Using DHCPv6 and AAA Server for Mobile Station Prefix Delegation

draft-sarikaya-16ng-prefix-delegation-01.txt

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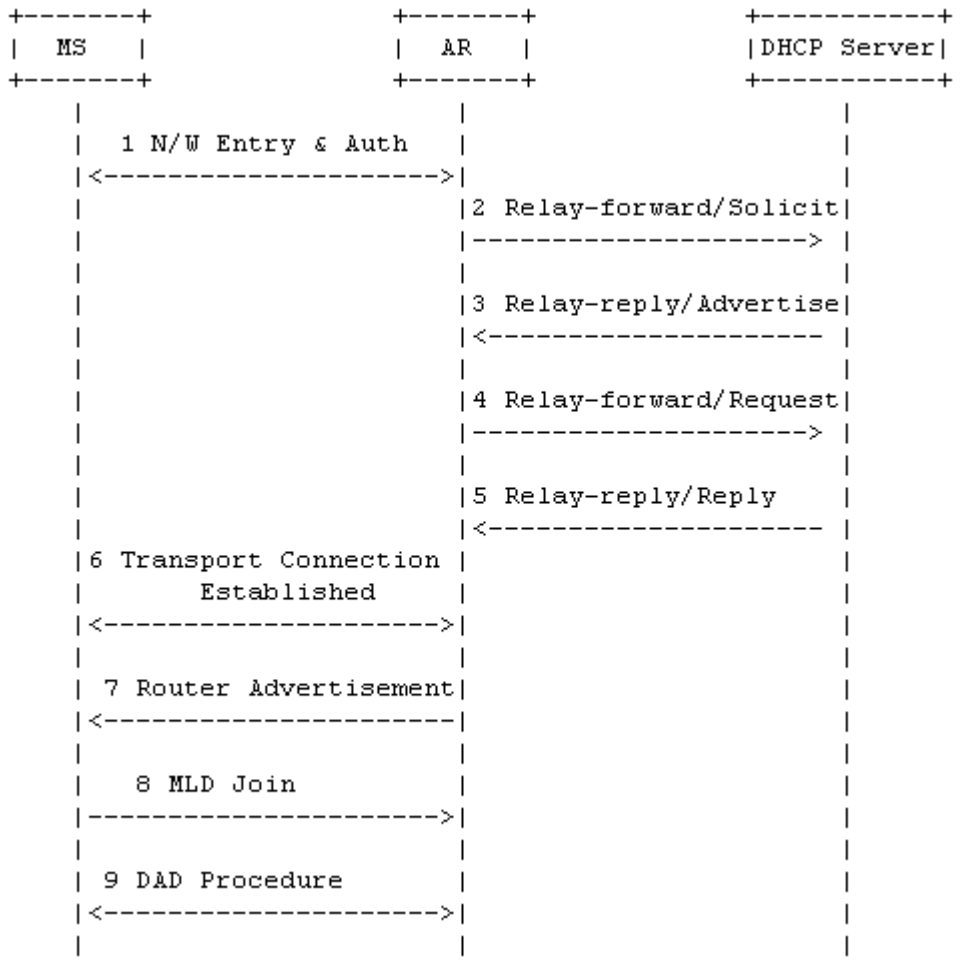
Problem Statement

- Point-to-Point link model is recommended by 16NG WG on the packet CS
- In this model, one prefix can only be assigned to one mobile station by an access router
- Managing huge number of prefixes locally has some disadvantages
  - Considerable configuration and processing load for AR
  - It is not flexible for renumbering
  - Not AR functionality

Prefix Request Procedure

- AR is 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

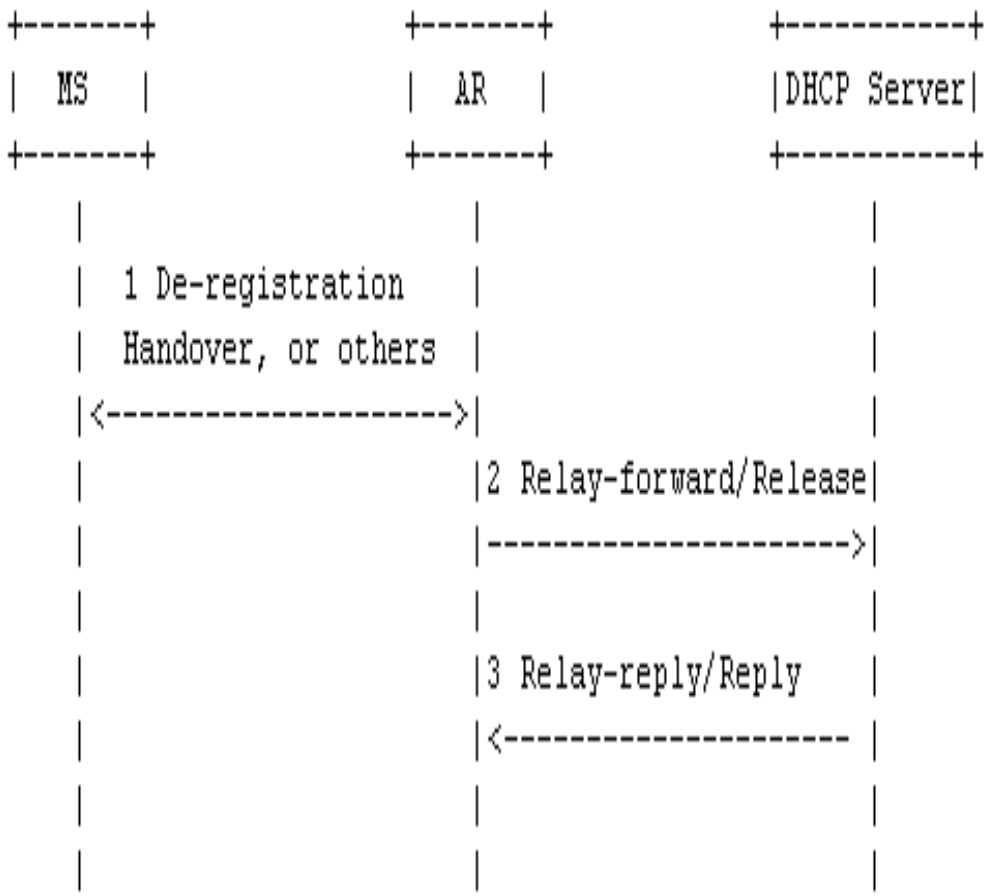


DHCP PD

- RFC 3633 defines the procedure for a delegating router to delegate IPv6 prefixes to a requesting router
- IAID for IA_PD is assigned by AR and sent to DHCP server in solicit message
  - MAC address of MS as IAID can be used but MAC address is 6 octets

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



AAA PD

- RFC 4818 defines Delegated-IPv6-Prefix RADIUS and Diameter attribute to carry IPv6 prefixes
- RFC 4818 suggests the delegating router to be AAA client

AAA PD

- In our model, AR as an AAA client requests and releases prefixes for MN
- How to renumber these AAA assigned prefixes?
  - RADIUS server is not facilitated to command RADIUS client dynamically
  - RFC 3576 defines dynamic authorization extensions for Radius (Change of Authorization message)
  - For Diameter, it is doable because Diameter server can send a command to request authorization change

OTHER APPLICATIONS

- per-Mobile prefixes needed in other applications
  - Proxy Mobile IPv6 adopted per-MN prefix model, so LMA is the requesting router
  - In Mobile IPv6, home agents must assign per-MN prefixes, so HA is the requesting router
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