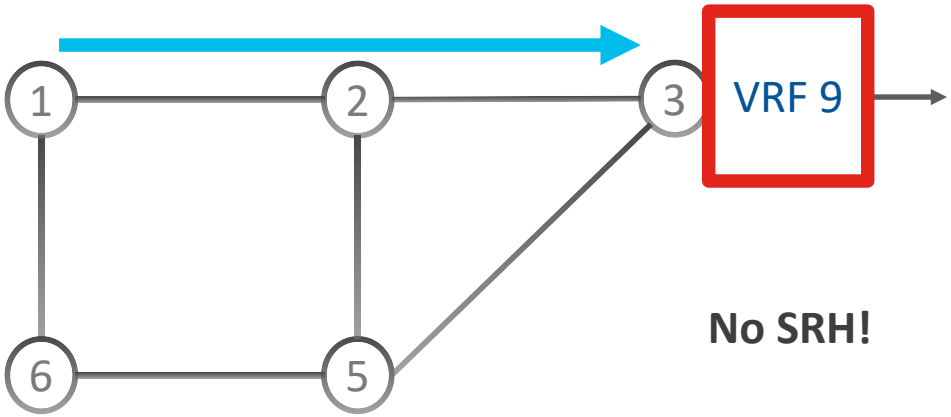
SRv6 Deployed Use-Cases

VPN over Best-Effort 5G Slice

Network Program: B:3:V(9)

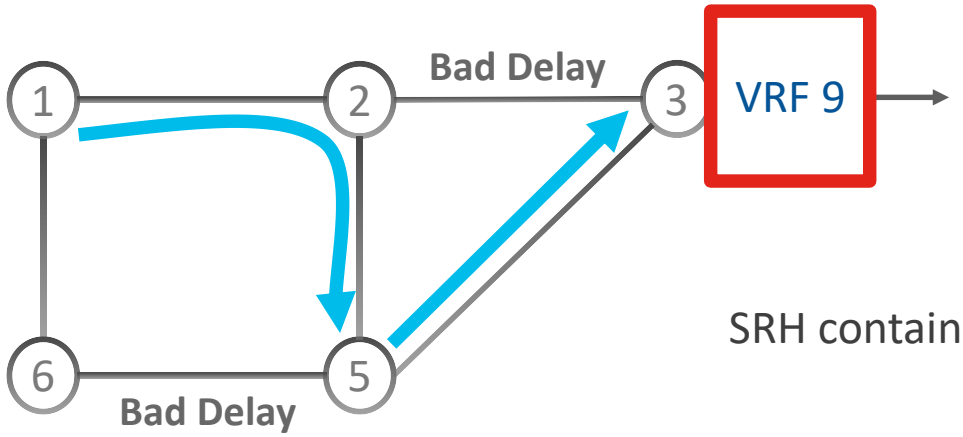
B*: locator block is associated with *ISIS base algo (Low Cost, Best Effort)



VPN with Low-Delay 5G Slice – SR-TE option

Network Program: B:2:C5 then B:3:V(9)

B: locator block is associated with ISIS base algo (Low Cost)

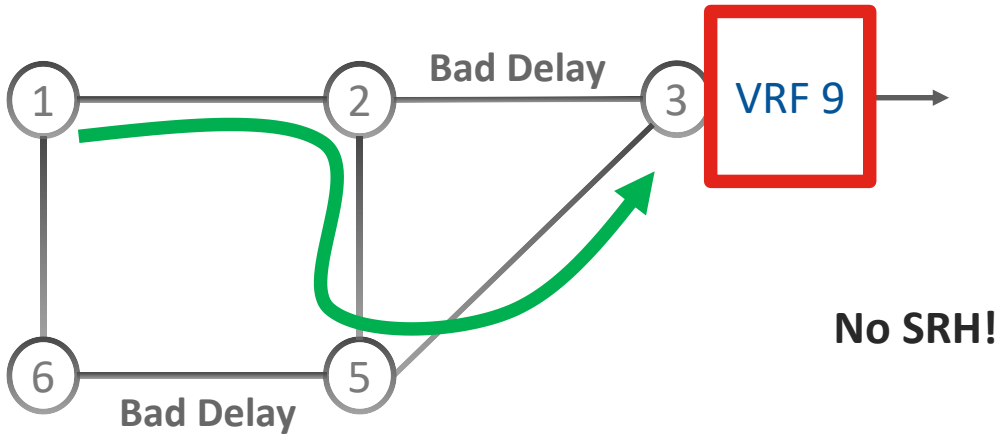


SRH contains 1 single SID

VPN with Low-Delay 5G Slice – Flex-algo option

Network Program: D:3:V(9)

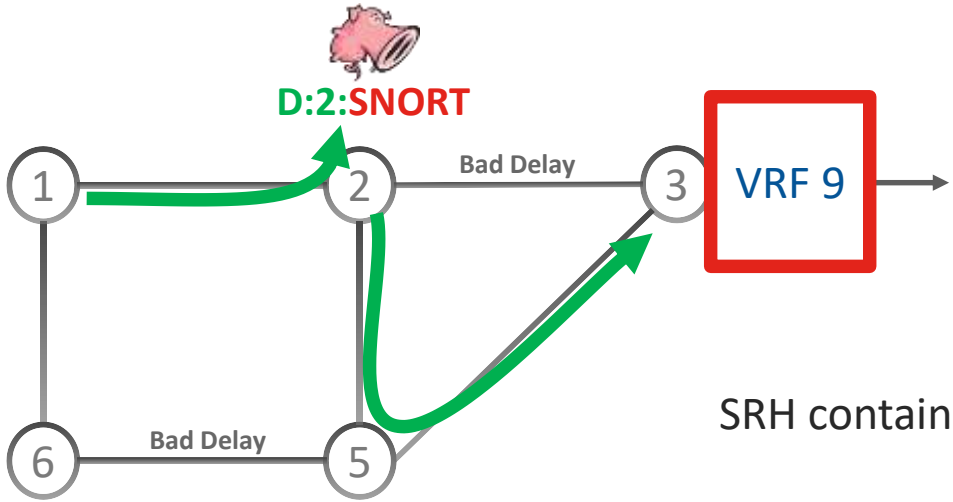
***D**: locator block is associated with **Low Delay** Flex-Algo*



