

Distribute SRv6 Locator by DHCP

draft-cheng-dhc-distribute-srv6-locator-by-dhcp-01

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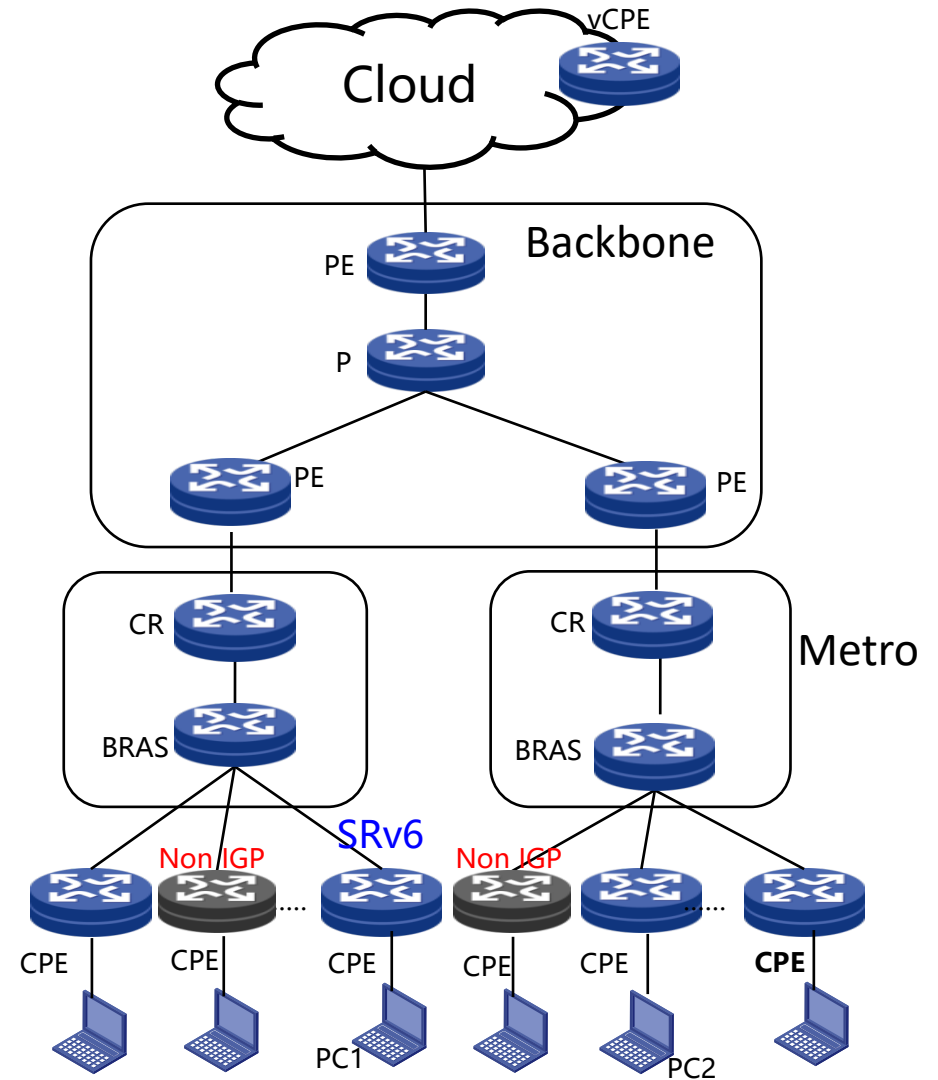
Background & Requirements

❑ CPEs in telecom network

- Deploy SRv6
- Large scale (50K+)
- Wide geographical distribution
- High mobility
- Some CPEs do not deploy IGP

❑ What do we expect ?

- Simplify configuration
- Dynamically learn SRv6 locator subnet routes



Proposal

Treat SRv6 locator as the prefix in prefix pool.

