

# Multicast service YANG

draft-zhang-mboned-multicast-service-yang-00

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# Why we need the multicast service model?

Existed multicast YANG models:

PIM

IGMP

BIER

.....

- These models describe different aspects of multicast.
- The models are decentralized, and they can't describe the global multicast service.
- The YANG of PIM, IGMP and BIER, all focus on the protocol itself.
- They are device models.

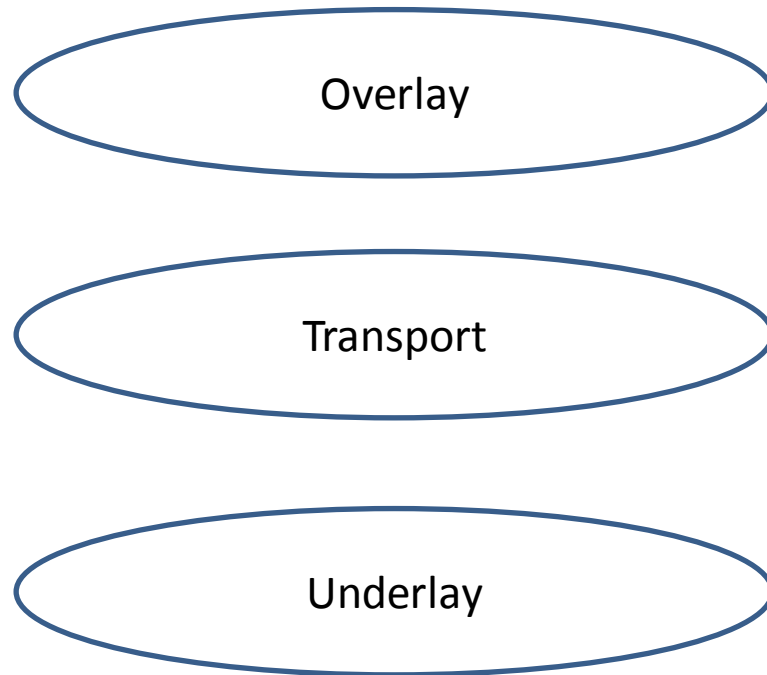
- How we use these models to describe multicast service?
- To the deployer, they may not focus on all the items in the device model.
- The global, general service model is lacking.

# What's the multicast service model?

- A general and all-round multicast service model, and guides the deployment of multicast service.
- Focus on the outline of multicast service.
- Assists with the existed multicast device models to implement multicast service.

# Multicast level

- Overlay, Transport, Underlay



- The three layers make the multicast deployment more clearly.

# The multicast service YANG model

```
module: ietf-multicast-service
  +--rw multicast-service
    +--rw multicast-overlay
      .....
    +--rw multicast-transport
      .....
    +--rw multicast-underlay
      .....
```

- The model is composed by three layers.

# The multicast service YANG model---overlay layer

```
+--rw multicast-overlay
  | +--rw (feature-type)
  | | +--:(pure-multicast)
  | | | +--rw vpn-id          uint32
  | | | +--rw source-address  inet:ip-address
  | | | +--rw source-wildcard? uint8
  | | | +--rw group-address   inet:ip-address
  | | | +--rw group-wildcard? uint8
  | | +--:(nvo3)
  | |   +--rw vni-type        virtual-type
  | |   +--rw vni-value       uint32
  | +--rw nodes-information
  | | +--rw ingress-node     inet:ip-address
  | | +--rw egress-nodes* [number]
  | |   +--rw number         uint32
  | |   +--rw egress-node    inet:ip-address
  | +--rw bier-information
  | | +--rw sub-domain       sub-domain-id
  | | +--rw ingress-node     bfr-id
  | | +--rw egress-nodes* [number]
  | |   +--rw number         uint32
  | |   +--rw egress-node    bfr-id
  | +--rw overlay-technology
  |   +--rw (overlay-tech-type)
  |     +--:(mld)
  |     +--:(mvpn)
```

The overlay layer includes:

- Basic multicast flow information;
- Ingress/egress nodes information;
- Overlay technology.

The overlay definition embodies the information that the deployer concerns.

# The multicast service YANG model---Transport layer

```
+--rw multicast-transport
  | +--rw (transport-type)
  |   +--:(bier)
  |     | +--rw sub-domain      sub-domain-id
  |     | +--rw (encap-type)
  |     |   | +--:(mpls)
  |     |   | +--rw bitstringlength?  uint16
  |     |   | +--rw set-identifier?    si
  |     |   | +--rw ecmp?              boolean
  |     |   | +--rw frr?              boolean
  |     |   +--:(cisco-mode)
  |     |     | +--rw p-group          inet:ip-address
  |     |     | +--rw graceful-restart? boolean
  |     |     | +--rw bfd?            boolean
  |     |     +--:(mpls)
  |     |       | +--rw (mpls-tunnel-type)?
  |     |       |   +--:(mldp)
  |     |       |     | +--rw tunnel-id?    uint32
  |     |       |     | +--rw frr?          boolean
  |     |       |     | +--rw backup-tunnel? boolean
  |     |       |     +--:(p2mp-te)
  |     |       |       | +--rw tunnel-id?    uint32
  |     |       |       | +--rw frr?          boolean
  |     |       |       | +--rw backup-tunnel? boolean
  |     |       +--:(pim)
  |     |         +--rw graceful-restart? boolean
  |     |         +--rw bfd?              boolean
```

The transport layer includes:

- All the technology that can be used to carry multicast flow.
- The characters of technology that the deployer concerns.
- This part can be associated with YANG models of protocols, such as bier, mpls, cisco-mode, pim, and so on.

# The multicast service YANG model---Underlay layer

+---rw multicast-underlay

+---rw underlay-requirement? boolean

+---rw (underlay-type)

+---:(bgp)

+---:(ospf)

| +---rw topology-id? uint16

+---:(isis)

| +---rw topology-id? uint16

+---:(pim)

The underlay layer:

- Only point out the underlay technology which is used.

- The models can be associated with the protocol YANG.



# An example

```
+--rw multicast-overlay
  | +--rw (feature-type)
  | | +--:(pure-multicast)
  | | | +--rw source-address    10.1.1.1
  | | | +--rw source-wildcard?  24
  | | | +--rw group-address     225.1.1.1
  | | | +--rw group-wildcard?   24
  | | +--rw bier-information
  | | | +--rw sub-domain    10
  | | | +--rw ingress-node  1
  | | | +--rw egress-nodes* [number]
  | | |   +--rw number      10
  | | |   +--rw egress-node 1~10
  | | +--rw overlay-technology
  | |   +--rw (overlay-tech-type)
  | |   +--:(mld)
```

```
+--rw multicast-transport
  | +--rw (transport-type)
  | | +--:(bier)
  | | | +--rw sub-domain    10
  | | | +--rw (encap-type)
  | | | | +--:(mpls)
  | | | +--rw bitstringlength? 64
  | | +--rw ecmp?            yes
```

```
+--rw multicast-underlay
  +--rw underlay-requirement? Yes
  +--rw (underlay-type)
  +--:(ospf)
  | +--rw topology-id?      5
```

## A IPTV service

- Basic multicast information
- Overlay-technology
- Transport technology
- Underlay technology

- Any comments are welcome 😊

Thanks!