Canova Tech

The Art of Silicon Sculpting

PIERGIORGIO BERUTO

ANTONIO ORZELLI

IEEE802.3cg TF

PLCA and TSSI considerations

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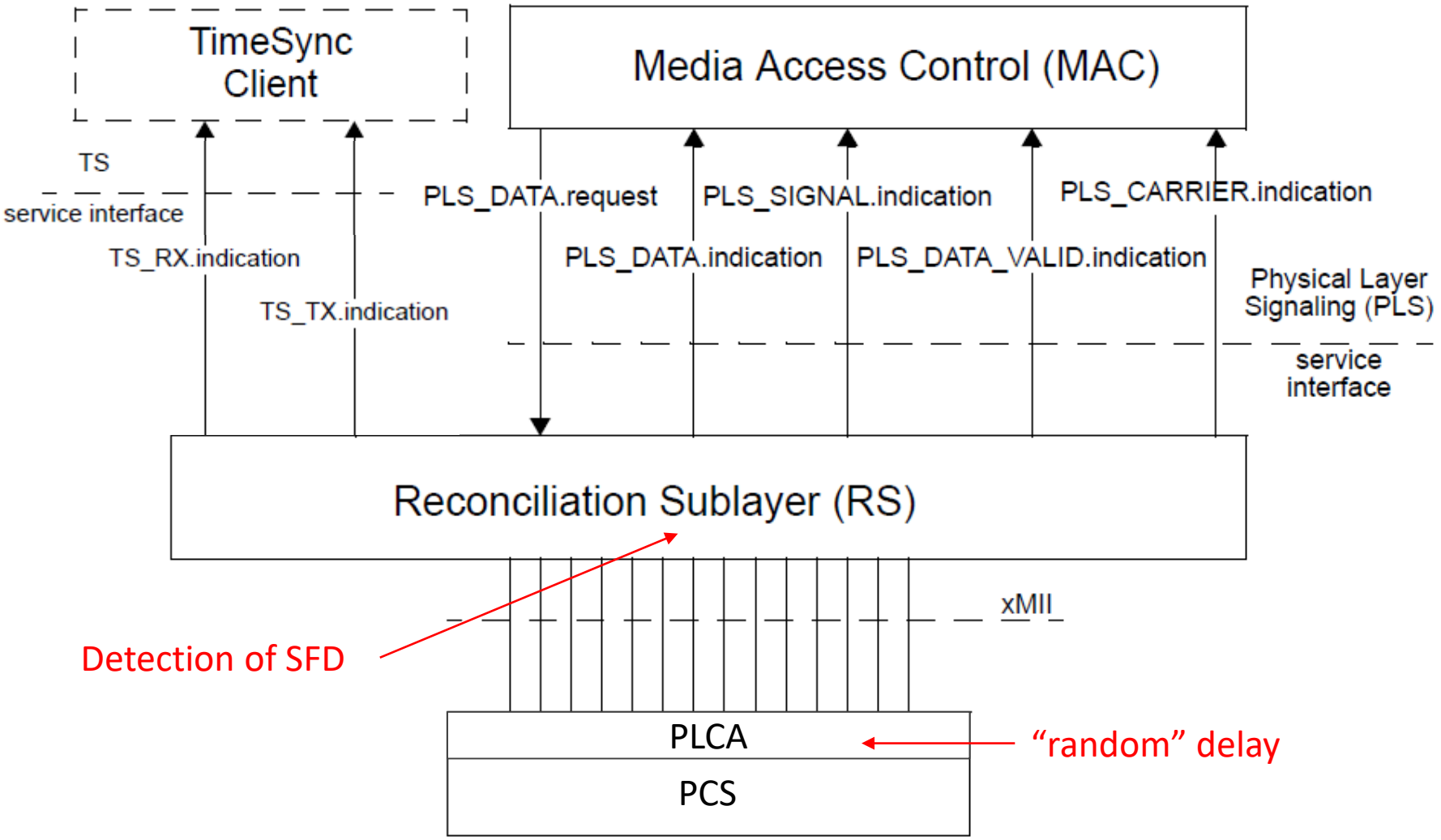
Problem

- TSSI is defined as a generic reconciliation sublayer
  - SFD is detected between the MAC and the MII, before the actual PHY
- PLCA causes TX packets to be variably delayed within the PHY to meet transmit opportunities
  - Resulting jitter would be added to network latency measure
  - As discussed, PLCA defined as an RS would fix that, but
    - RS by definition lies between the MAC and the MII
      - not the "natural" place for PLCA → Editorial fitting issues

Problem



However

- PLCA maximum jitter is (N + 1) * TS_TIMER
  - N = number of nodes, TS_TIMER = 20 bit times
  - For 8 nodes → ~15 us @10Mbit
  - For 32 nodes → ~52 us @10Mbit
- NOTE: this is computed assuming a PHY waits for all other nodes to yield their transmit opportunity
  - If any other PHY initiate a transmission, a logical collision is rised, MAC performs backoff and timestamp is updated at next transmission attempt → not a problem

Questions for the 802.3cg TF

- Do we really need address this issue in 802.3cg?
- If yes, does the worst case jitter really degrades TSN performance?

Thank You !