IETF Hackathon

SRv6 for Inter-Layer Network Programming

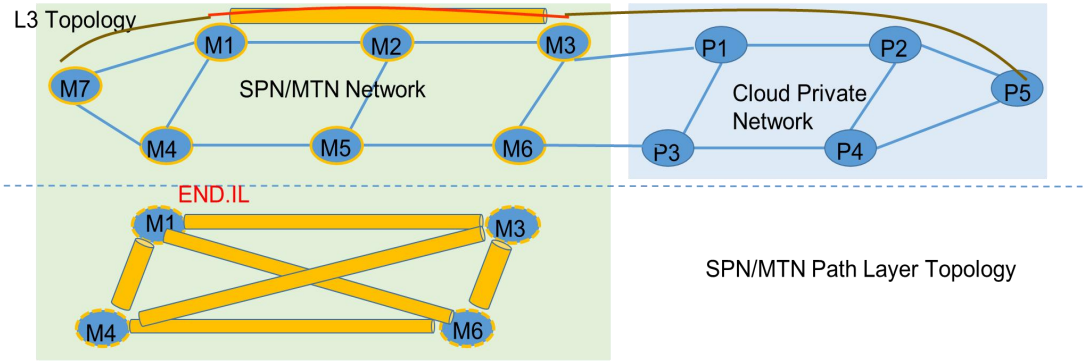
IETF 125

14–15 March 2026

Shenzhen, China

Hackathon Plan

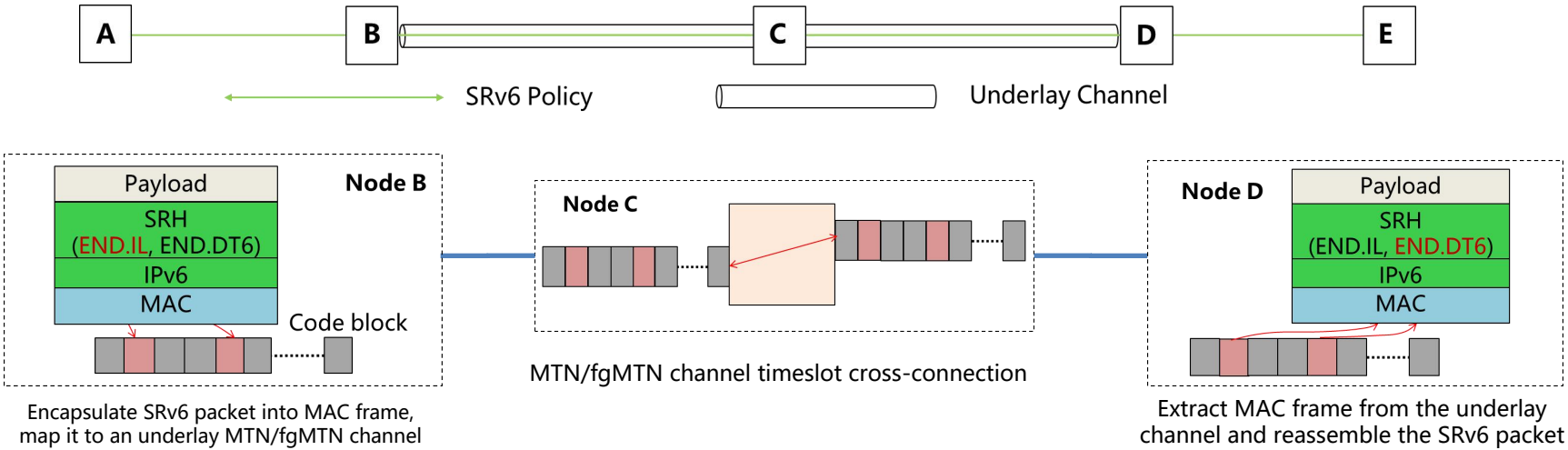
- SRv6 END.IL behavior is defined to instruct a node to send packets through underlay links or connections.
- Demonstrate multi-vendor inter-operation with SRv6 END.IL in MTN/SPN scenarios, enabling deterministic connectivity to the cloud private network.