Snort firewall, VPN & Low-Delay Slice

Network Program: D:2:SNORT then D:3:V(9)

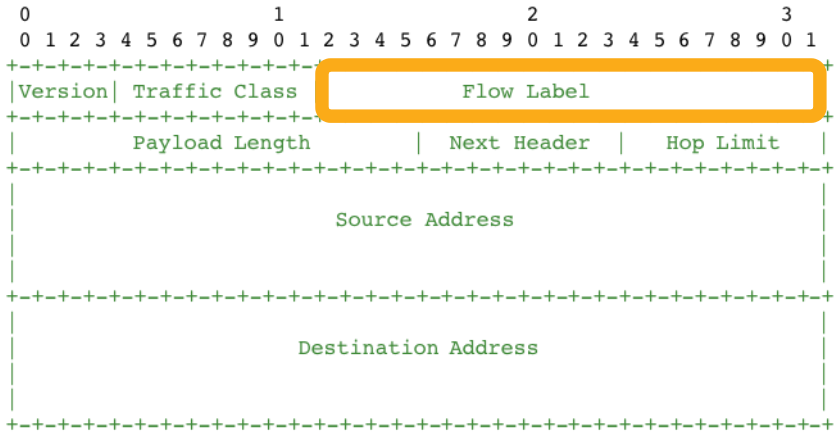
***D**: locator block is associated with **Low Delay** Flex-Algo*



SRH contains 1 Single SID

Load-balancing

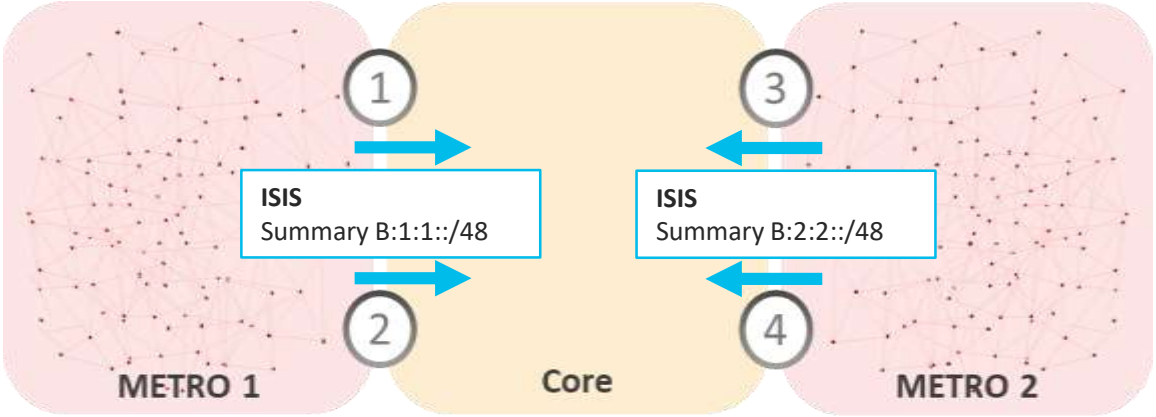
- 20-bit entropy
- No additional protocol
  - infamous mpls entropy label



Seamless Incremental Deployment

- As soon as the network supports plain IPv6 forwarding
  - A new SRv6-VPN service only requires PE upgrade
  - TE objective can be achieved with a few well selected TE waypoints
  - FRR is deployed incrementally

Prefix Summarization



- Back to basic IP routing and summarization
- No BGP inter-AS Option A/B/C

SRv6 has excellent native Scale

- Many use-cases do not even use an SRH ☺
  - Any VPN (L3VPN, PW, eVPN)
  - Egress Peering Engineering
  - Low-Latency or Disjoint Slicing
  - Optimal Load-Balancing
- If SRH is needed, most cases will use 1 or 2 SID’s
- Prefix Summarization gain
- Talk to the operators who deployed, they are happy to share experience

SRv6 NSO Automation

- Address allocation
  - Loopback and interfaces
- SID allocation
  - Algo 0 and Flex-Algos
- Multi-Domain
- ISIS summarization and redistribution between domains

- Latency Measurement
- Flex-Algo – Delay Slice
- TI-LFA
- BFD
- BGP-VPN

Negligible SRv6 SID block allocation - Iliad

As of the end of 2019, the SRv6 network consists of:

- 1000 Cisco NCS 5500 routers.
- 1800 Iliad's Nodeboxes.
- The network services 4.5 million mobile subscribers (as of Q3 2019).
- The network is carrying 300 Gbps of commercial traffic at peak hours.
- It is expected to grow to more than 4000 Nodeboxes in 2020. The SRv6 SIDs are allocated from a /40 sub-block of FC/8.

Less than 1 billionth of the FC/8 space - Negligible

Negligible SRv6 SID block allocation - SBB

- SBB currently has a /20 public IPv6 space from APNIC
- SBB SRv6 is supported by a /40 sub-block
- This is only 1 millionth of the current SBB allocation