Deployment Considerations for Lightweight 4over6

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Qiong Sun, *C.Xie (Presenter)*, Y. Lee, M. Chen

Lightweight 4over6 Deployment Considerations

- Based on preliminary experimental deployment, this work describes various deployment models of Lightweight 4over6 and operational considerations for lightweight 4over6.

- It is presented once in IETF 83.
  - Now that lw4over6 has been adopted, deployment considerations is an important guideline for operators.

Current outline

Deployment Considerations for Lightweight 4over6	
Section 3	Overall deployment model in lw4over6
Section 4: Overall Deployment Considerations	
Section 4.1	Addressing and Routing
Section 4.2	Port-set Management
Section 4.3	lwAFTR Discovery
Section 4.4	Impacts on Accouting
Section 5: lwAFTR Deployment Consideration	
Section 5.1	Logging at the lwAFTR
Section 5.2	MTU and Fragmentation Considerations
Section 5.3	Reliability Considerations of lwAFTR
Section 5.4	Placement of AFTR
Section 5.5	Port set algorithm consideration
Section 5.6	Path Consistency Consideration

Current Outline (conf')

Section 6: lwB4 Deployment Consideration	
Section 6.1	NAT traversal issue
Section 6.2	Static Port Forwarding Configuration
Section 7: DS-Lite Compatibility Consideration	
Section 7.1	Case 1: Integrated Network Element with Lightweight 4over6 and DS-Lite AFTR Scenario
Section 7.2	Case 2: DS-Lite Coexistent scenario with Separated AFTR
Appendix: Experimental Result	

Updates since -03

- **Update the terminology, references, etc.**
- **Add more detailed considerations on**
  - **Port-set Management**: DHCPv4-over-DHCPv6+Port-set extension
  - **lwAFTR Discovery**: add DS-Lite co-existence scenario
  - **Logging at the lwAFTR**: add destination logging consideration
  - **MTU and Fragmentation Considerations**: add IPv4 fragmentation consideration
  - **Reliability Considerations of lwAFTR**: add dynamic mode consideration
- **Add new consideration based on the field trial in practice.**
  - **Impacts on Accounting**: on-demand accounting consideration
  - **Path Consistency Consideration**: the ECMP problem in anycast deployment
  - **lwB4 Deployment Consideration**: NAT related consideration

Why lw4over6 needs special considerations

- **Differences with DS-Lite**
  - Per-subscriber binding vs. Per-session binding
  - Port-set binding is allocated to lwB4 explicitly
- **Deployment impact**
  - Explicit port-set management and Provisioning mechanism
  - Synchronization between provisioning system and lwAFTR
  - On-demand accounting impact
  - Logging at the lwAFTR (destination logging not possible)
  - MTU and fragmentation
  - Path consistency
  - NAT consideration in CPE

Why lw4over6 needs special considerations (conf')

- **Differences with MAP**
  - Dynamic mode: binding state is created on-demand
  - Addressing scheme
- **Deployment impact**
  - Addressing Planning
  - Provisioning mechanism (DHCPv4-over-DHCPv6+DHCPv4 option)
  - Synchronization between provisioning system and lwAFTR
  - Reliability Considerations of lwAFTR (dynamic feature)
  - Logging at the lwAFTR
  - Path consistency
  - DS-Lite Compatibility Consideration
- **Overlap with MAP deployment consideration**
  - MTU and Fragmentation Considerations
  - Port set algorithm consideration
  - lwB4 NAT traversal issue

Next Step

- Comments ?
- How to move forward ?