MPLS Network Action for Deterministic Latency

draft-sxg-mpls-mna-deterministic-latency-03

Xueyan Song **ZTE Corp.**
Quan Xiong ZTE Corp.
Rakesh Gandhi Cisco Systems, Inc.

IETF 123 Meeting, July 2025

Way forward of this draft

- Meeting Progress
  - 115 meeting
    - *draft-sx-detnet-mpls-queue-02 was presented at DetNet WG. Feedback from the WG Chair "there is an opportunity to contribute to such a requirements document".*
  - 118 meeting
    - *draft-sx-mpls-detnet-bounded-latency-01 was presented at MPLS WG (this draft aligns with the DetNet enhanced requirements specified in draft-ietf-detnet-scaling-requirements-04). Feedback from the WG:*
      - *Greg: The DetNet ACH is larger than DetNet CW, he believes ISD option is simpler.*
      - *Janos/Lou: DetNet is interested to support bounded latency, but we have to be careful on what to carry. There is no consensus on queuing mechanisms.*
  - 120 meeting
    - *draft-sxg-mpls-mna-deterministic-latency-01 was presented at MPLS WG. Updates to the draft have been made to reflect proposals from Greg and Adrian, and progress on the DetNet draft-ietf-detnet-dataplane-taxonomy-01 has been posted.. Feedback received from WG:*
      - *Tarek: Believe the draft is in the proper WG, suggest to socializing the use case with DetNet WG.*
      - *Jie/Greg: The use case is in the appendix of the MNA use case draft and requires endorsement form DetNet.*
    - *draft-sxg-mpls-mna-deterministic-latency-01 was presented at DetNet WG. Feedback from WG chairs "feels a little early" "we are still on requirements of enhanced data plane" "we are still working on our taxonomy".*
  - 123 meeting
    - *Synced on draft updates and feedback from DetNet WG.*

Updates after 120 meeting

Updates of -02 and -03:

1. Enhanced scalability to support aggregation flow identification
2. Simplified ancillary data related to latency
3. Aligned with the latest MNA header
4. Editorial updates

Requirements

Data plane enhancement requirements specified in section 4 of draft-ietf-detnet-scaling-requirements-04:

1. Support Aggregated Flow Identification
2. Support Information used by Functions Ensuring Deterministic Latency

DLNA Sub-Stack

```
+---------------------------+
|         Physical          |
+---------------------------+
|        Data-Link          |
+---------------------------+<-\-- Top of Stack
|        F-Label(s)         |   |
+---------------------------+   | DetNet
|        MNA Label          |   | Data Plane
+---------------------------+   | MPLS Encapsulati
|           DLNA            |   |
+---------------------------+   |
|         S-Label           |   |
+---------------------------+   |
|   DetNet Control Word     |   |
+---------------------------+<-/-- Bottom of Stack
|      DetNet App-Flow      |
|        Payload            |
+---------------------------+
```

```
 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|             |                 |R|IHS|S|U|  NASL  |  NAL  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| DLNA Opcode1|       A-Latency Data       |S|U|  Data  |  NAL  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| DLNA Opcode2|        Latency Data        |S|U|  Data  |  NAL  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|1|              Latency Data              |S|     Data         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

```
 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|1|              Timestamp                 |S|    Timestamp     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Next Steps and Acknowledgement

- Next Steps
  - Sync the progress of DetNet WG and make corresponding updates.
  - Welcome reviews and suggestions from WG.

- Acknowledgement
  - The co-authors would like to thank the comments and suggestions from Lou Berger, Janos Farkas, Gregory Mirsky, Loa Andersson, Adrian Farrel, Tony Li, Jie Dong, et al.