

BGP SR Policy Extensions for Weight Time Range

(draft-yang-idr-sr-policy-weight-timerange-00)

IETF 120

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Motivation

- Some facts:
 - More and more bulk data transmission requirements for cloud. Examples:
 - Intelligent vehicles: **8 TB** of data for each road testing car daily
 - Film production: **2 TB** of data for each film daily.
 - Astronomical observations: peak data rate **38 GB per second**, e.g. China's FAST
 - Completion time for those transmission are time-bounded
 - High transmission speed is desired, take as much available bandwidth as possible
- Problem:
 - Ethernet in DC has evolved to 800GE, much higher than 100GE in WAN
 - LAG/ECMP in WAN
 - In case of 800GE burst between DC and multiple 100G WAN link
 - Based on per flow load balance, some paths utilization will be rather high, while others will be low
 - Coordination is needed for those multiple bulk data transmission tasks
- Thoughts:
 - We need a mechanism to schedule and allocate available bandwidth for different tasks

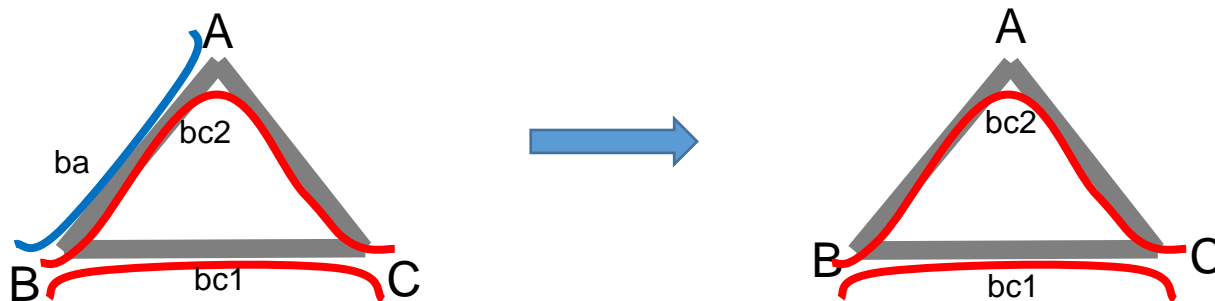
Proposal

- Introduce vectorized “Weight” attribute in Segment List
 - add optional Time Range for each Weight
 - at most one “Weight” without “Time Range”

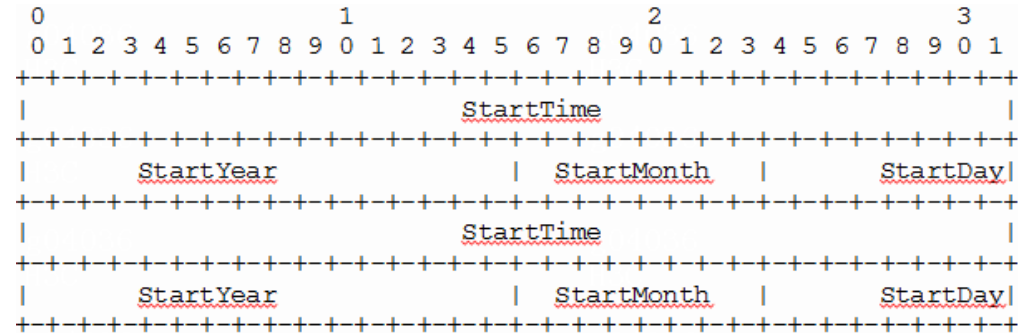
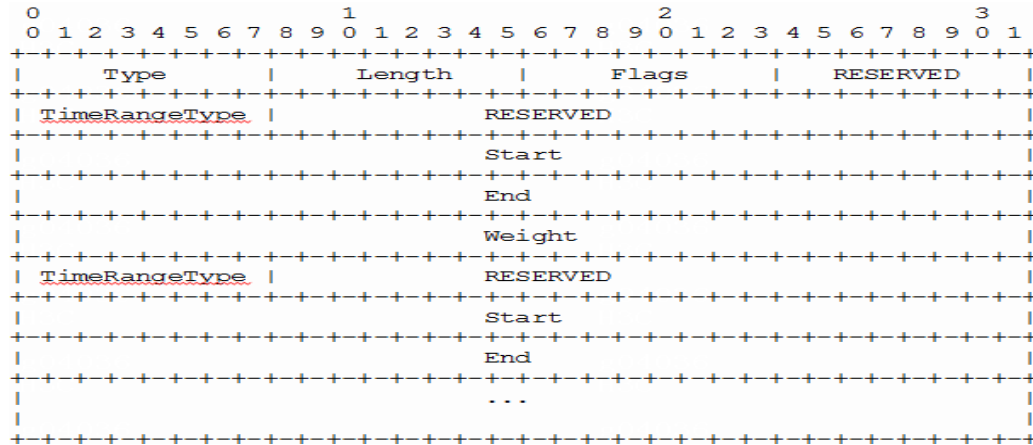


