SR for SDWAN
draft-dukes-sr-for-sdwan-00

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Agenda

• Forwarding
• Control Plane
• Security
• Benefits
Typical Ingress CE Node (E1):
classify ingress traffic
determining the egress edge node
selecting a local output interface
secure the traffic
forward to the chosen egress edge node.

Typical Egress CE Node (E2):
Decapsulate
Decrypt
Forward on the internal network.

**** = logical connection
:::  = physical connection, between layers
/--\  = physical connection, within a layer
New Ingress CE Node (E1):

- Monitors and select an SR binding SID for encrypted traffic.
- Insert an SRH with two Segments <Binding SID, Egress CE address>

**** = logical connection
::: = physical connection, between layers
/\ = physical connection, within a layer
Binding SID to Policy (C1):

- At C1, the Binding SID applied at E1 is bound to an SR policy to reach C2.
- C2 performs Penultimate Segment Pop and removes the SRH before E2 receives the packet.
Control Plane Interaction

Enterprise Operator

SDWAN Controller

SR Controller

Require low latency from E1 to E2

Request service from E1:: to E2:: for low latency

Compute an SR Policy for E1:: to E2::

Program SR TE Policy

Report policy installed

Reply with binding SID C1:B22::

Notify SID C1:B22:: for low latency E1:: to E2::
Control Plane Work... See New

- **Enterprise Operator**
  - Require low latency from E1 to E2

- **SDWAN Controller**
  - SDWAN Private
  - Notify SID C1:B22:: for low latency E1:: to E2::

- **SR Controller**
  - New
  - Request service from E1:: to E2:: for low latency
  - Reply with binding SID C1:B22::
  - Program SR TE Policy
  - Compute an SR Policy for E1:: to E2::
  - Report policy installed

- **PCE(P)**
  - BGP(LS,TE)

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Secure Use of Binding SID (C1):

- Build on Domain of Trust defined in I-D.filsfils-spring-srv6-network-programming.
- The ACL implementing SEC1 and SEC2 on node C1 is updated to specifically allow traffic from E1 to the Binding SIDs it is allowed to use.
Benefits

• Scaling
  • PE maintains SR TE Policies, binding SIDs, counters

• Billable per Customer/SLA
  • PE counts packets per binding SID

• Privacy
  • SP doesn’t share topology with CE
  • CE performs classification - don’t share with SP.
Next Steps...

• Continue to build out subsections not yet defined
  • Remotely connected to PE with SRv6
  • Multiple Providers with SRv6
  • MPLS Core
  • MPLS CE-PE

• Collaboration and discussion

• Questions?