NSH Context Header Allocation: Timestamp

Tal Mizrahi*, Ilan Yerushalmi*, David Melman*, Rory Browne◊

*Marvell, ◊Intel

draft-mymb-sfc-nsh-allocation-timestamp-00
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The NSH Timestamp in a Nutshell

- Timestamp is incorporated in metadata (MD Type 0x1).
- Timestamp can be read / used by SFFs / SFs.
NSH Timestamp and KPI-Stamping

KPI-Stamping [draft-browne-sfc-nsh-kpi-stamp] :
- Per-hop ingress/egress timestamp and QoS information.
- MD Type 0x2.

The NSH Timestamp can be used with KPI stamping:
- NSH Timestamp used routinely.
- When problem detected:
  - Use KPI-stamping or IOAM.
NSH Timestamp Allocation Format

Can be used for detecting:
- Out-of-order
- Duplicates
- Loops

Interface identifier at the classifier.

Timestamp in IEEE 1588 truncated format.
Use Cases
Delay Measurement Use Case

One-way delay: $T_2 - T_1$
Alternate Marking Use Case

Alternate Marking [draft-ietf-ippm-alt-mark]

- A bit in the header is used as a color indicator.
- Coloring enables loss and delay measurement.

![Diagram showing traffic flow and coloring over time](image-url)
Alternate Marking Use Case

Alternate Marking [draft-ietf-ippm-alt-mark]
• A bit in the header is used as a color indicator.
• Coloring enables loss and delay measurement.

• Choose 1 bit from the timestamp.
• Use this bit as the color indicator.
Consistent Update Use Case

Consistent (atomic) update from policy A to policy B.
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Maybe this can work?
At time<\(T_0\) Policy A.
At time\(\geq T_0\) Policy B.

Not consistent!
Consistent Update Use Case

Consistent (atomic) update from policy A to policy B.

Consistent update:
At $\text{timestamp}<T_0$ Policy A.
At $\text{timestamp}\geq T_0$ Policy B.
Next Steps
Draft Status and Next Steps

- January 2017 – draft 00 submitted.
- Next steps:
  - Working group feedback.
  - Consider WG adoption.
Thanks!
Related Work

• This presentation summarizes [1].
• The NSH timestamp of this draft can be used in conjunction with [2] or
  [4], which also use timestamping in NSH.
• NSH timestamping can be used for various use cases (e.g., [3], [5]).
• Security considerations are discussed in [1] and in [2]. Security
  considerations of time protocols are discussed in [6].
References


