IETF 98 Update: Passive Performance Monitoring using a Multiplexed Marking Field

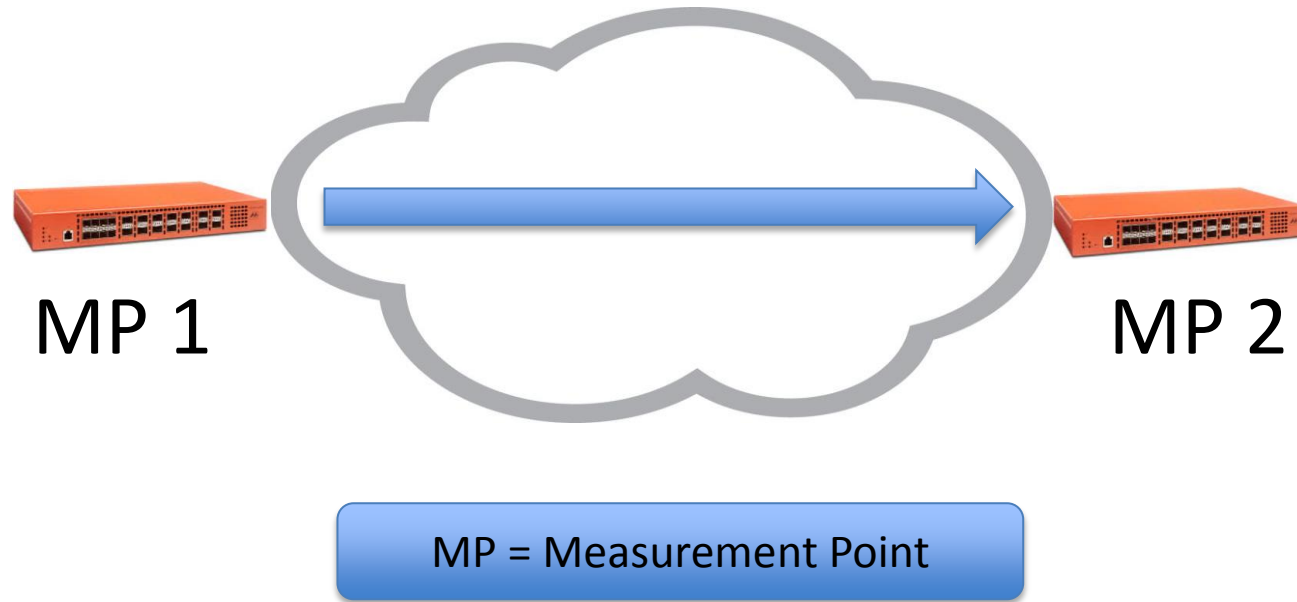| Tal Mizrahi | Marvell |
Giuseppe Fioccola	Telecom Italia
Mach Chen	Huawei
Lianshu Zheng	Huawei
Greg Mirsky	ZTE

