Performance Measurement (PM) with Alternate Marking in Network Virtualization Overlays (NVO3)

Giuseppe Fioccola  Telecom Italia
Greg Mirsky  ZTE
Tal Mizrahi  Marvell

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Alternate Marking - Background

Monitor data traffic from MP 1 to MP 2

- Packet loss
- Delay
- Delay jitter
Alternate Marking in NVO3

Performance measurements per VNI between two NVE devices:
- Packet loss
- Delay
- Delay jitter
Alternate Marking (RFC 8321)

Every data packet includes a color bit.

Traffic Flow: [AAAAA, BBBBB, AAAAA, BBBBB]
Marking Bit: [00000, 11111, 00000, 11111]

Time
Double Marking

MP 1

MP 2

Traffic Flow

AAAAA  BBBBB  AAAAA  BBBBB

Loss Bit: $L = 00000 11111 00000 11111$

Delay Bit: $D = 00100 00100 00100 00100$

- Color indication.
- Timestamp indication.
Multiplexed Marking
(draft-mizrahi-ippm-compact-alternate-marking)

- **A single bit** is used for L / D
- Same measurement resolution as double marking

Traffic Flow

| Loss Bit: L= | 00000 | 11111 | 00000 | 11111 |
| Delay Bit: D= | 00100 | 00100 | 00100 | 00100 |

Using only one bit: \( L \oplus D \)
Alternate Marking Bits in NVO3

Geneve Header:
```
+---------------------------------------------+------------------------+
| Ver | Opt Len | O|C| Rsvd. | Protocol Type | Protocol Type |
+---------------------------------------------+------------------------+
| Virtual Network Identifier (VNI) | M | Reserved |
+---------------------------------------------+------------------------+
| Variable Length Options |
```

Mark field
```
+---+ Mark field
| L | D | L - Loss bit
+---+ D - Delay bit
```

- Single marking
- Double marking
- Multiplexed marking
Status and Next Steps

• Draft 02 – updated based on feedback from the WG

• Consider working group adoption
Thanks!
References
