Multicast service YANG

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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

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

```yamls
+--rw multicast-transport
  |  | +--rw (transport-type)
  |  |   | +--:(bier)
  |  |   |   | +--rw sub-domain sub-domain-id
  |  |   |   | +--rw (encap-type)
  |  |   |   |   | +--:(mpls)
  |  |   |   |   |   | +--rw bitstring-length? 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

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!