draft-mizrahi-ippm-multiplexed-alternate-marking-01

IETF 98, Chicago, March 2017
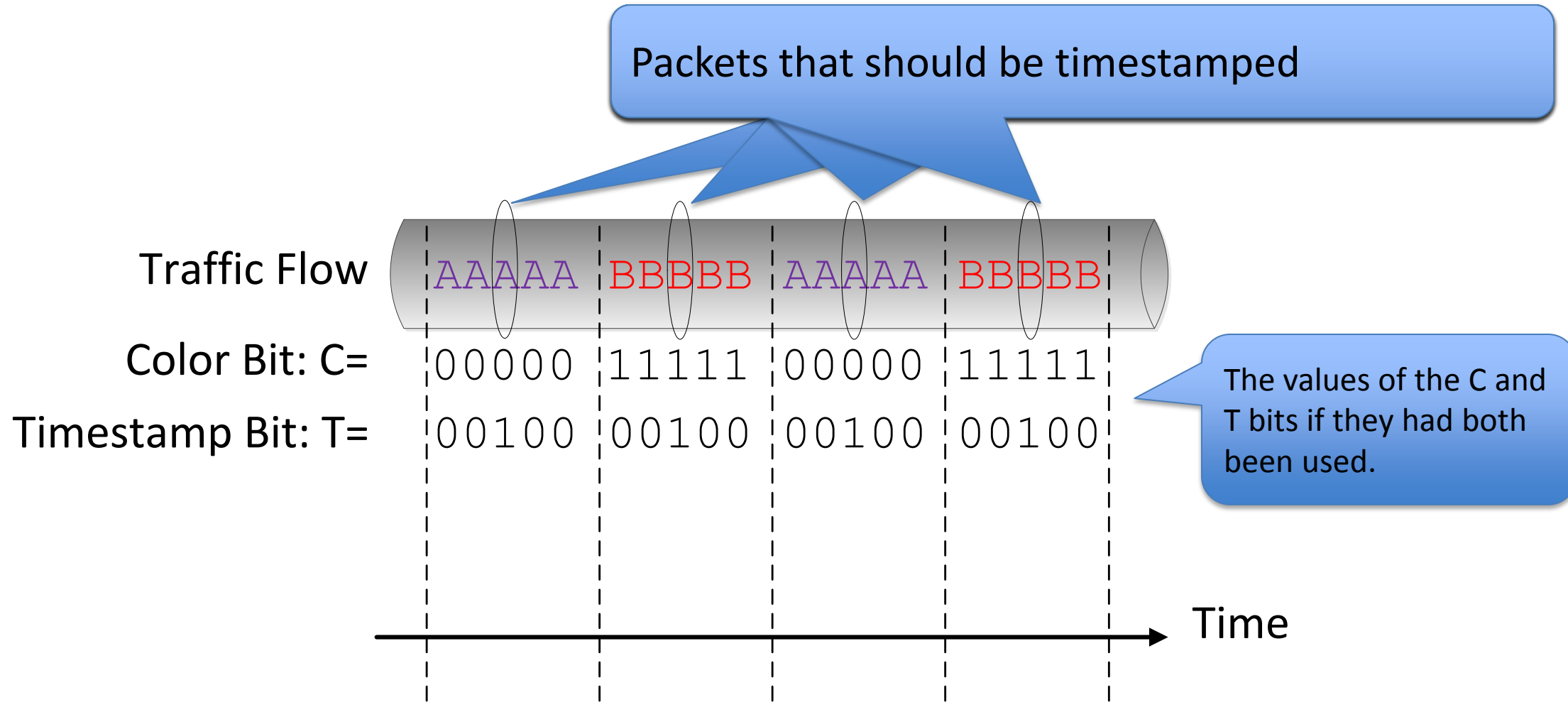
Background

Alternate Marking - Background

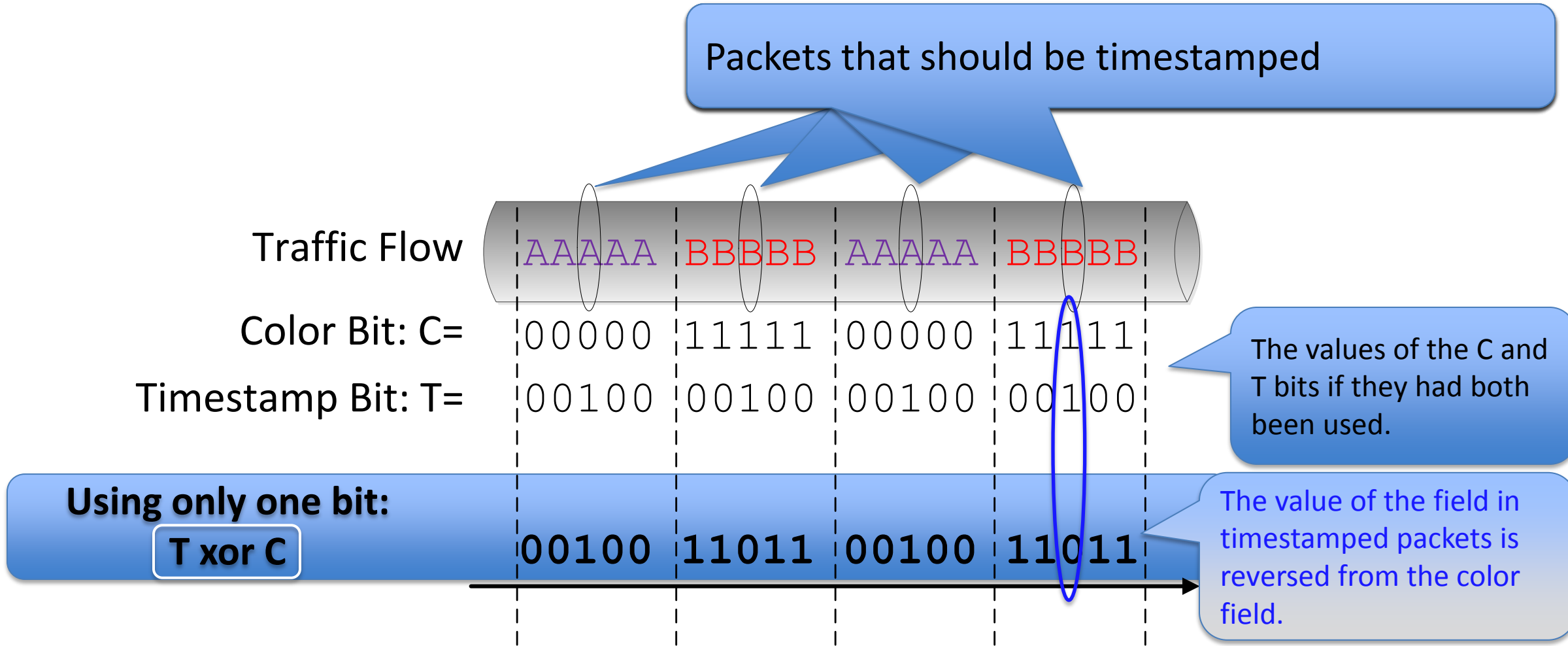## Monitor data traffic from MP 1 to MP 2

