SRv6 Deployment Considerations

draft-tian-spring-srv6-deployment-consideration-00

Hui Tian/Feng Zhao (CAICT)

Chongfeng Xie (China Telecom)

Tong Li/Jichun Ma (China Unicom)

Shuping Peng/Zhenbin Li/Yaqun Xiao (Huawei)

Hailong Bai (China Unicom)

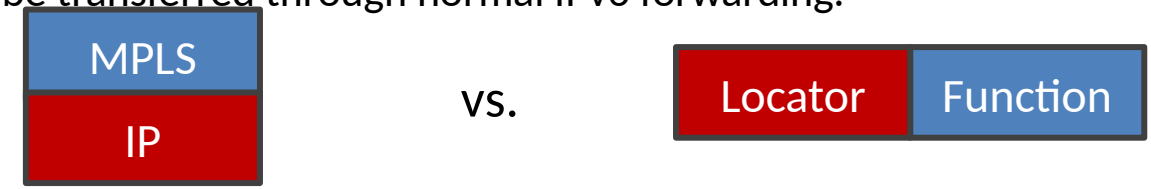
Ruizhao Hu/Jianwei Mao (Huawei)

Introduction

- draft-matsushima-spring-srv6-deployment-status
  - Introduce the progress of SRv6 industry including deployments, implementations, academic contributions, interoperability, etc.
  - 7 deployments are proposed: Softbank, China Telecom, LINE Corporation, China Unicom, CERNET2, MTN Uganda Ltd.
- draft-tian-spring-srv6-deployment-consideration
  - Introduce the deployment consideration of SRv6, including SRv6 advantages summary, incremental deployment guidance, deployment cases , etc.
  - Introduce relatively detailed experience of SRv6 deployments for reference, while draft-matsushima-spring-srv6-deployment-status introduces the feature list of SRv6 deployments.

