

draft-litkowski-spring-sr-yang-00

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Goal

- Calls for standardization of Segment Routing configuration and operation using YANG

Model structure

- Global Config

```
module: ietf-segment-routing
augment /rt:routing/rt:routing-instance:
  +--rw segment-routing
    +--rw transport-type?  identityref
    +--rw bindings
      | +--rw mapping-server {mapping-server}?
      |   +--rw ipv4
      |     | +--rw mapping-entry* [prefix]
      |     |   +--rw prefix      inet:ipv4-prefix
      |     |   +--rw start-sid?  uint32
      |     |   +--rw range?      uint32
      |     +--rw ipv6
      |       +--rw mapping-entry* [prefix]
      |       +--rw prefix      inet:ipv6-prefix
      |       +--rw start-sid?  uint32
      |       +--rw range?      uint32
    +--rw srgb* [lower-bound upper-bound]
      | +--rw lower-bound  uint32
      | +--rw upper-bound  uint32
```

Model structure

- Some debate to have here ...
 - Is the SRGB a protocol config, an instance config, a chassis wide config ?
 - Same question for transport plane ...

Model structure

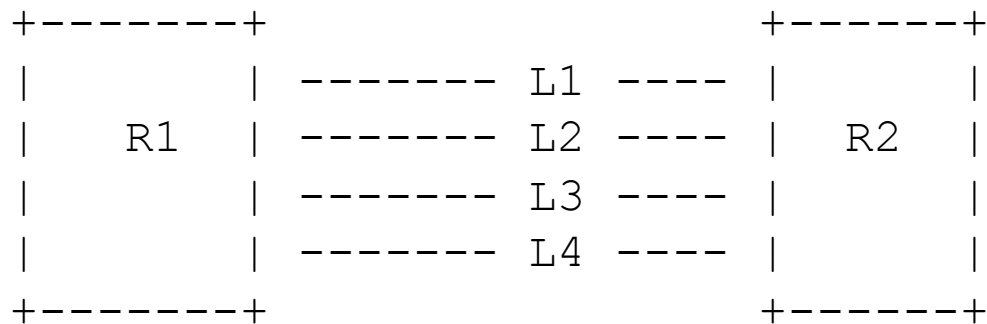
- Interface Config

...

```
+--rw interfaces
  +--rw interface* [name]
    +--rw name                if:interface-ref
    +--rw adjacency-sid
      | +--rw advertise-adj-group-sid* [group-id]
      | | +--rw group-id      uint32
      | +--rw advertise-protection?   enumeration
    +--rw prefix-sid
      +--rw ipv4
        | +--rw prefix-sid* [value]
        |   +--rw value-type?         enumeration
        |   +--rw value               uint32
        |   +--rw node-flag?          boolean
        |   +--rw last-hop-behavior?  enumeration
      +--rw ipv6
        +--rw prefix-sid* [value]
          +--rw value-type?           enumeration
          +--rw value                 uint32
          +--rw node-flag?            boolean
          +--rw last-hop-behavior?    enumeration
```

Model structure

- Interface Config :
 - We introduce S-flag usage in the model
 - Group-ID permit to find how interfaces are bundled together (idea to discuss ...)



L1/L2 part of group 10, use a common Adj-SID X
L3/L4 part of group 20, use a common Adj-SID Y

Model structure

- Protocol extensions :
 - We use augmentation

```
augment /rt:routing/rt:routing-instance/rt:routing-protocols/  
rt:routing-protocol/isis:isis/isis:instance:  
  +--rw segment-routing  
    +--rw enabled?      boolean  
    +--rw bindings  
      +--rw advertise?  boolean  
      +--rw receive?    boolean  
augment /rt:routing/rt:routing-instance/rt:routing-protocols/  
rt:routing-protocol/ospf:ospf/ospf:instance:  
  +--rw segment-routing  
    +--rw enabled?      boolean  
    +--rw bindings  
      +--rw advertise?  boolean  
      +--rw receive?    boolean
```

Model structure

- Discussion to have :
 - How to handle protocol specific ?
 - All in SR model and do augmentation ?
 - All in protocol models ?
 - Mix ?
 - Now we have some stuffs also in ISIS model that we may consider to remove

Model structure

- Ops state and notifications :

```
augment /rt:routing-state/rt:routing-instance:
  +--ro segment-routing
    +--ro label-blocks*
      | +--ro lower-bound?   uint32
      | +--ro upper-bound?  uint32
      | +--ro size?         uint32
      | +--ro free?         uint32
      | +--ro used?         uint32
    +--ro global-sid-list
      +--ro sid* [target sid source source-protocol binding-type]
        +--ro target          string
        +--ro sid             uint32
        +--ro algorithm?     uint8
        +--ro source          inet:ip-address
        +--ro used?          boolean
        +--ro source-protocol leafref
        +--ro binding-type    enumeration

notifications:
  +---n segment-routing-global-sid-collision
    | +--ro received-target?  string
    | +--ro original-target?  string
    | +--ro index?           uint32
    | +--ro routing-protocol? leafref
  +---n segment-routing-index-out-of-range
    +--ro received-target?  string
    +--ro received-index?   uint32
    +--ro routing-protocol? leafref
```

Next steps

- Already multiple people in the design team (coming from ISIS and OSPF)
- Model is quite advanced for basic SR codes which are shipped today
- It's time NOW to work on it (CLI adaptation still possible) and we need to make it fast ! (not a huge job)
- Working items :
 - Need a consensus on SRGB scope
 - Need a consensus on transport-plane scope
 - Need a consensus on how to handle protocol extensions
 - Address comments from WG
- Ask for WG adoption