- Loss
- Delay

MP 1

MP 2

MP = Measurement Point

MP may be activated anywhere along the path without further overhead.

Multiplexed Marking

Multiplexed Marking

A single field is used for C / T:

Packets that should be timestamped

Traffic Flow	AAAAA	BBBBB	AAAAA	BBBBB
Color Bit: C=	00000	11111	00000	11111
Timestamp Bit: T=	00100	00100	00100	00100

The values of the C and T bits if they had both been used.

Using only one bit:
T xor C

| 00100 | 11011 | 00100 | 11011 |

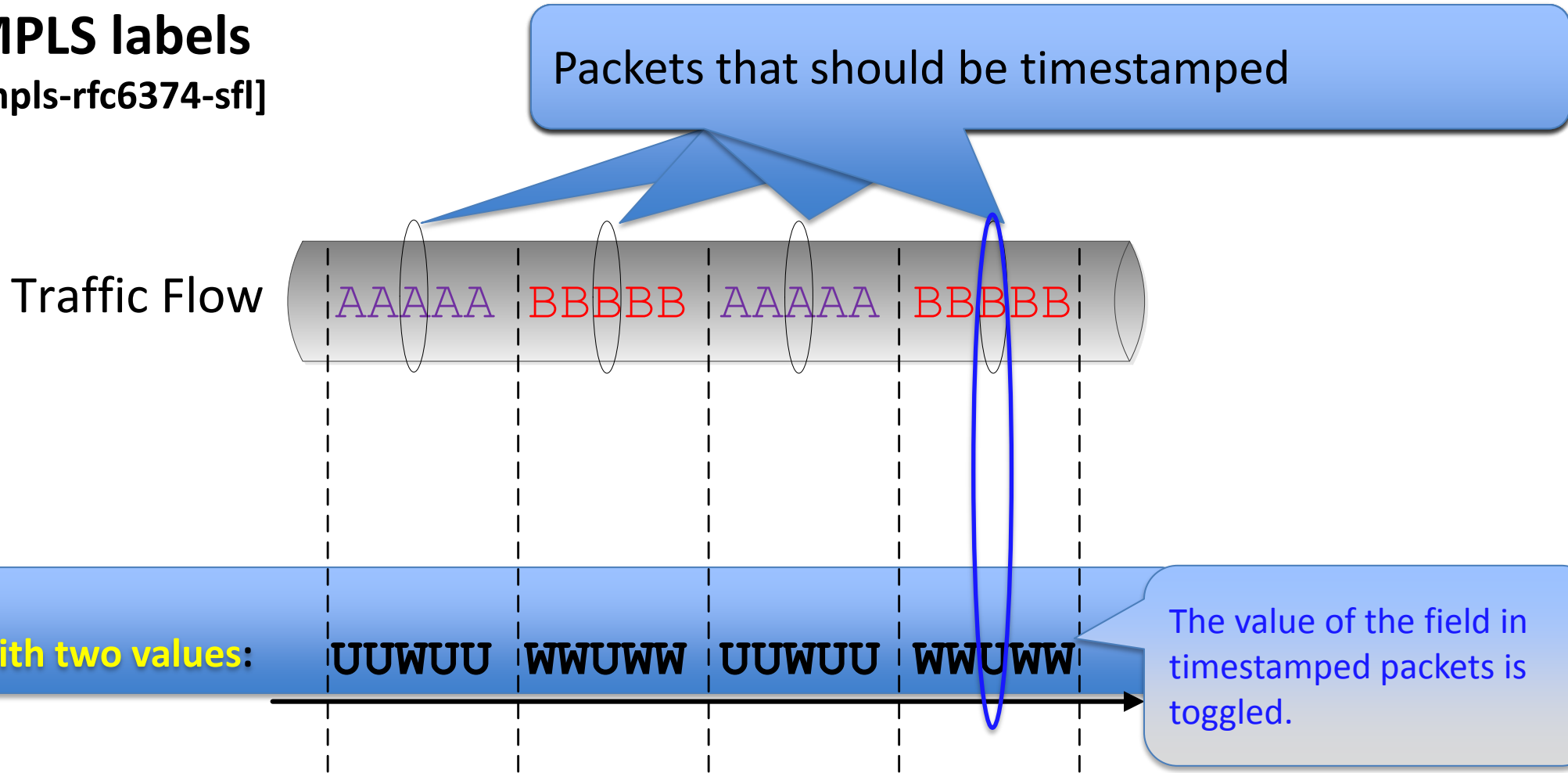The value of the field in timestamped packets is reversed from the color field.