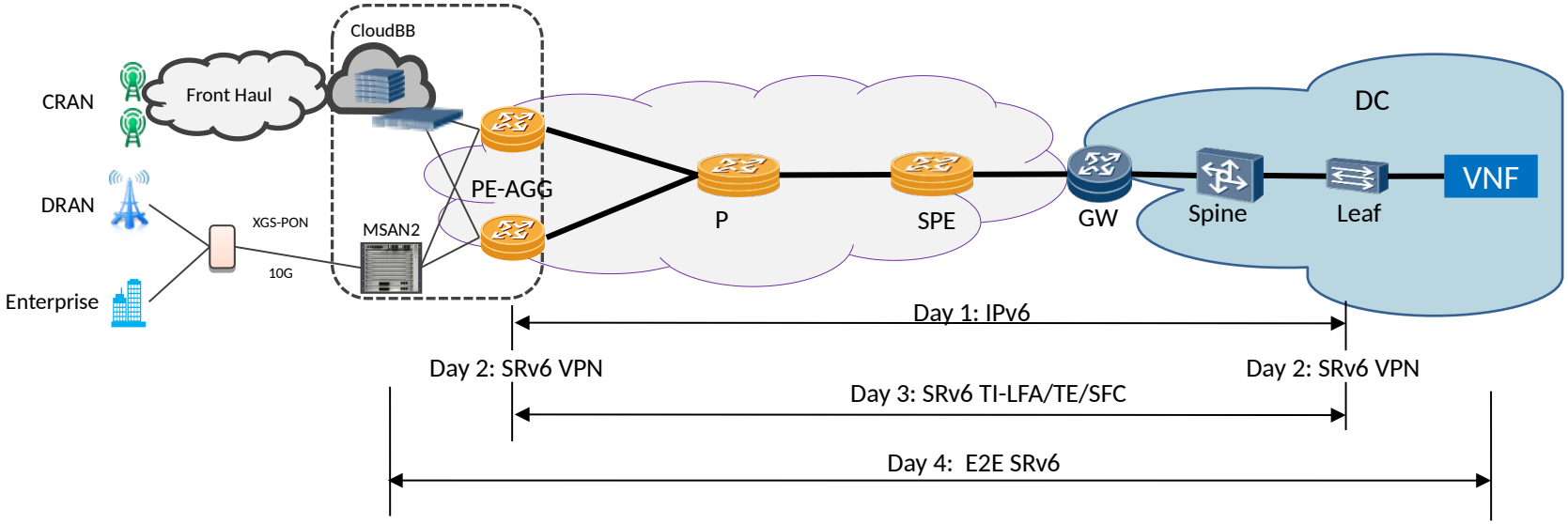
SRv6 Advantages

- IP Route Aggregation
  - MPLS/SR-MPLS: Label binding with 32-bit host address has to be advertised across multiple domains without aggregation.
  - SRv6: Inherit native IP feature and aggregated route can be imported across network domai ns which reduces the scalability requirement.
- End-to-end Service Auto-start
  - SR-MPLS: SRGB and Node SID need overall network-wide planning in the cross-domain scen ario.
  - SRv6: Can Setup E2E tunnel directly based on IPv6 reachability.
- On-Demand Upgrade
  - SR-MPLS: Entire network has to be upgraded firstly and then deploy SR-MPLS; or mapping s ervers are deployed at some of the intermediate nodes.
  - SRv6: The network can be migrated to SRv6 on demand. For the nodes which cannot suppo rt SRv6, it can be transferred through normal IPv6 forwarding.



Incremental Deployment Guidance for SRv6 Migration

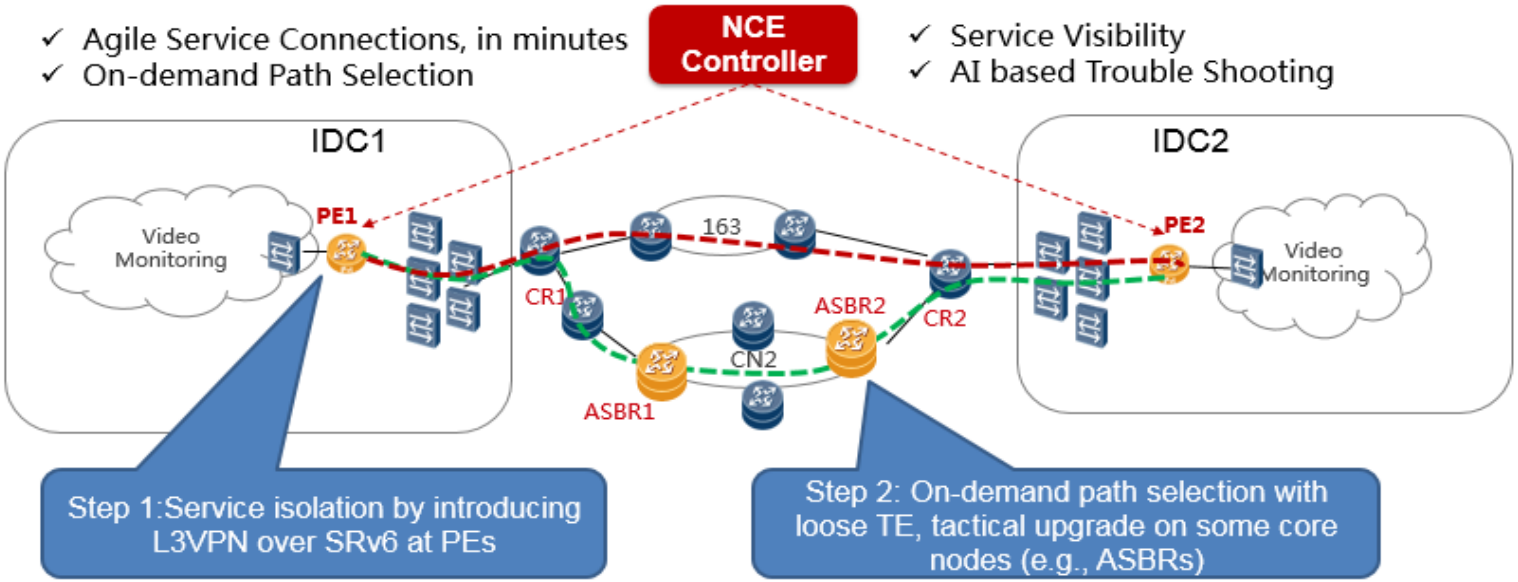
- Two options can be parallel:
  - Option 1: IP/MPLS -> IPv6->SRv6
    - **Natural and straightforward, recommended;**
  - Option 2: IP/MPLS -> SR-MPLS -> SRv6