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SR Policy SAFI NLRI: <Distinguisher, Policy-Color, Endpoint>
Attributes:
  Tunnel Encaps Attribute (23)
    Tunnel Type: SR Policy
      Binding SID
      SRv6 Binding SID
      Preference
      Priority
      Policy Name
      Policy Candidate Path Name
      Explicit NULL Label Policy (ENLP)
      Segment List
        Weight Time Range
        Segment
        Segment
        ...
```

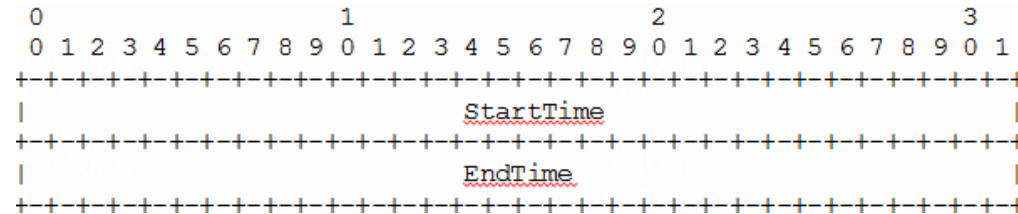
- Consider there will be shared link between transmission tasks
 - Different path for each task, shared links in middle
 - We can define bandwidth allocation plans and apply those plans for maximize link utilization in advance



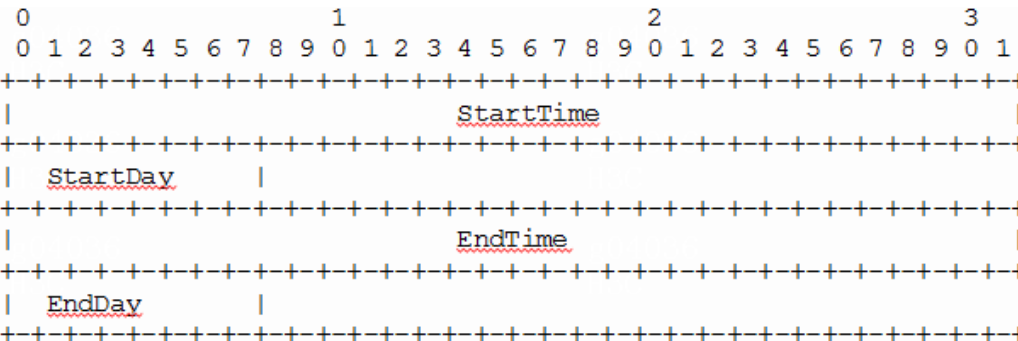
Weight Time Range Sub-TLV



Absolute Time format:



Period Day Time format:



Period Week Time: Day 0-6

Period Month Time: Day 1-31

- Type: TBD.
- Length: 2 + Weight Number * (one TimeRange Weight Length).
- Flags: 1 octet of flags.
- TimeRangeType: 1 octet.
 - Type 1: Absolute Time.
 - Type 2: Period Day Time
 - Type 3: Period Week Time
 - Type 4: Perion Month Time
- start/end: The format varies depending on the TimeRangeType. Please refer to the detailed description below for the specific format.

Next Steps

- Any questions or comments are Welcomed
- Seeking for feedback