- Validate SRv6 based EVPN service connectivity and performance guarantee with END.IL and MTN underlay in the inter-operation.

Technical principle of END.IL forwarding plane

- Each END.IL is associated with a underlay connection (such as MTN/fgMTN channel) pointing to a remote network node, enabling the integration of underlay channels with SRv6 programmability.

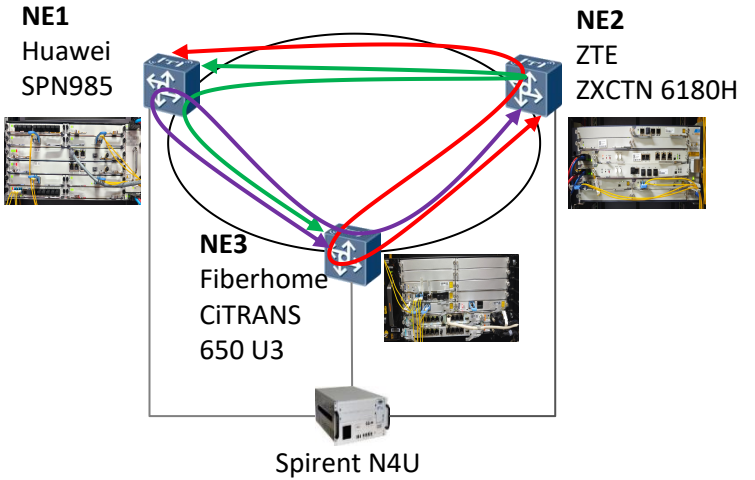


Encapsulate SRv6 packet into MAC frame, map it to an underlay MTN/fgMTN channel

Extract MAC frame from the underlay channel and reassemble the SRv6 packet

What got done

- Multiple vendors have already implemented END.IL with MTN/fgMTN underlay channels based on <draft-ietf-spring-srv6-inter-layer-programming>.



Vendors	Service Flow	Nodes	Background Flow	Nodes
HW-ZTE	S1	NE1-NE2-NE3-NE2	S'1	NE2-NE3
HW-FH	S2	NE1-NE2-NE1-NE3	S'2	NE2-NE1
ZTE-FH	S3	NE2-NE3-NE1-NE3	S'3	NE3-NE1

SRv6 SID Function Type

```
SidCompress: NO

SID         : 1:100::31/128                    FuncType : End.IL
LocatorName: P1                                LocatorID: 1
SidCompress: NO

SID         : 1:100::61/128                    FuncType : End.IL
LocatorName: P1                                LocatorID: 1
SidCompress: NO

SID         : 1:100::72/128                    FuncType : End.IL
LocatorName: P1                                LocatorID: 1
SidCompress: NO

SID         : 1:100::102/128                   FuncType : End.IL
LocatorName: P1                                LocatorID: 1
SidCompress: NO
```

HUAWEI

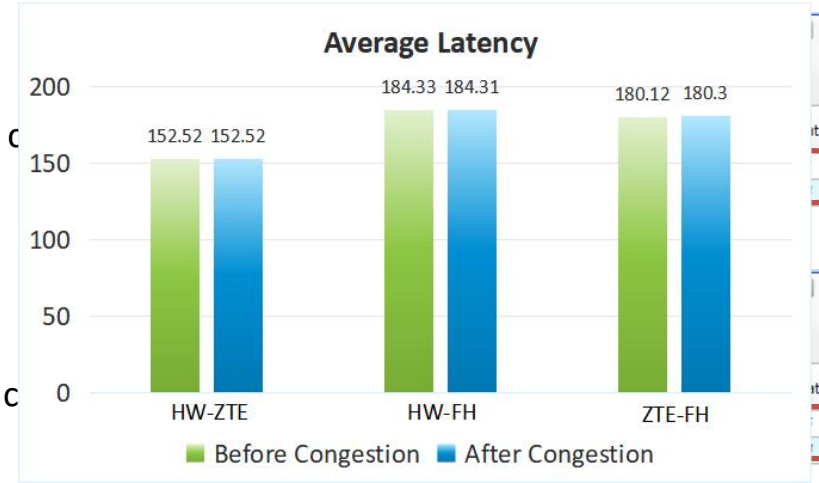
```
Serial-COM3 ×
6180H-IETF#show segment-routing srv6 local-sid
SID:2:100::42/128
  Locator:        ZTE
  FuncType:       End.IL                       Owner: SRv6
  OutInterface: flexe_subclient42
SID:2:100::51/128
  Locator:        ZTE
  FuncType:       End.IL                       Owner: SRv6
  OutInterface: flexe_subclient5
SID:2:100::72/128
  Locator:        ZTE
  FuncType:       End.IL                       Owner: SRv6
  OutInterface: flexe_subclient72
SID:2:100::91/128
  Locator:        ZTE
  FuncType:       End.IL                       Owner: SRv6
  OutInterface: flexe_subclient9
SID:2:100::231/128
```

