DetNet Data Plane

PREOF for DetNet IP

draft-ietf-detnet-mpls-over-ip-preof

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DetNet WG

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DetNet Data Plane
PREOF for DetNet IP

- Intended status:
  - Informational
- Actual version:
  - draft-ietf-detnet-mpls-over-ip-preof-01

Table of Contents

- Abstract:
  - This document describes how DetNet IP data plane can support the Packet Replication, Elimination, and Ordering Functions (PREOF) based on [RFC9025].

History

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- Many discussions on the mailing list during 2021 (June-Nov)
  - Thanks: Stewart Bryant, Pascal Thubert, Shirley Yangfan, Greg Mirsky, David Black
  - Created a very stable technical content for the adopted draft
- Clarification on
  - Underlay UDP/IP tunnels between an overlay set of DetNet relay nodes, Parameters, Use cases,
- Text is stable.

Summary & Next Steps

- Summary
  - This draft leverages existing DetNet Data Plane “building blocks”
  - No new header fields are specified
  - Generic IP solution
  - It is already available, both for IPv6 and IPv4
  - Defines PREOF at the DetNet service sub-layer, where it belongs to
  - Applicable irrespective of what routing technique is used “underneath” (i.e., at the DetNet forwarding sub-layer
    - Any IP routing technique can be applied, e.g., SRv6
  - Does NOT require any additional processing on transit nodes …

- Next Steps
  - Asking for WG Last Call

Thanks …

DetNet IP PREOF Goals

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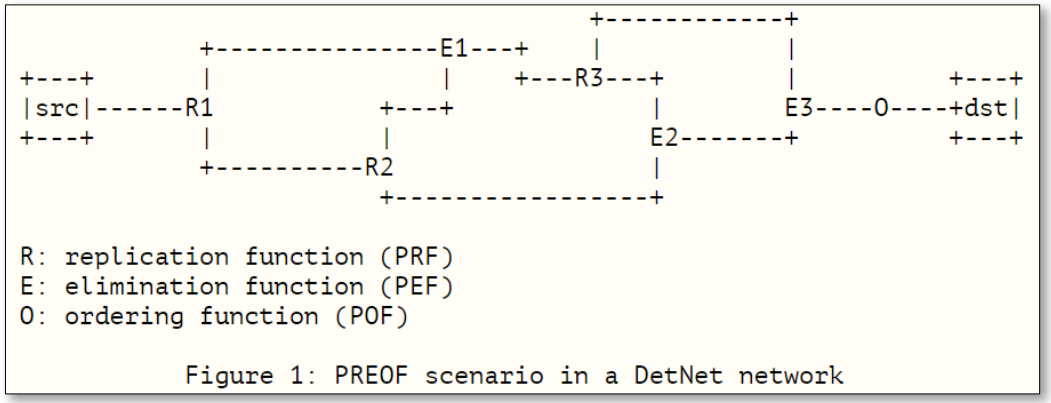
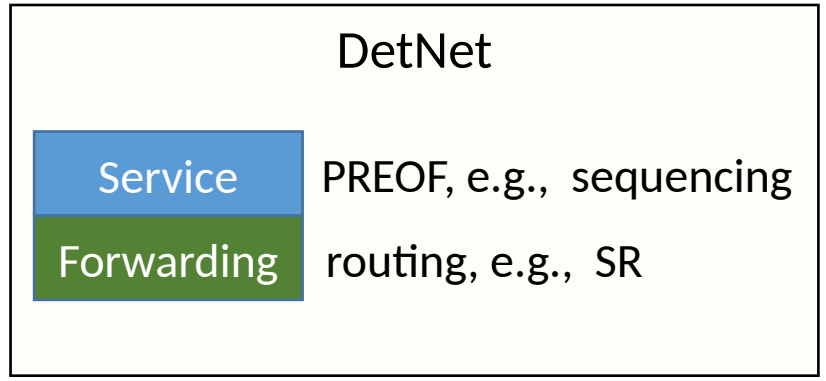


Figure 1: PREOF scenario in a DetNet network

- Add PREOF to DetNet IP
- Reuse existing DetNet data plane
  (e.g., [RFC8939] & [RFC9025] (*) [RFC8964])
- Provide DetNet service sub-layer for IP with minimal effort;
  minimal standardization and implementation effort
- Maintain DetNet service sub-layer and DetNet forwarding sub-layer characteristics
  - Service sub-layer includes PREOF functions, e.g., sequencing
  - Forwarding sub-layer includes routing functions,
    e.g., explicit routing provided by, e.g., Segment Routing (SR)
- Enable seamless use of existing routing techniques,
  e.g., SR (SRv6 in case of IPv6)



DetNet IP PREOF

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- Basic Concept
  - "UDP tunneling" between relay nodes
  - Maintain the 6-tuple-based DetNet flow identification in DetNet transit nodes

