

# Yang Data Model for Tunnel Policy

## draft-li-rtgwg-tunnel-policy-yang-00

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# Introduction

- This document defines a YANG data model that can be used to configure and manage tunnel policy, including
  - Tunnel Policy YANG Model
  - Tunnel Selector YANG Model

# Tunnel Policy (1)

- At present, multiple types of tunnels can be provided, such as GRE tunnels, LDP LSPs, static LSPs and CRLSP.
- It is necessary to select different tunnels for the VPN services according to the specific tunnel policy.
- A tunnel policy determines how different types of tunnels can be selected.

# Tunnel Policy (2)

- Tunnel policies can be classified into two modes:
  - Selection Sequence: The system selects a tunnel for the service based on the tunnel type priorities defined in the tunnel policy.
  - Tunnel binding: The system selects only a specified tunnel for the service.
- ECMP
  - In the selection sequence mode, number of tunnels for ECMP can be specified.
  - In the tunnel binding mode, multiple tunnel binding can be specified for ECMP.
- Degradation (Down-Switch)
  - In the tunnel binding mode, degradation from the MPLS TE tunnel to LDP LSP/GRE/etc. can be specified.

# Tunnel Selector

- Tunnel Selector for VPN Instances:
  - It is defined in the VPN Yang drafts (L2VPN/L3VPN/EVPN) to defines how the VPN select the tunnel based on the tunnel policy.
- Tunnel Selector for Routes:
  - In some cases, there is no VPN instances when selecting the tunnels for the routes is necessary such as selecting tunnels in ASBRs for the Option-B Inter-AS VPN.
  - Tunnel selector for routes is introduced to defines how selecting appropriate tunnel for routes based on tunnel policy.

- Tunnel Selector for Routes:
  - Defines certain matching rules
  - Associates the routes whose attributes matching the rules with specific tunnels
  - Consists of one more policy nodes
  - Each policy node comprises a set of if-match and apply clauses
  - Facilitates flexible tunneling and better satisfies user requirements

# Tunnel Policy YANG Model

```
+--rw tunnelPolicys
| +--rw tunnelPolicy* [tunnelPolicyName]
|   +--rw tunnelPolicyName  string
|   +--rw description?      string
|   +--rw (tunnelPolicyMode)?
|     +--:(SpecifyTunnelSelectionSequence)
|       | +--rw tunnelTypeSequences
|       | | +--rw tunnelType*      enumeration
|       | | +--rw loadBalanceNumber  uint32
|       +--:(BindApplicationToTunnel)
|         +--rw bindingPolicies
|           +--rw bindingPolicy* [nextHopAddress]
|             +--rw nextHopAddress  inet:ip-address
|             +--rw tunnelInterface*  leafref
|             +--rw ignoreDestinationCheck?  boolean
|             +--rw downSwitch?      boolean
```

# Tunnel Selector YANG Model

```
+--rw tunnelSelector* [name]
  +--rw name          string
  +--rw description?  string
  +--rw tunnelSelectorNodes
    +--rw tunnelSelectorNode* [nodeSequence]
      +--rw nodeSequence  uint32
      +--rw matchMode?    enumeration
      +--rw matchCondition
        | +--rw matchIPv4NextHop
        | | +--rw matchType    enumeration
        | | +--rw prefixName  string
        | | +--rw aclNameOrNum string
        | +--rw matchIPv6NextHop
        | | +--rw ipv6PrefixName string
        | +--rw matchRdFilter
        | +--rw rdIndex  uint32
      +--rw applyAction
        +--rw tunnelPolicyName string
```

augment /bgp:bgp-router/bgp:vpn4/bgp:unicast:

```
+--rw tunnelSelectorName? string
```

augment /bgp:bgp-router/bgp:vpn6/bgp:unicast:

```
+--rw tunnelSelectorName? string
```



# Next Steps

- Solicit comments and collaboration.
- Revise the draft.