# MPLS ICMP For BIER Payload

draft-zzhang-mpls-icmp-bier-00

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BIER TRACEROUTE

- Based on same TTL expiration principles that IP traceroute uses
  - Part of draft-kumarzheng-bier-ping
  - A BFR experiencing TTL expiration for a BIER OAM packet sends a response back to the BFIR with some specific BIER information collected by the BFR
- A BIER packet may be sent through a tunnel, which may use uniform model for TTL processing
  - Tunnel ingress copies payload's TTL to transport label, which is decreased at each hop
  - A transit LSR, which may not support BIER, could experience TTL expiration for a BIER OAM packet and silently drop the packet

| BFIR | → | BFR1 | Non-BFR1 | Non-BFR2 | BFR2 | → | BFER |

tunnel

TTL Expiration on Non-BFR1
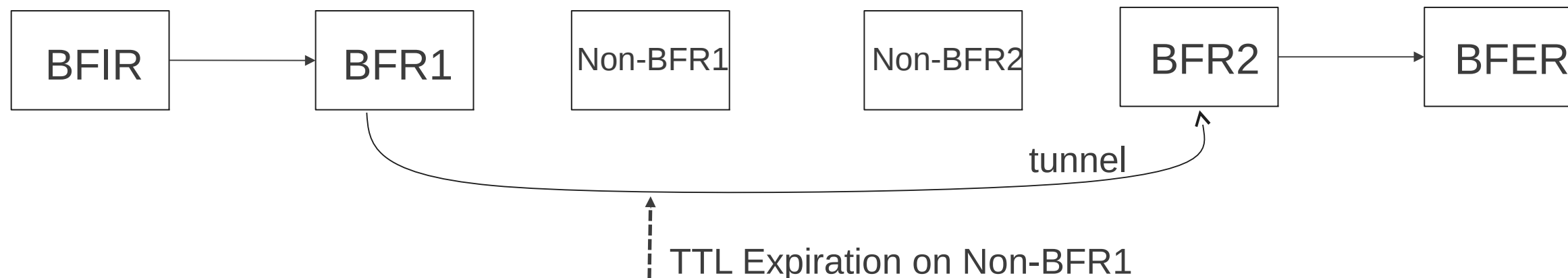
Proposal
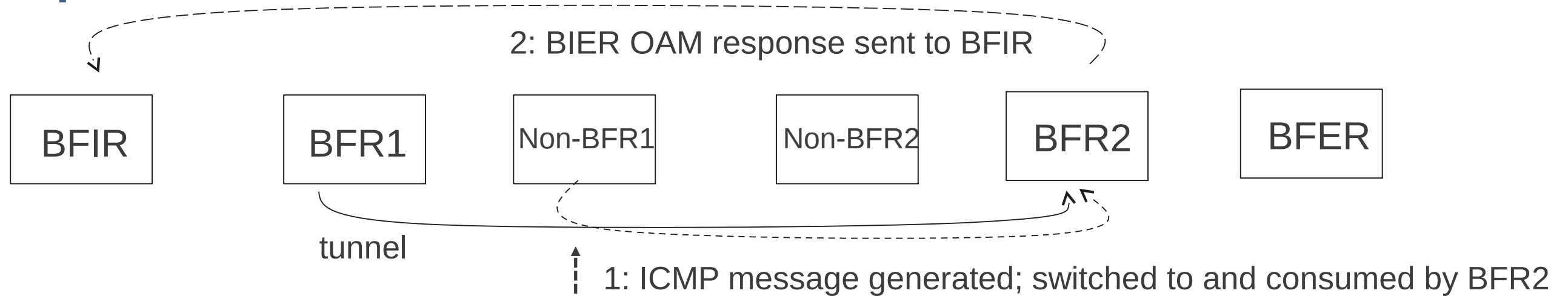
- An LSR generates an ICMP message for TTL-expired BIER packets and label switch it
  - If the first 4-bit nibble is 0101 (BIER packet)
  - Use the original label stack ***minus*** the inner most label (BIER label)
    - That should get the ICMP message to the BFR that originated the BIER label
  - Addressed to local host 127.0.0.1 or ::1
    - The receiving BFR collect relevant BIER information and tunnel hop information, and send OAM response to BFIR
      - This is BIER OAM functionality to be specified separately, e.g. in draft-kumarzheng-bier-ping

PLAN

- If BIER WG believes this is worth pursuing, progress the draft in MPLS and/or BIER WG