

# An update to the YANG Data Model for RIB

Lixing Wang  
Hariharan Ananthakrishnan  
Mach Chen  
Amit Dass  
Sriganesh Kini  
Nitin Bahadur

IETF-94 Nov, 2015, Yokohama

# Nexthop updates

- Add a sharing-flag to nexthop
  - Indicate whether a nexthop can be shared by multiple routes
- Adjust nexthop structure according to info model updates
  - Move the nexthop-chain to the first level of the nexthop sub-tree
    - Which was under the nexthop-base sub-tree
  - Move the basic nexthops (e.g., interface, IP address) to the nexthop-base sub-tree
    - To avoid that the very basic nexthops defining through the nexthop-chain

```

+--rw nexthop
+--rw nexthop-id          1          uint32
+--rw sharing-flag       boolean
+--rw (nexthop-type)?
+--:(nexthop-base)
|   ... (refer to Figure 5)
+--:(nexthop-chain) {nexthop-chain}?
2  +--rw nexthop-chain
   +--rw nexthop-list* [nexthop-memb
     +--rw nexthop-member-id uint32
+--:(nexthop-replicates) {nexthop-repl:
  +--rw nexthop-replicates
    +--rw nexthop-list* [nexthop-memb
      +--rw nexthop-member-id uint32
+--:(nexthop-protection) {nexthop-prote
  +--rw nexthop-protection
    +--rw nexthop-list* [nexthop-memb
      +--rw nexthop-member-id      u:
      +--rw nexthop-preference nexth
+--:(nexthop-load-balance) {nexthop-loa
  +--rw nexthop-lbs
    +--rw nexthop-list* [nexthop-memb

```

# Capability Negotiation

- Introduce the feature/if-feature for capability negotiation
  - Nexthop related features
    - feature nexthop-chain
    - feature nexthop-protection
    - feature nexthop-replicates
    - feature nexthop-load-balance
  - Tunnel encap related features
    - feature ipv4-tunnel
    - feature ipv6-tunnel
    - feature mpls-tunnel
    - feature vxlan-tunnel

# RPCs

- Add the following RPCs for rib operations:
  - rib-add/delete
    - To add/delete a rib to/from a routing instance;
  - route-add/update/delete
    - To add/update/delete routes to/of/from a rib;
  - nh-add/delete
    - To add/delete a nexthop to/from a rib

```
rpcs:
+---x rib-add
|   +--ro input
|   |   +--ro rib-name      string
|   |   +--ro rib-family   rib-family-def
|   |   +--ro ip-rpf-check? boolean
|   +--ro output
|   |   +--ro result boolean
+---x rib-delete
|   +--ro input
|   |   +--ro rib-name string
|   +--ro output
|   |   +--ro result boolean
+---x route-add
|   +--ro input
|   |   +--ro rib-name string
|   |   +--ro routes
|   |   ...
|   +--ro output
|   |   +--ro result boolean
+---x route-delete
|   +--ro input
|   |   +--ro rib-name string
|   |   +--ro routes
|   |   ...
|   +--ro output
|   |   +--ro result boolean
+---x route-update
|   +--ro input
|   |   +--ro rib-name      string
|   |   +--ro (match-conditions)?
|   |   ...
|   +--ro output
|   |   +--ro result boolean
+---x nh-add
|   +--ro input
|   |   +--ro rib-name      string
|   |   +--ro nexthop-id   uint32
|   |   +--ro sharing-flag boolean
```

# Editorial changes

- Made a lot of editorial changes to make it pass through the Yang validate tool check.

## Next step

- Submit version-03 to address the MPLS tunnel encap issues (draft is ready)
- Ask for more review and address the comments when received.
- The authors believe that the upcoming version-03 is almost ready for WG last call.