Compact Alternate Marking

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draft-mizrahi-ippm-compact-alternate-marking-03

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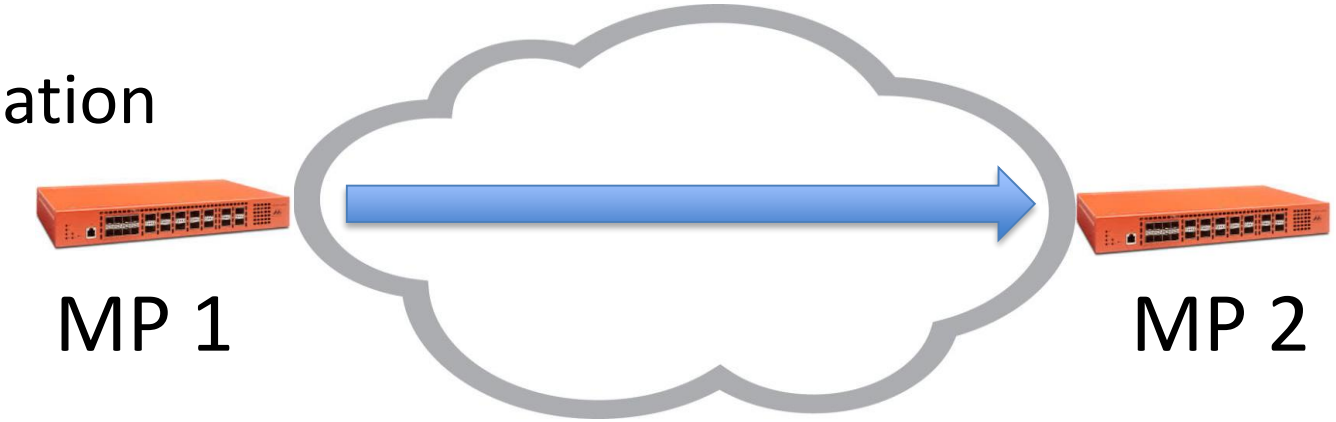
Alternate Marking - Background

