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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