# Updates in Version 01

Multiplexed Marking using Two Values

Instead of a single marking bit ➔ A marking field with two values: U, W.

E.g., two MPLS labels

[draft-bryant-mpls-rfc6374-sfl]

Packets that should be timestamped

Traffic Flow AAAAA BBBBB AAAAA BBBBB

Using a field with two values: **UUWUU WWUWW UUWUU WWUWW**

The value of the field in timestamped packets is toggled.

Draft Status and Next Steps

- October 2016 – draft 00 submitted.

- November 2016, IETF 97:
  - Presented in IPPM.
  - Discussion in MPLS.

- March 2017 – Marvell demo at OCP summit: PPM + multiplexed marking.

- March 2017 – draft 01 submitted.

- Next steps:
  - Working group feedback.
  - Consider WG adoption.

MP 1   MP 2
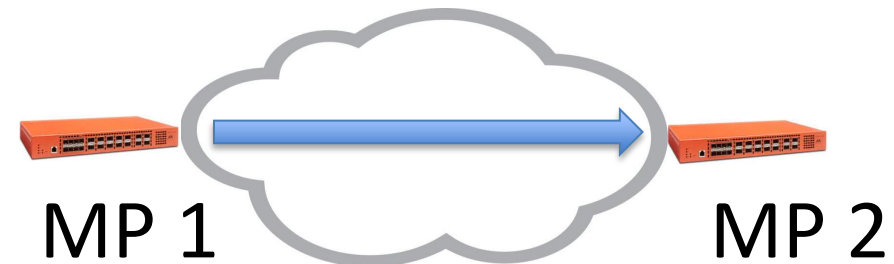
Thanks!

Related Work

- This presentation summarizes [1].

- The alternate marking method was first presented in [2], and later evolved into [3], [4]. Alternate marking using a conventional timestamp field is discussed in [5].

- The most updated version of the alternate marking working document is [3].

- Security considerations are discussed in [3] and in [1]. Security considerations of time protocols are discussed in [6].

References

[1]   T. Mizrahi, G. Fioccola, M. Chen, L. Zheng, G. Mirsky, "Passive Performance Monitoring using a Multiplexed Marking Field", draft-mizrahi-ippm-multiplexed-alternate-marking-01, work in progress, 2017.

[2]   M. Cociglio, A. Capello, A. Tempia Bonda, L. Castaldelli, "A packet-based method for passive performance monitoring", draft-tempia-opsawg-p3m-00, expired, 2011.

[3]   G. Fioccola, A. Capello, M. Cociglio, L. Castaldelli, M. Chen, L. Zheng, G. Mirsky, T. Mizrahi, "Alternate Marking method for passive performance monitoring", draft-ietf-ippm-alt-mark, work in progress, 2017.

[4]   M. Chen, L. Zheng, G. Mirsky, G. Fioccola, T. Mizrahi, "IP Flow Performance Measurement Framework," draft-chen-ippm-coloring-based-ipfpm-framework, expired, 2016.

[5]   T. Mizrahi, Y. Moses, "The Case for Data Plane Timestamping in SDN", IEEE INFOCOM Workshop on Software-Driven Flexible and Agile Networking (SWFAN), 2016.

[6]   T. Mizrahi, "Security Requirements of Time Protocols in Packet Switched Networks", RFC 7384, 2014.

[7]   S. Bryant, M. Chen, Z. Li, G. Swallow, S. Sivabalan, G. Mirsky, G. Fioccola, "RFC6374 Synonymous Flow Labels", draft-bryant-mpls-rfc6374-sfl (work in progress), 2016.