1. DHCPv6 server allocates SRv6 locator as the prefix.
2. Follow DHCPv6 Prefix Delegation(PD) process.
3. After the locator prefix assigned successfully, BRAS dynamically issues the locator subnet route locally and distributes the locator subnet route.
4. When releasing the locator prefix, BRAS deletes the locator subnet route.

BRAS need to enable DHCPv6 PD server or DHCPv6 relay agent service.

SRv6 SID Format

SRv6 SID defined in [RFC8986]:

Locator	Function	Arguments
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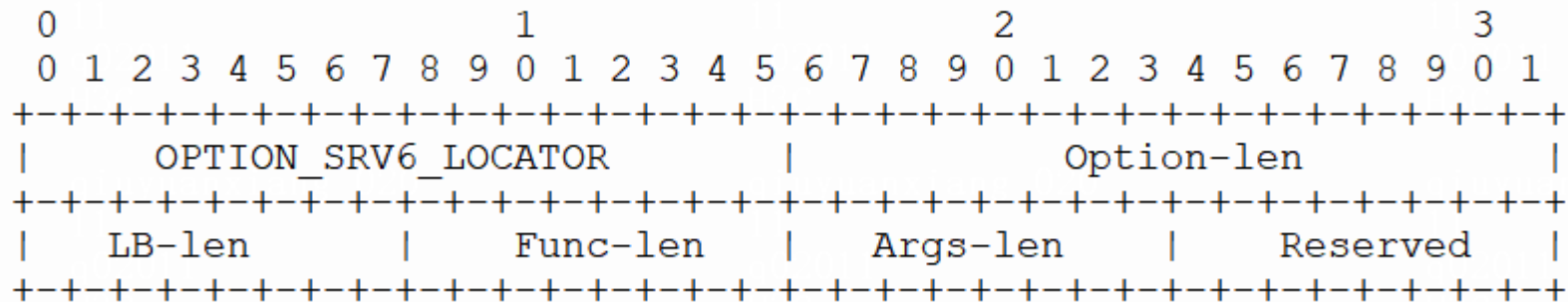
Compressed SRv6 SID defined in [draft-ietf-spring-srv6-srh-compression]:

Locator			
Common Locator-Block(LB)	Locator-Node	Function	Args/Padding

DHCPv6 Option Extension

Define SRv6 Locator Option :

- Encapsulated in the IAprefix-options field of IA_Prefix option.
- Used to identify SRv6 locator prefix in IA_Prefix option and carry SRv6 locator subnet information.

