Multicast Extensions to DS-Lite Technique in Broadband Deployments

draft-qin-softwire-dslite-multicast-04

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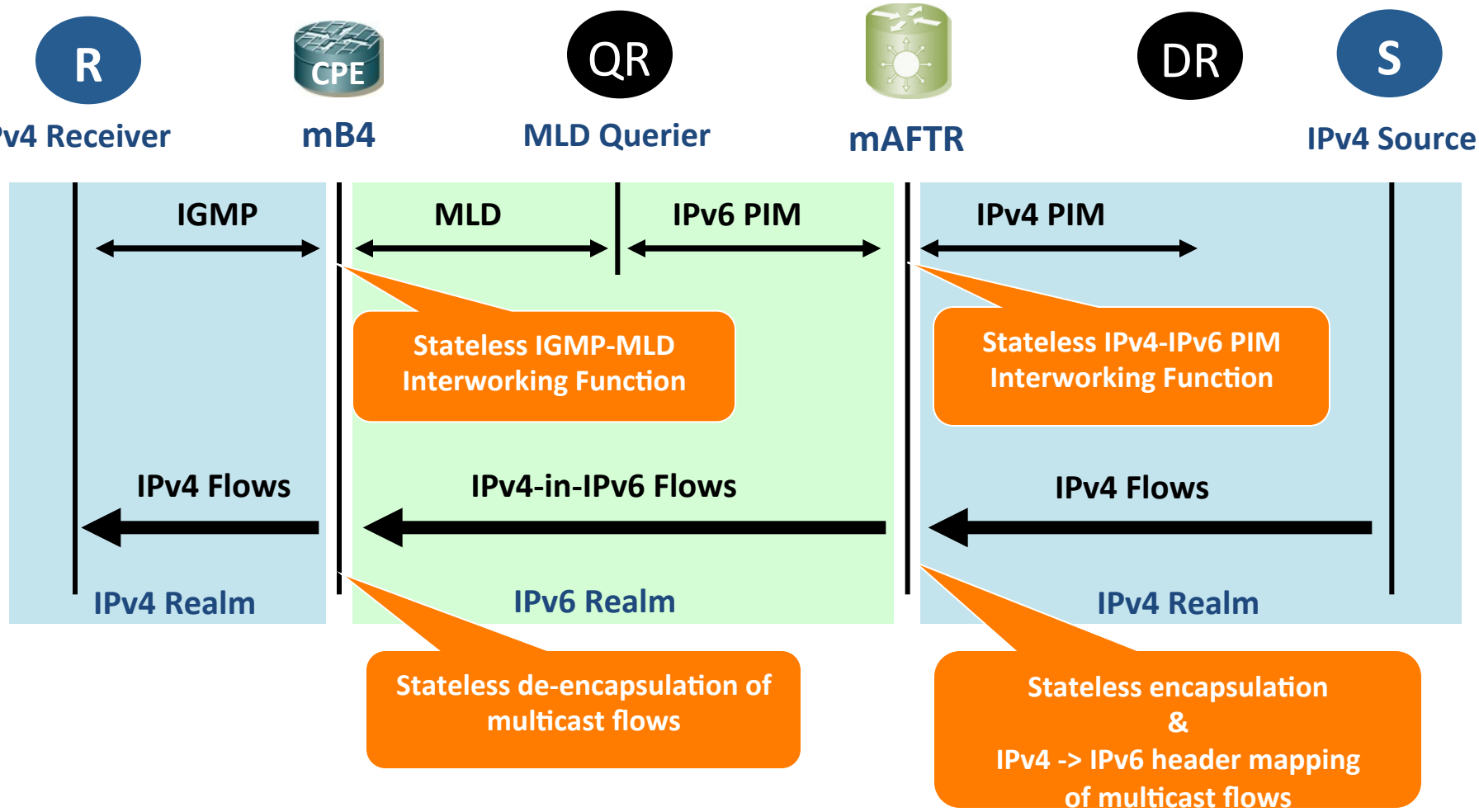
Context & Use Cases

- Context
  - Deliver multicast-based service offerings to DS-Lite serviced customers in ASM and SSM modes
- Use Cases
  - IPv4 receiver accessing IPv4-framed multicast content
  - Dual-Stack receiver accessing IPv4-framed multicast content

Foundations

- Address Building
  - Use [I-D.boucadair-behave-64-multicast-address-format] to build multicast IPv4-embedded IPv6 addresses
  - Use [RFC6052] to build unicast IPv4-embedded IPv6 addresses representing IPv4 sources in the IPv6 realm
- The underlying network delivers encapsulated packets in standard multicast fashion
  - Bandwidth optimization is ensured
- All involved interworking functions are stateless



Overall procedures with involved interworking functions:
Need to provision the mB4 with mPREFIX64 and uPREFIX64

ASM/SSM Discussion

- Shared tree computation (ASM)
  - Transparent in the IPv4 side
  - In the IPv6 side
    - For the sake of simplicity, it is RECOMMENDED to configure an mAFTR as the RP for IPv4-embedded IPv6 multicast groups
    - If some other IPv6 multicast router wants to become the RP of the IPv4-embedded IPv6 multicast groups, it may require an mAFTR to emulate the PIM Source Register procedure on behalf of IPv4-embedded IPv6 sources with the RP
      - The PIM Source Register procedure in the IPv4 domain is not altered
  - Switching to a SPT tree computation is natively supported where the mAFTR would become the source of the IPv6 MDT and perform the translation
- SSM Mode is supported

Difference to -03

- "Fall-Back" mode removed
  - There is another draft discussing this mode
    - I-D-sarikaya-softwire-dslitemulticast
  - Which relies on the original design of DS-Lite (i.e., Unicast-based tunnel) to deliver multicast traffic
  - The efficiency of multicast traffic forwarding between B4 and AFTR will be lost in this mode

Next Step

- Adopt this I-D as a Working Group document