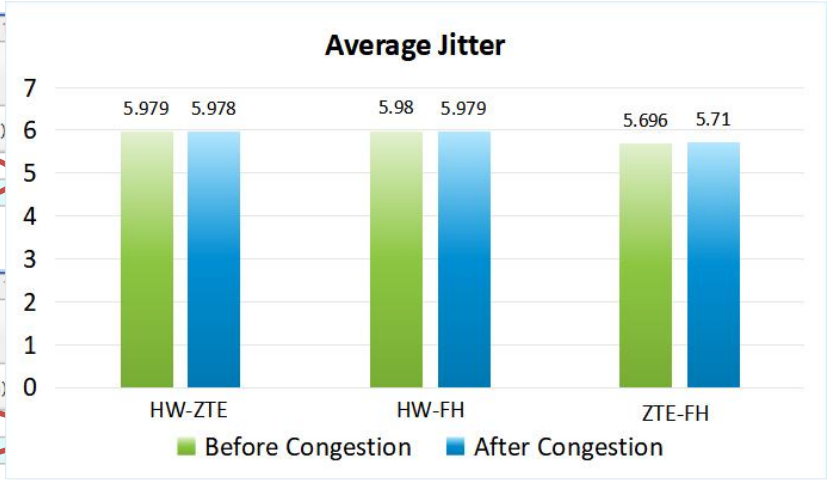
Functype	Locator_name	Vrf_name	Out_if_index
End.PSPUSP	ne3	-	-
End.IL	ne3	-	mtn-tunnel102
End.IL	ne3	-	mtn-tunnel110
End.IL	ne3	-	mtn-tunnel106
End.IL	ne3	-	mtn-tunnel111
End.X.PSPUSP	ne3	-	mtn-tunnel1
End.X.PSPUSP	ne3	-	mtn-tunnel12
End.X.PSPUSP	ne3	-	mtn-tunnel2
End.X.PSPUSP	ne3	-	mtn-tunnel14.2
End.X.PSPUSP	ne3	-	mtn-tunnel2.2

ZTE中兴 FiberHome

What got done (Cont.)

- SRv6 EVPN service interoperation achieved between SPN devices from different vendors (Huawei, ZTE, FiberHome) through END.IL SID.
- The END.IL solution demonstrates superior deterministic performance. Through traffic testing, we measured the latency and jitter before and after congestion, both showed minimal variation, the EVPN service is not impacted by the congestion of background traffic





What we learned

- Learned from this hackathon:
  - The END.IL solution supports multi-vendor interoperation in forwarding plane, as validated in this demonstration.
  - Superior isolation capabilities of END.IL with the underlay connection were confirmed, delivering deterministic latency assurance for service.
- Next Step:
  - Promote the control plane and management plane extensions for inter-layer programming in the relevant working groups.

Wrap Up

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Document links:

- draft-ietf-spring-srv6-inter-layer-programming-01
- draft-many-pce-srv6-inter-layer-network-programing-01