Renumbering Requirements for Stateless DHCPv6

draft-chown-dhc-statele

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Introduction

- A common scenario will be hosts doing stateless address autoconfig, and configuring other parameters using DHCPv6

- The other parameters will often not have a lease time, and can be obtained using DHCP Information-request message, using stateless DHCP, as in draft-ietf-dhc-dhcpv6-stateless-01.txt

The problem

- When a site renumbers or perform other changes, there is no way to make sure clients update their configuration
- There is no way to know if and when a client might try to update the configuration, and a stateless DHCP server cannot use the DHCP configure message defined in RFC 3315
- Example events
  - Full site renumbering
  - DNS server change of address
  - NTP server change of address
  - Changes in DNS search paths
- In all these events we would like to handle planned changes, also unplanned if possible

Considerations

Ralph's list, not stated explicitly in this version of the draft:

- Must support planned renumbering
- Desirable to support unplanned renumbering
- Security; e.g., avoid DOS attacks mounted through Reconfigure messages sent from attacker
- Must update options even if network is not renumbered
- Desirable to maintain "stateless" property; i.e., no per-client state kept in the server

Possible solutions

- Specify that client should send new information-request when seeing new prefixes in RAs, when reconnecting to link etc.
  - This might help when client is being renumbered, not in other cases
- Redefine semantics of 'O' flag, so that toggling flag can tell clients to send new information-request (not in draft)
  - Could work for both planned and unplanned changes
- Adding new flag to RAs that tell clients to send information-request
  - Could work for both planned and unplanned changes. One such solution is draft-vijay-ipv6-icmp-refresh-otherconf-00
- Adding a Reconfigure message that works with stateless DHCP
  - May be difficult to do this in a secure way without per-client state
- Convey a configuration lifetime to clients, new request when expires
  - This works best for planned changes. Can partly handle unplanned changes by using a small lifetime. One solution described in draft-venaas-dhc-lifetime-01.txt.