RADIUS Extensions for Network-Assisted Multipath TCP (MPTCP)

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Deployment Context: A Brief Reminder

• Operators introduce new access technologies to boost the connectivity experience perceived by customers

• This model may not be optimal in some areas for various reasons:
  – Poor ROI
  – Decommissioning of some network nodes
  – Need to maximize the utilization of available accesses

• Alternate means to offer bonding services are required: **MPTCP (Multipath TCP, RFC6824)**
Network-Assisted MPTCP: Rationale

• Given
  – The MPTCP penetration rate is close to null at the server side, and
  – Network Providers do not control customers’ terminals

• A network-assisted model is attractive to offer bonding services
  – The CPE needs to support MPTCP features
  – MPTCP Concentrators are deployed in the network to facilitate the establishment of MPTCP connections
This Document

• One or multiple MPTCP Concentrators may be deployed in the network
  – Assumption: All access networks are managed by the same Network Provider

• The MPTCP concentrator(s) reachability information can be stored in Authentication, Authorization, and Accounting (AAA) servers

• This document specifies RADIUS extensions to provision a list of MPTCP Concentrators
Proposed Approach

- Follow RADEXT **guidelines** for defining a new data type
  - I-D.i-tf-radext-datatypes
- To accommodate both IPv4 and IPv6 deployments, **two attributes** are specified: MPTCP-IPv4-Concentrator & MPTCP-IPv6-Concentrator
  - Avoid polymorphic attributes (RFC6158)
  - MPTCP-Concentrator-IPvx attribute contains the IPvx address of an MPTCP Concentrator
- **Multiple** instances of the MPTCP-Concentrator-IPvx attribute may be included; each instance of the attribute carries a distinct IP address
- **Both** MPTCP-Concentrator-IPv4 and MPTCP-Concentrator-IPv6 attributes may be present in a RADIUS message
A Sample Flow

DHCPv6 client

DHCPv6 Solicit

DHCPv6 Advertisement (OPTION V6 MPTCP)

DHCPv6 Request

DHCPv6 Reply (OPTION V6 MPTCP)

NAS/DHCPv6 server

Access-Request

Access-Accept (MPTCP Concentrator IPv6)

AAA server
What’s Next?

• Many thanks to Alan DeKok for the review
• Further comments are welcome
• How to progress the document?