Performance measurement with the marking method in BIER

draft-mirsky-bier-pmmm-01

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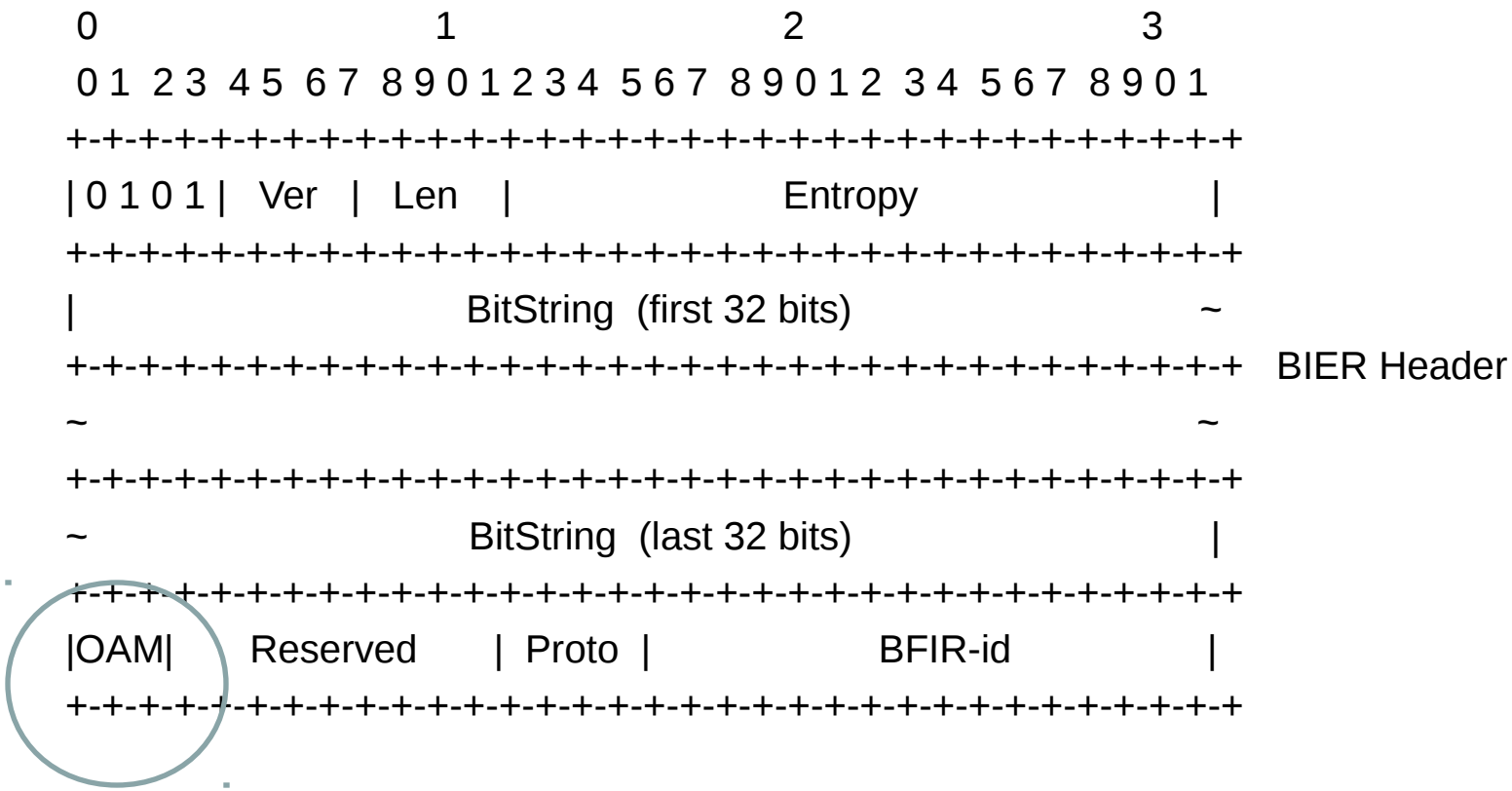
What and why



