draft-tsou-softwire-bfd-ds-lite-02

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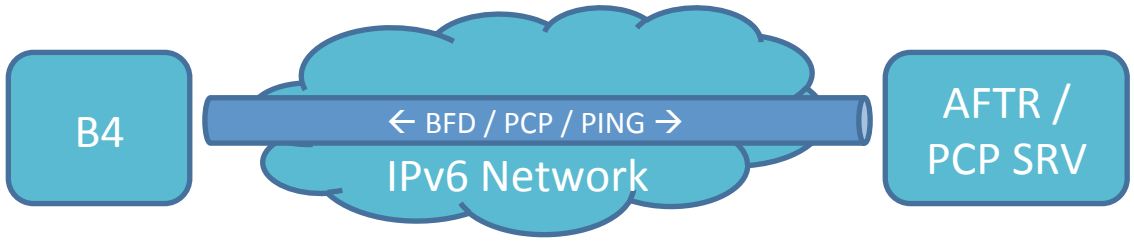
- Problem to solve
  - There is no status information of DS-Lite tunnel, e.g. tunnel up or down, which brings difficulties for operations and maintenance.
  - It is good to be able to detect failure and failover
  - Tools to resolve this problem: BFD, PCP, PING, …



- BFD for DS-Lite
  - Auto configuration

    In DS-Lite, B4 has the AFTR address, sufficient to initiate a BFD session, other parameters can be negotiated via signaling or static config, no manual configuration.
  - packet rate

    Long time period between BFD packets transmission, e.g. 10s or 30s
  - Failover

    If B4 detect a failure, it will switch to another AFTR

- BFD for DS-Lite

  BFD can provide some more functions besides connectivity Test

  – Session state change reason

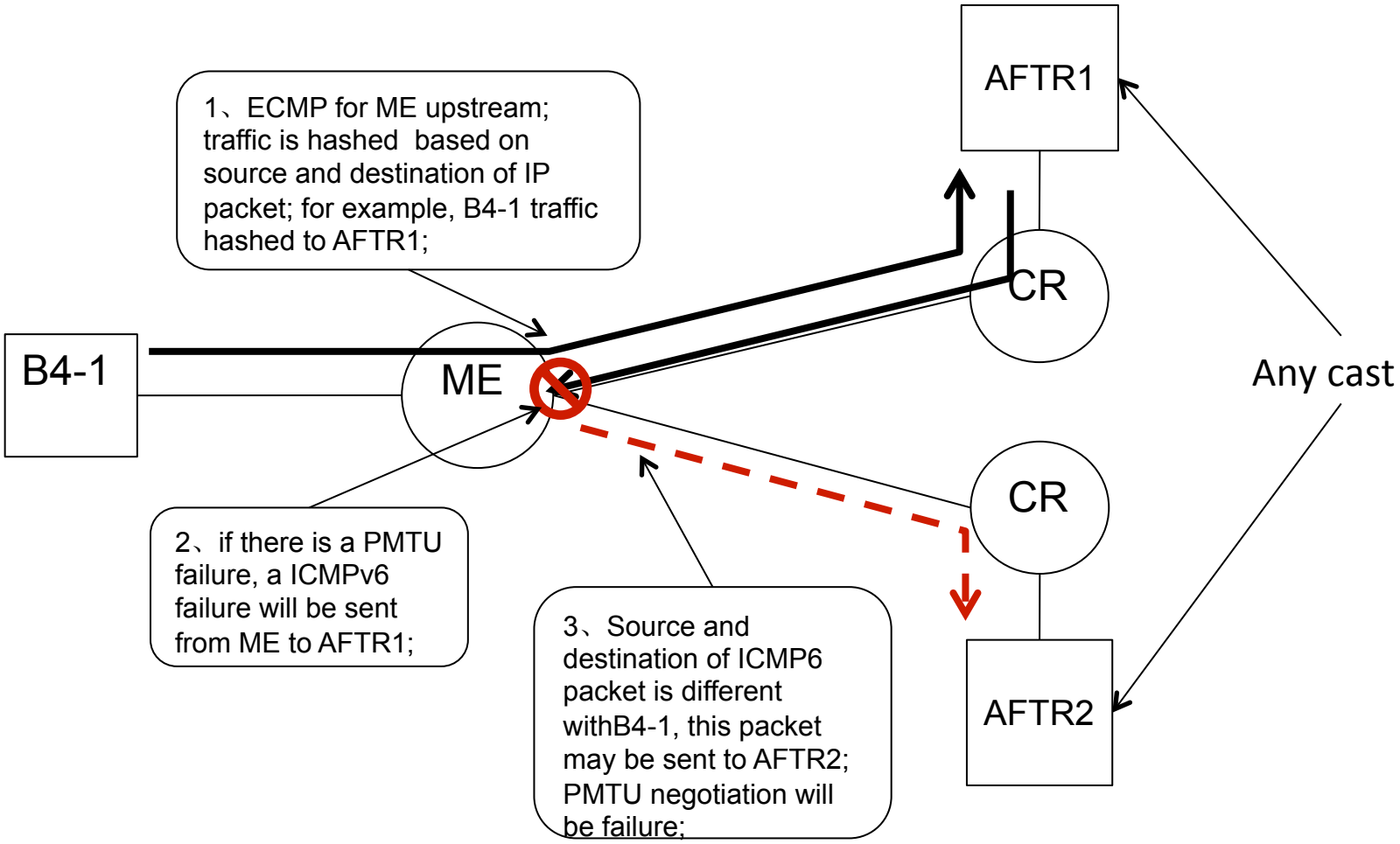
0 -- No Diagnostic
1 -- Control Detection Time Expired
2 -- Echo Function Failed
3 -- Neighbor Signaled Session Down
4 -- Forwarding Plane Reset
5 -- Path Down
6 -- Concatenated Path Down
7 -- Administratively Down
8 -- Reverse Concatenated Path Down

- PCP for DS-Lite
  - If PCP is available in DS-Lite deployment…
  - PCP to create a mapping with short lifetime, and update it periodically
  - If the client detect a failure, e.g. NETWORK_FAILURE error code is returned, client will switch to another PCP server or AFTR
  - PCP involve more modules(link, routing, NAT)

    In this sense, PCP encapsulation mode is better than plain mode.

- PING for DS-Lite
  - Common tool, can be sent periodically, or triggered manually when necessary

- Explicit failover VS anycast



ICMP error message problem in anycast

- Explicit failover VS anycast

  AFTR may use anycast address for receiving packet, and unicast address for sending packets to resolve the ICMP error message problem [section 4.2 of MAP-D]

  But there is still a problem, e.g. PING, admin may ping the AFTR by anycast address, but receive response from another address …