes from -01 to -02

• Took into account WG comments since last IETF.
• Ask YANG DOCTOR-Giles Heron to review our draft.
  – Put ipv4-bier-prefix and ipv6-bier-prefix as leaves at the top level in config container and state container.
  – Add a typedef for mt-id and an IGP Type per sub-domain.
  – Use grouping “bier-parameters” to define the bier global parameters.
Changes from -01 to -02

– Check the bier-global containers for config and state, and add encapsulation type, bitstring length and frr in the state container.

– Still put the ipv4*[bitstrinlength bier-mpls-label base] and ipv6*[bitstrinlength bier-mpls-label base] under the AF in config container, but put the ipv4*[bitstrinlength bier-mpls-label-base] and ipv6*[bitstrinlength bier-mpls-label-base] as leaves at the top level in state container.

– Use “when” statements to define augment of the routing protocols.
Changes from -01 to -02

- Rename "mt-ospf" and "mt-isis” to "bier-ospf-cfg" and "bier-isis-cfg“.
- Use grouping “bier-mpls-cfg” to define the mpls encapsulation.
- Use grouping” bier-protocol-extensions” for OSPF and ISIS extension.
- Update the content of the birt-si list.
- Rename “birt-subdomain” to “birt”.
Changes from -01 to -02

• Use the Yangvalidator site to validate our draft, there are some errors:

  ietf-bier.yang

  Extraction
  No warnings or errors

  Validation
  ietf-bier.yang:15: error: module "ietf-mpls" not found in search path
  ietf-bier.yang:19: error: module "ietf-isis" not found in search path
  ietf-bier.yang:23: error: module "ietf-ospf" not found in search path

• After discussing with YANG doctor, we think the reason is that the validator is looking for imported modules (ietf-mpls, ietf-isis, and ietf-ospf). And since they are not formally published (yet) we don’t have them in the local repository on the validator site.
module: ietf-bier
augment /rt:routing:
  +++rw bier
    +++rw bier-global
      +++rw encapsulation-type? identityref
      +++rw bitstringlength? bsl
      +++rw bfr-id? bfr-id
      +++rw ipv4-bfr-prefix? inet:ipv4-prefix
      +++rw ipv6-bfr-prefix? inet:ipv6-prefix
      +++rw sub-domain* [sub-domain-id]
        +++rw sub-domain-id sub-domain-id
        +++rw igp-type? igp-type
        +++rw mt-id? mt-id
        +++rw bfr-id? bfr-id
        +++rw frr? boolean
        +++rw bitstringlength? bsl
    +++rw af
      +++rw ipv4* [bitstringlength bier-mpls-label-base]
      |    +++rw bitstringlength uint16
      |    +++rw bier-mpls-label-base mpls:mpls-label
      |    +++rw bier-mpls-label-range-size? bier-mpls-label-range-size
      +++rw ipv6* [bitstringlength bier-mpls-label-base]
      |    +++rw bitstringlength uint16
      |    +++rw bier-mpls-label-base mpls:mpls-label
      |    +++rw bier-mpls-label-range-size? bier-mpls-label-range-size
Control Plane Configuration

• Protocol extensions:

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

augment /rt:routing/rt:routing-instance/rt:routing-protocols
 /rt:routing-protocol/isis:isis/isis:instance:
 +++-rw bier-isis-cfg
       +++-rw mt-id        mt-id
       +++-rw bier-global
          +++-rw enable?    boolean
          +++-rw advertise?  boolean
          +++-rw receive?    boolean
```
augment /rt: routing-state:
  +--ro bier-global
    |  +--ro encapsulation-type? identityref
    |  +--ro bitstringlength? bsl
    |  +--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 igp-type igp-type
      |    +--ro mt-id? mt-id
      |    +--ro bfr-id? bfr-id
      |    +--ro frr? boolean
      |    +--rw bitstringlength? bsl
      |    +--ro ipv4* [bitstringlength bier-mpls-label-base]
      |    |    +--ro bitstringlength uint16
      |    |    +--ro bier-mpls-label-base mpls: mpls-label
      |    |    +--ro bier-mpls-label-range-size? bier-mpls-label-range-size
      |    +--ro ipv6* [bitstringlength bier-mpls-label-base]
      |    |    +--ro bitstringlength uint16
      |    |    +--ro bier-mpls-label-base mpls: mpls-label
      |    |    +--ro bier-mpls-label-range-size? bier-mpls-label-range-size
  +--ro birts
    |  +--ro birt* [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  
  |   +---r bfr-id? bfr-id  
  +---n bfr-zero  
  |   +---r ipv4-bfr-prefix? inet:ipv4-prefix  
  |   +---r ipv6-bfr-prefix? inet:ipv6-prefix  
  +---n sub-domain-id-collision  
    +---r sub-domain-id? sub-domain-id  
    +---r mt-id? uint16
Next Step

• Comments welcome.
• Ask for WG adoption.
Thanks!