Mitigating Aggregated Traffic of DHCP Discover Messages
draft-yang-dhc-ipv4-dis-01

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Problem Description

- For dual-stack capability hosts, DHCP DISCOVERY messages will be broadcasted until DHCP OFFER messages are received

- In IPv6-only network, DHCP server is down and there will be no DHCP Discovery messages to the dual stack hosts.

Problem Description

- It is not specified in RFCs what the hosts should do when there is no DHCP OFFER messages

- In our test, different OSs work in their own way
  - Time interval sending next DHCP
  - Whether or not Obtaining IPv4 link local address
  - Whether or not get IPv4 address after resetting DHCP server

Test Result: Different OS behavior

WinXP (SP3)	•After 9 fails of DHCP Discover, host will discover 4 times every 5min with exponential backoff algorithm; •Obtain 169.254.96.2 after 1min; •Obtain new IP address after DHCP service reset.
Win7 （SP1）	•Obtain 169.254.198.228 immediately; •After 8 fails of DHCP Discover, host will discover 8 times every 5min with exponential backoff algorithm; • Obtain new IP address after DHCP service reset.
Symbian S60 5th	•Send DHCP Discover with alternating intervals of 2s and 4s; Cut off the Internet connection after 1min. •Request 169.254.8.21 after 6s; • NOT obtain new IP address after DHCP service reset.
IOS 5.01	•After 10 fails of DHCP Discover, host will discover 10 times every 2min with exponential backoff algorithm (maximum = 8.5s). •Obtain 169.254.161.128 after 15s; •Obtain new IP address after DHCP service reset.
Android (2.3.7)	•No link local address, •DHCP Discover will be sent 5 times every 20s with exponential backoff algorithm. Mark the connection into "blocked" and never try again if fail to connect 9 or 10 times. •NOT obtain new IP address after DHCP service reset. •Notice: After first "blocked", all the requests for other connections will be only 1 time.

Proposal

- Define DIS_MAX_RT for client and a new TLV DIS_MAX_RT_OPTION, similar to

  draft-droms-dhc-dhcpv6-solmaxrt-update-02

  - Client must initial the value of DIS_MAX_RT

  - A DHCPv4 client MUST include the DIS_MAX_RT_OPTION in any message it sends. The DHCPv4 server MAY include the DIS_MAX_RT_OPTION code in any response it sends to a client that has included the DIS_MAX_RT option code in a request message

  - After receiving new DIS_MAX_RT_OPTION value, the client should resend another DHCP DISCOVER message according it

Next Step

- Maybe there are other solutions to the problem
- Revise it according to the comments