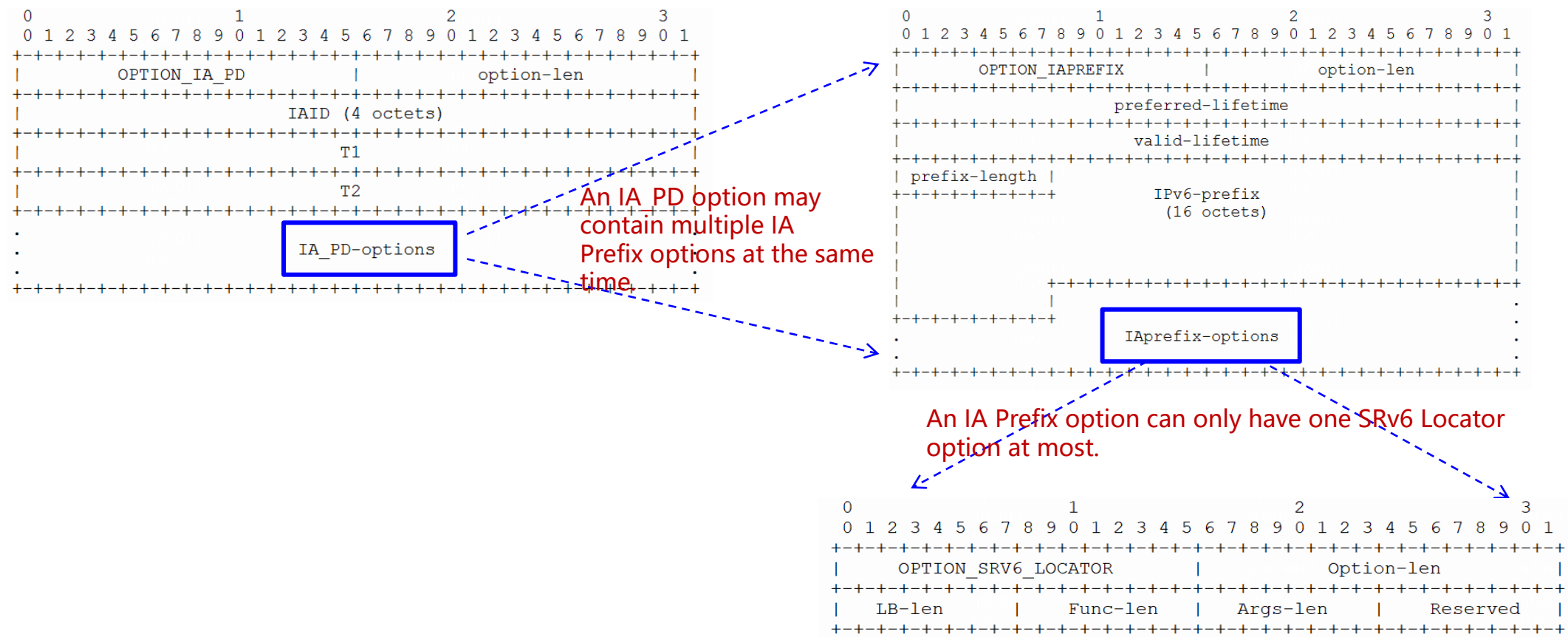


- Option-code: OPTION_SRV6_LOCATOR (TBD)
- LB-len: Length of locator block in bits. For locator with incompressible SID, set to 0.
- Func-len: The function length of SRv6 SID in bits
- Args-len: The arguments length of SRv6 SID in bits

The SRv6 locator prefix is filled in the "IPv6-prefix" field of the IA Prefix option.

Locator prefix length is filled in the "prefix-length" field of IA Prefix option.

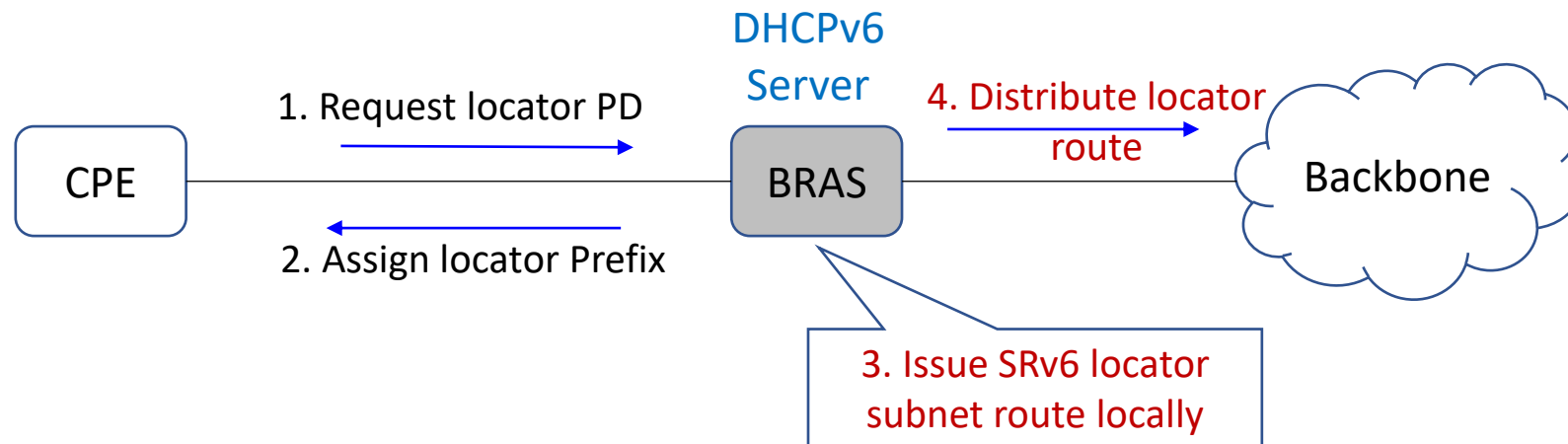
Encapsulation Location of SRv6 Locator Option