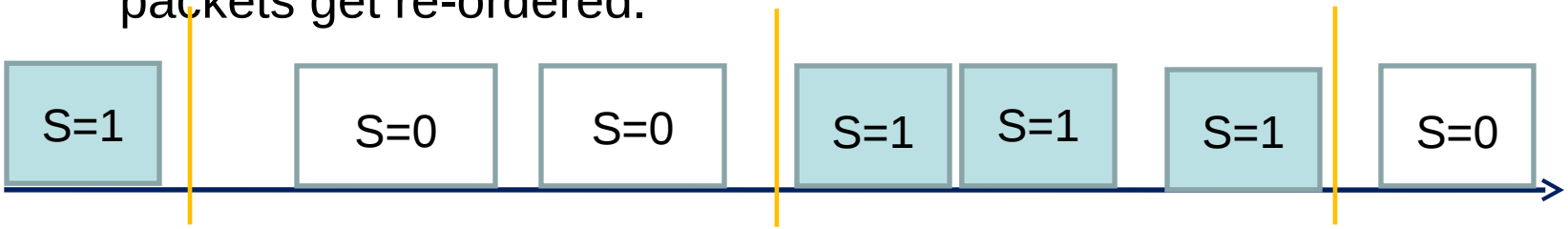
+-+-+ OAM field

|S|D| S – single mark method

+-+-+ D – double mark method

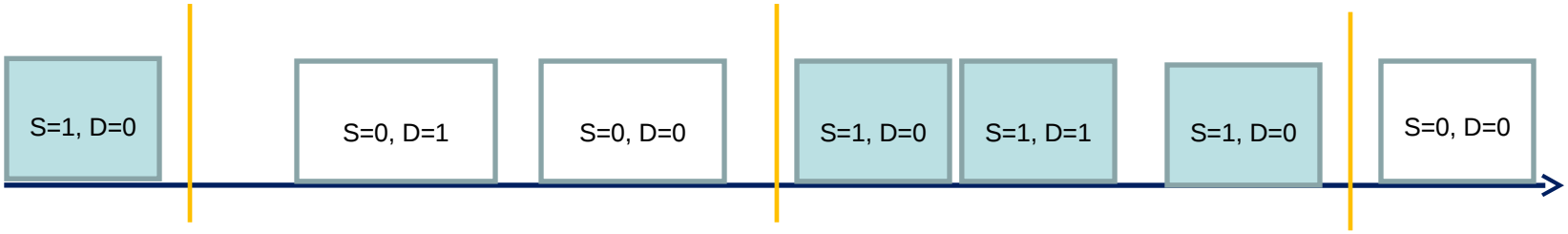
Single Mark Method

- Batching packets based on time interval to measure packet loss by switching value of the S flag. D flag MUST be set to 0 on transmit and ignored on receipt.
- First/Last Packet Delay calculation:
  - capture timestamp of when S flag value flips. Method is sensitive to packet loss and packet re-ordering
- Average Packet Delay calculation:
  - collect timestamps for each packet received within a single block. Average of the timestamp is the sum of all the timestamps divided by the total number of packets received. Hence minimally impacted by a packet loss and no impact if packets get re-ordered.



Double Mark Method

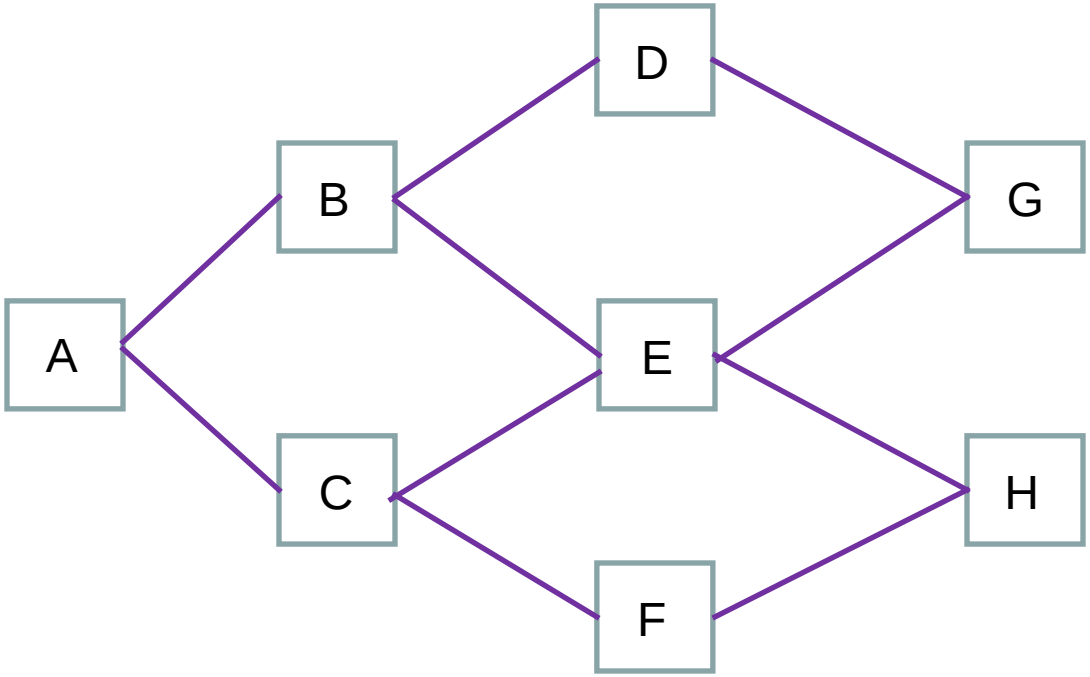
- Use S flag to create batch of packets as in Single Mark method
- Use D flag to create new set of marked packets that are fully identified over the BIER network
- Collect and compare timestamps on D-marked packets to calculate packet delay as well as the minimum and maximum delay values.



Sample BIER sub-domain

BFR A applies Double Mark method

BFRs B, E, and H record timestamps of D-tagged BIER packets



Next Steps

- Welcome questions, comments
- Address comments
- Adopt by WG

Thank you