- Provides
  - Encapsulation,
  - Packet Processing
  - Flow aggregation
  - PREOF procedures
  - Control and management parameters

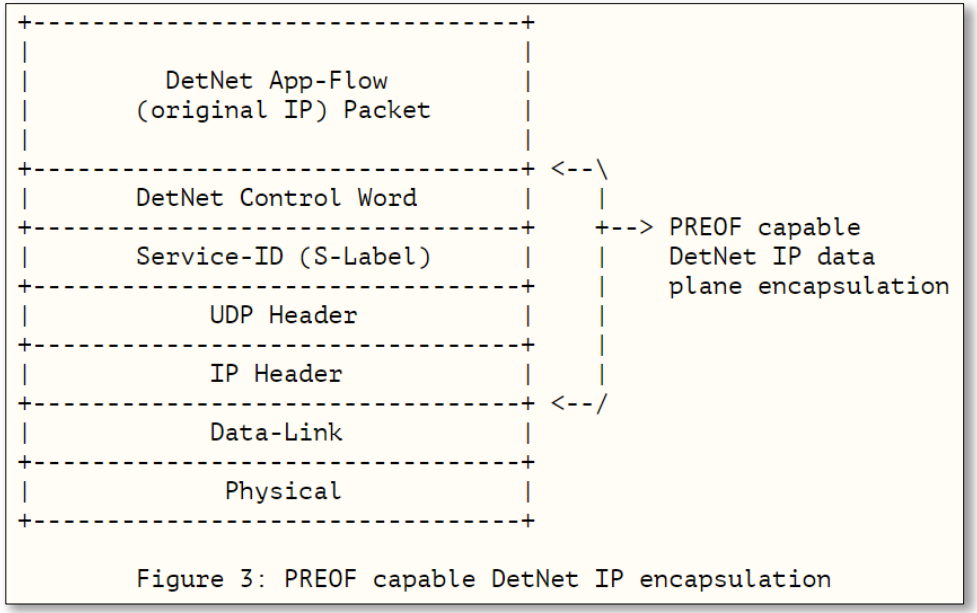

Figure 3: PREOF capable DetNet IP encapsulation

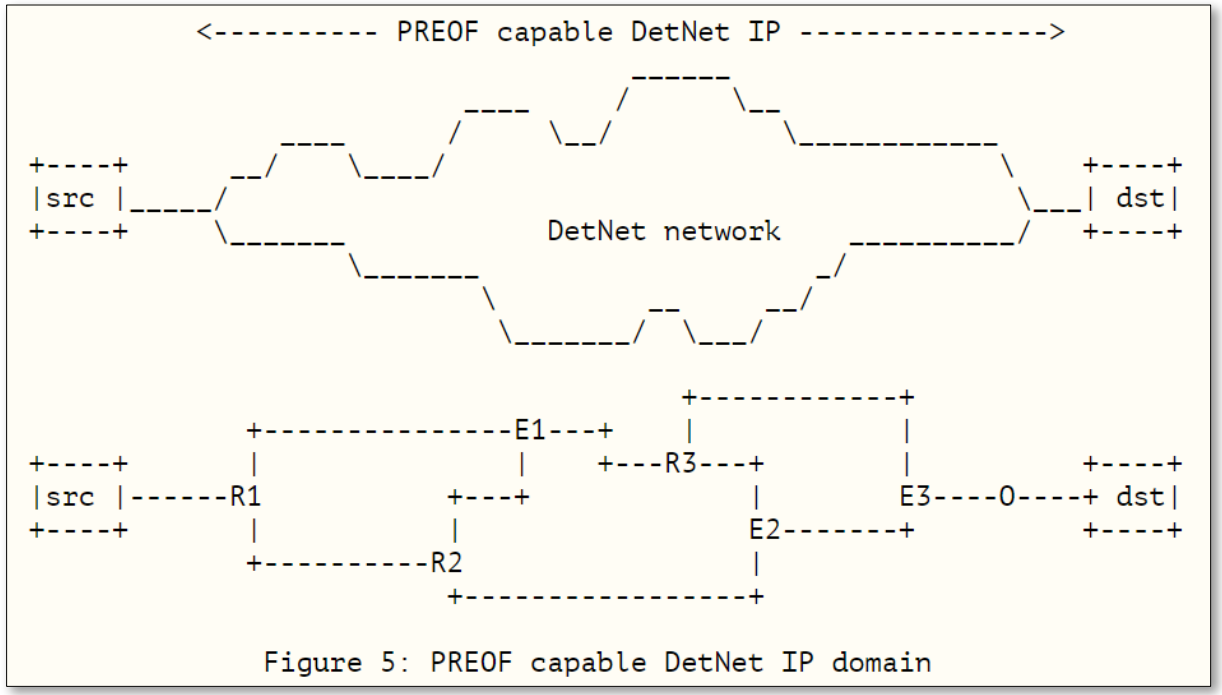

Figure 5: PREOF capable DetNet IP domain