Monitor data traffic from MP 1 to MP 2

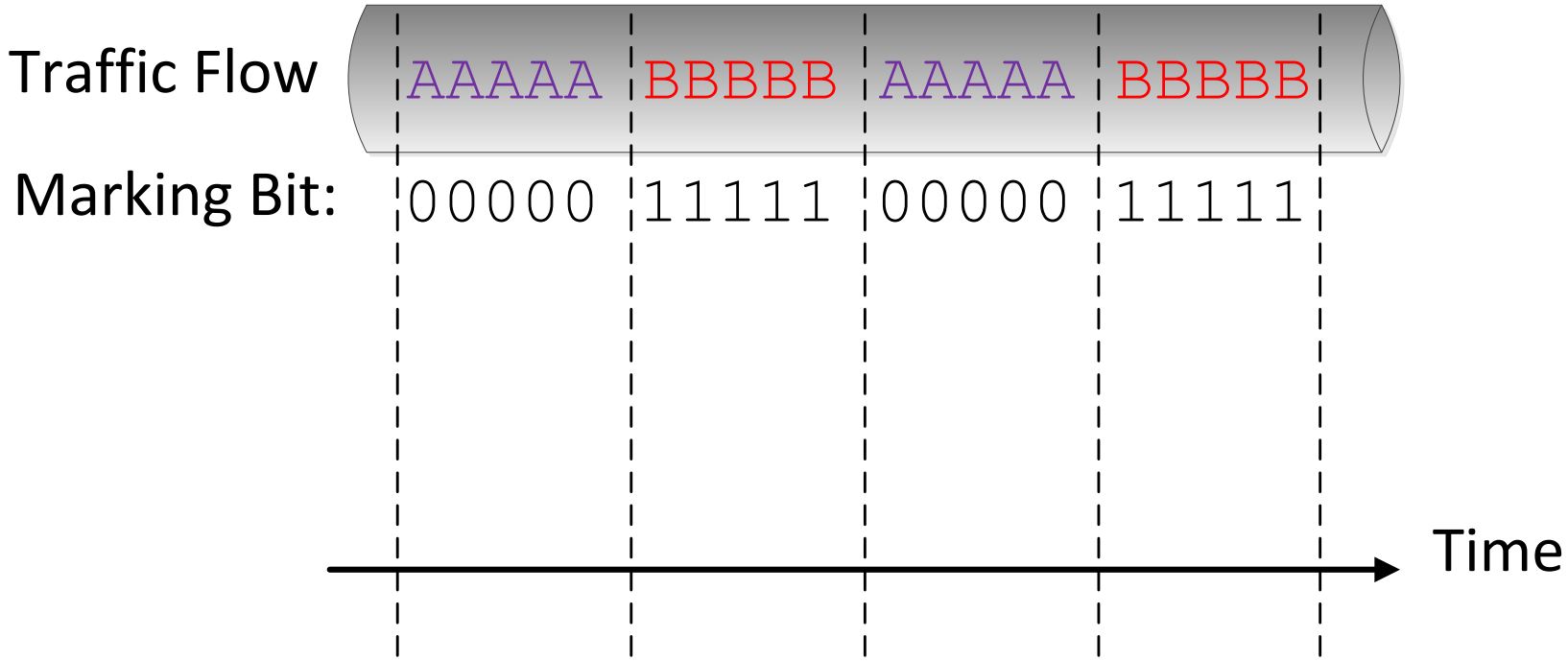
- Loss
- Delay
- Delay variation



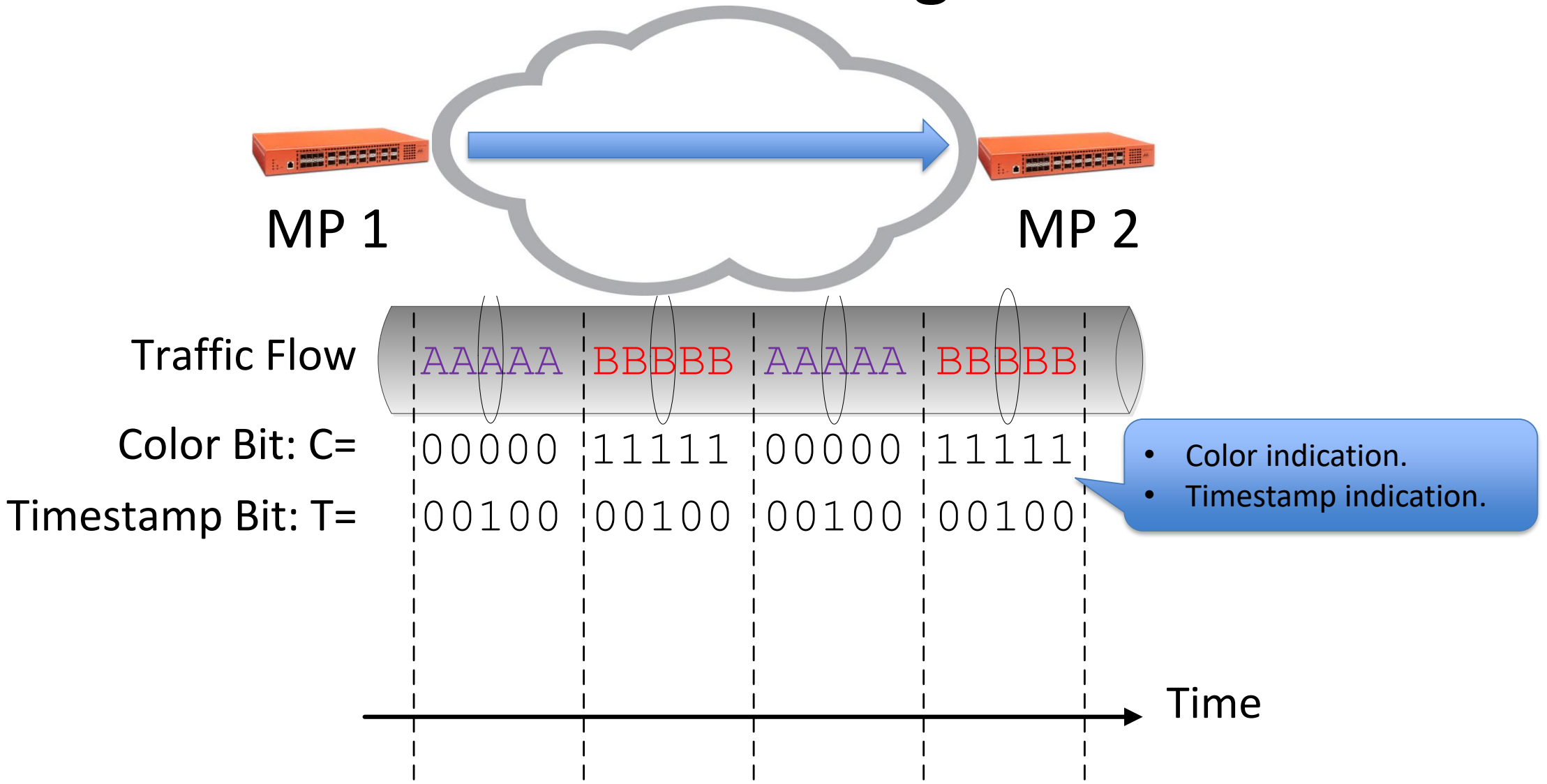
MP = Measurement Point

Alternate Marking (RFC 8321)

Every data packet includes a color bit.

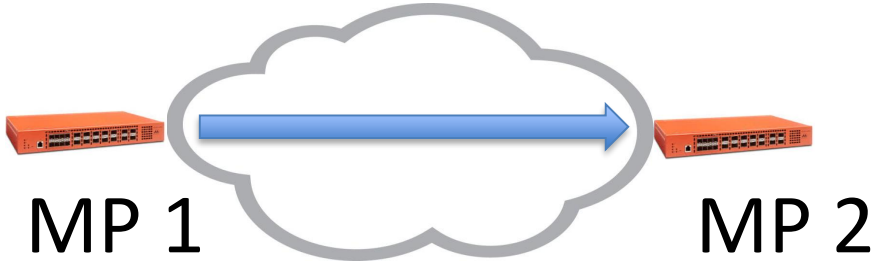


Double Marking



Scope of the Current Draft

- New alternate marking methods with low overhead.
  - Single bit per packet.
  - Zero bits per packet.
- Summary of alternate marking methods.



Summary and Tradeoff of Marking Methods

Method	# of bits	# of counters	LM Method	DM Method	Resilience to Reordering		Resilience to Packet drops	
					LM	DM	LM	DM
Single marking - 1st packet	1	2	Step	Step	+	--	+	--
Single marking - mean delay	1	2	Step	Mean	+	+	+	-
Double marking	2	2	Step	Pulse	+	+	+	=
Single marking multiplexed	1	2	Step	Pulse	+	+	+	=
Pulse marking	1	1	Pulse	Pulse	--	+	-	=
Zero marking hashed	0	1 (2)	Hashed pulse (step)	Hashed pulse	-- (-)	+	-	+
Single marking hashed	1	2	Step	Hashed pulse	+	+	+	+

+ Accurate measurement.
= Invalidate only if a measured packet is lost (detectable)
- No measurement in case of disturbance (detectable).
-- False measurement in case of disturbance (not detectable).

Related Drafts

- draft-ietf-mpls-rfc6374-sfl-02
- draft-ietf-bier-pmmm-oam-04
- draft-fmm-nvo3-pm-alt-mark-03
- draft-mirsky-sfc-pmamm-02
- draft-fioccola-ippm-multipoint-alt-mark-04
- fioccola-v6ops-ipv6-alt-mark
- fear-ippm-mpdm-02
- draft-ietf-quic-spin-exp-01
- draft-trammell-quic-spin-03

Most of these drafts may benefit from the methods and analysis of the current draft.

Next Steps

- Comments will be welcome!