Using DHCPv6 for Mobile Station Prefix Delegation

draft-sarikaya-16ng-prefix-delegation-02.txt
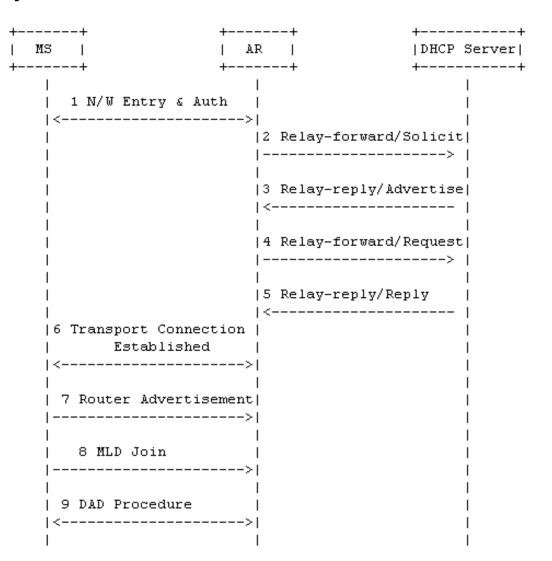
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Problem Statement

- Point-to-Point link model is recommended by 16NG WG and is adopted by WiMAX NWG

- In this model, one prefix can only be assigned to one mobile station

- How does a mobile station configure it's address using IPv6 stateless auto-configuration mechanism?
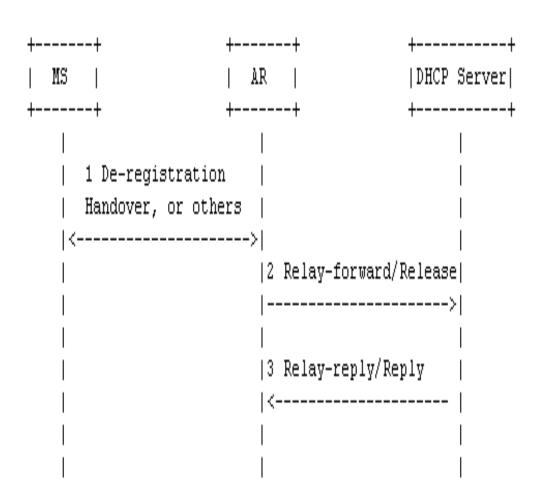
Prefix Request Procedure

- AR is as a DHCP Client

- DHCP Relay function is needed in AR when DHCP server is not connected directly

- Prefixes are assigned to AR through Prefix Option defined in RFC 3633

- MS configures it's address using prefix advertised by AR

```
+-------+                    +-------+             +-----------+
|  MS   |                    |  AR   |             |DHCP Server|
+-------+                    +-------+             +-----------+
    |                            |                       |
    |   1 N/W Entry & Auth       |                       |
    |<-------------------------->|                       |
    |                            |2 Relay-forward/Solicit|
    |                            |---------------------> |
    |                            |                       |
    |                            |3 Relay-reply/Advertise|
    |                            |<-------------------   |
    |                            |                       |
    |                            |4 Relay-forward/Request|
    |                            |---------------------> |
    |                            |                       |
    |                            |5 Relay-reply/Reply    |
    |                            |<------------------- - |
    |6 Transport Connection |                            |
    |        Established     |                            |
    |<-------------------------->|                       |
    |                            |                       |
    | 7 Router Advertisement|                            |
    |-------------------------->|                        |
    |                            |                       |
    |     8 MLD Join        |                            |
    |-------------------------->|                        |
    |                            |                       |
    | 9 DAD Procedure       |                            |
    |<-------------------------->|                       |
    |                            |                       |
```

Prefix Release Procedure

- An MS detachment signaling, such as switch-off or handover, triggers prefix release procedure

- The released prefixes can be reused by other MSs

- AR can age prefixes through prefixes' lifetime

```
+-------+                +-------+              +-----------+
| MS    |                | AR    |              |DHCP Server|
+-------+                +-------+              +-----------+
   |                        |                        |
   |   1 De-registration    |                        |
   |   Handover, or others  |                        |
   |<---------------------->|                        |
   |                        |2 Relay-forward/Release |
   |                        |----------------------->|
   |                        |                        |
   |                        |3 Relay-reply/Reply     |
   |                        |<---------------------- |
   |                        |                        |
   |                        |                        |
```

Next Steps

- is it feasible that a DHCP Client and a DHCP server collocating at the same AR?
- Is it necessary to standardize this method for other SDOs to use?

Thank You.
Questions?