Step 1: Upgrade to IPv6 (IPv6 ready is the pre-condition of SRv6);
Step 2: Upgrade the edge devices to introduce VPN over SRv6 BE;
Step 3: Upgrade some intermediate nodes to support traffic TI-LFA, TE, SFC, etc.
Step 4: Upgrade the whole network to support E2E SRv6;

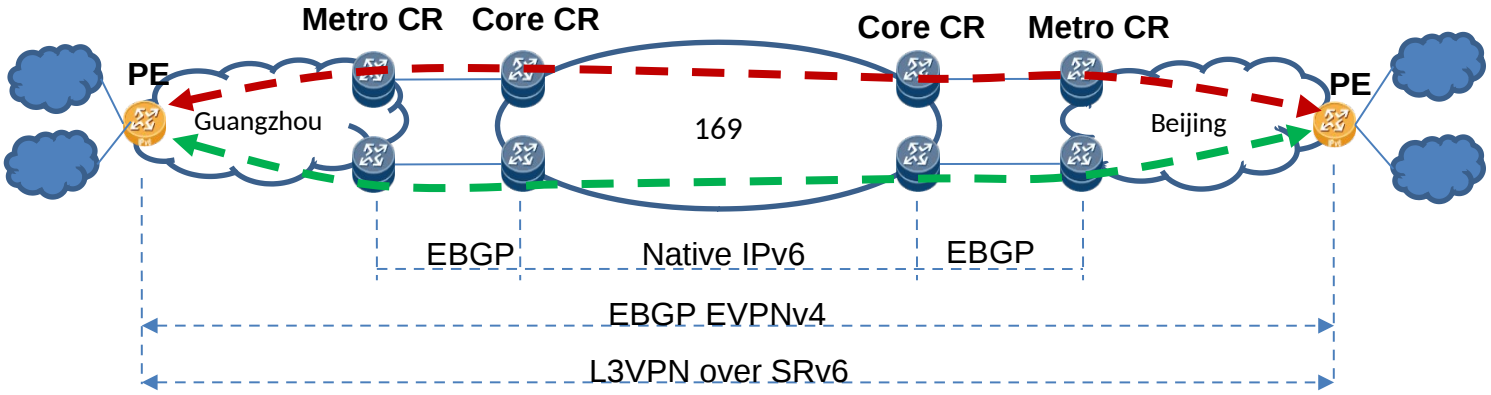
SRv6 Deployment Case 1: China Telecom (Sichuan)

- China Telecom: Video traffic transmission between DCs across domains
- IPv6 ready in both DC and backbone, two backbone networks provide different SLAs
- Two steps: 1) Introduce L3VPN over SRv6 BE at the edge; 2) Support traffic steering/optimization by introduce SRv6 TE
- ***Key point: Service aglility***



SRv6 Deployment Case 2: China Unicom

- China Unicom: Cloud DCs interconnection.
- IPv6 ready in Metro networks (Guangzhou, Beijing,…) and IP backbone network (169);
- Upgrade PEs at Metro edges to support SRv6, introduce L3VPN over SRv6 BE for cloud isolation;



- ✓ Smoothly migrate from IPv6 to SRv6, easy and quick;
- ✓ Without affecting existing IPv4, MPLS, etc. services

Next Step

- More deployment cases for different scenarios such as 5G Transport, Data Center, etc.
- More experience are provided on demand suc h as IPv6 address/SRv6 locator/ SRv6 SID desig n, SRv6 TE/SRv6 policy design, etc.
- Welcome feedback and co-work.

Thanks