Scenario 1: BRAS as DHCPv6 PD Server

DHCPv6 Server behavior:

1. Allocate locator subnet prefix from prefix pool
2. Generate the locator subnet route locally
3. Distribute the locator subnet route to other IPv6 node

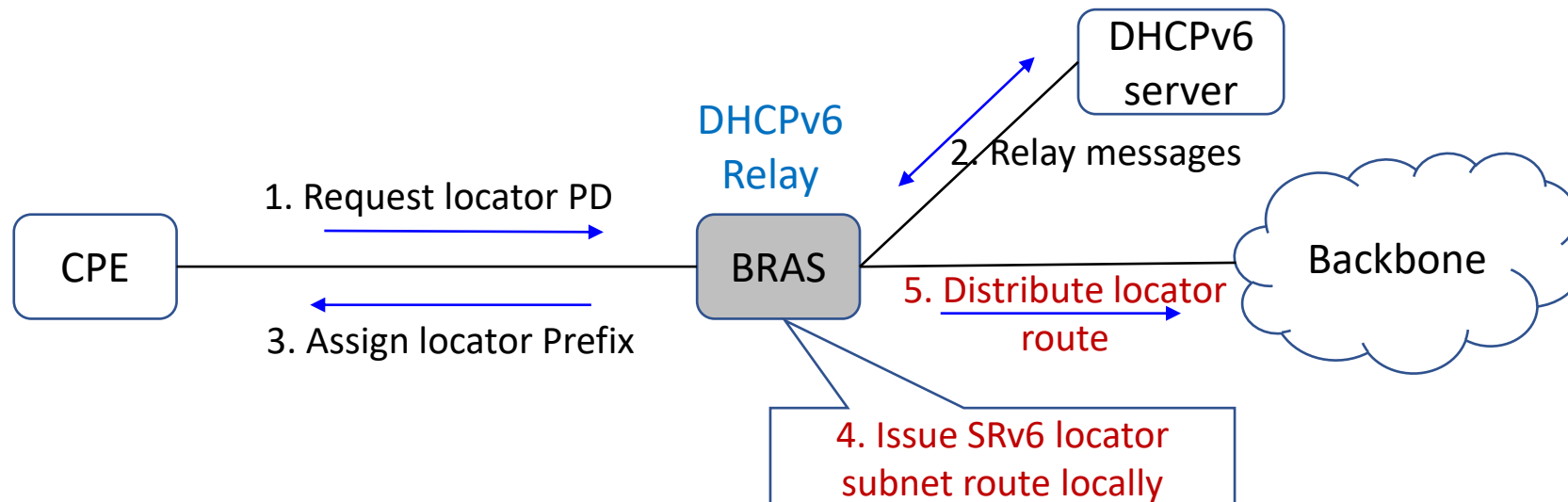


Scenario 2: BRAS as DHCPv6 Relay Agent

First hop DHCPv6 relay agent behavior:

1. Relay DHCPv6 PD allocation messages.
2. Generate the locator subnet route locally.
3. Distribute the locator prefix routes to other IPv6 node.

The non first hop DHCPv6 relay normally processes DHCPv6 PD messages according to RFC8415.



Next Steps

- Any questions or comments are Welcomed
- Seeking for feedback