DHCP Options for Network-Assisted Multipath TCP (MPTCP)

draft-boucadair-mptcp-dhc-04

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Problem

- One or multiple MPTCP Concentrators may be deployed in the network
- The CPE should be provided with means to discover its MPTCP Concentrator(s)
  - *Assumption: All access networks are managed by the same Network Provider*
- This document specifies DHCP and DHCPv6 options to provision a list of MPTCP Concentrators

Design Rationale

- Follow DHC **guidelines**: RFC7227
- **Avoid dependency** on a resolution library
  - The option returns a list of IPv4 and/or IPv6 addresses
- **Avoid aliasing**
  - Allowing the option to convey also a name will lead to aliasing; not recommended in RFC7227
    - "*This kind of aliasing is undesirable and is not recommended*"
    - "*It is strongly discouraged to define both option types at the same time*"
  - Name resolution can be achieved at the DHCP server side (see draft-ietf-dhc-topo-conf)

Proposed Approach

- The current specification allows to return a list of MPTCP concentrators; each identified with a list of IP addresses
  - DHCPv6
    - The DHCPv6 server returns multiple instances of OPTION_V6_MPTCP
    - IPv4-mapped IPv6 addresses are used to encode IPv4 addresses
  - DHCP
    - When several lists of MPTCP Concentrator IPv4 addresses are included, “List-Length” and “MPTCP Concentrator IPv4 Addresses” fields are repeated.
- **How the CPE selects one or several concentrators based upon DHCP-carried information is out of scope**

What's Next?

- The document has been reviewed in dhc
  - dhc review is available here
  - Many thanks to Dan Seibel, Bernie Volz, Niall O'Reilly, Simon Hobson, and Ted Lemon
- How to progress the document?
  - dhc WG charter states:
    - "*Definitions of new DHCP options that are delivered using standard mechanisms with documented semantics are not considered a protocol extension and thus are outside of scope for the DHC WG. Such options should be defined within their respective WGs and reviewed by DHCP experts in the Internet Area Directorate*"