

Security Level:

# MPCP+

## Issues and solutions

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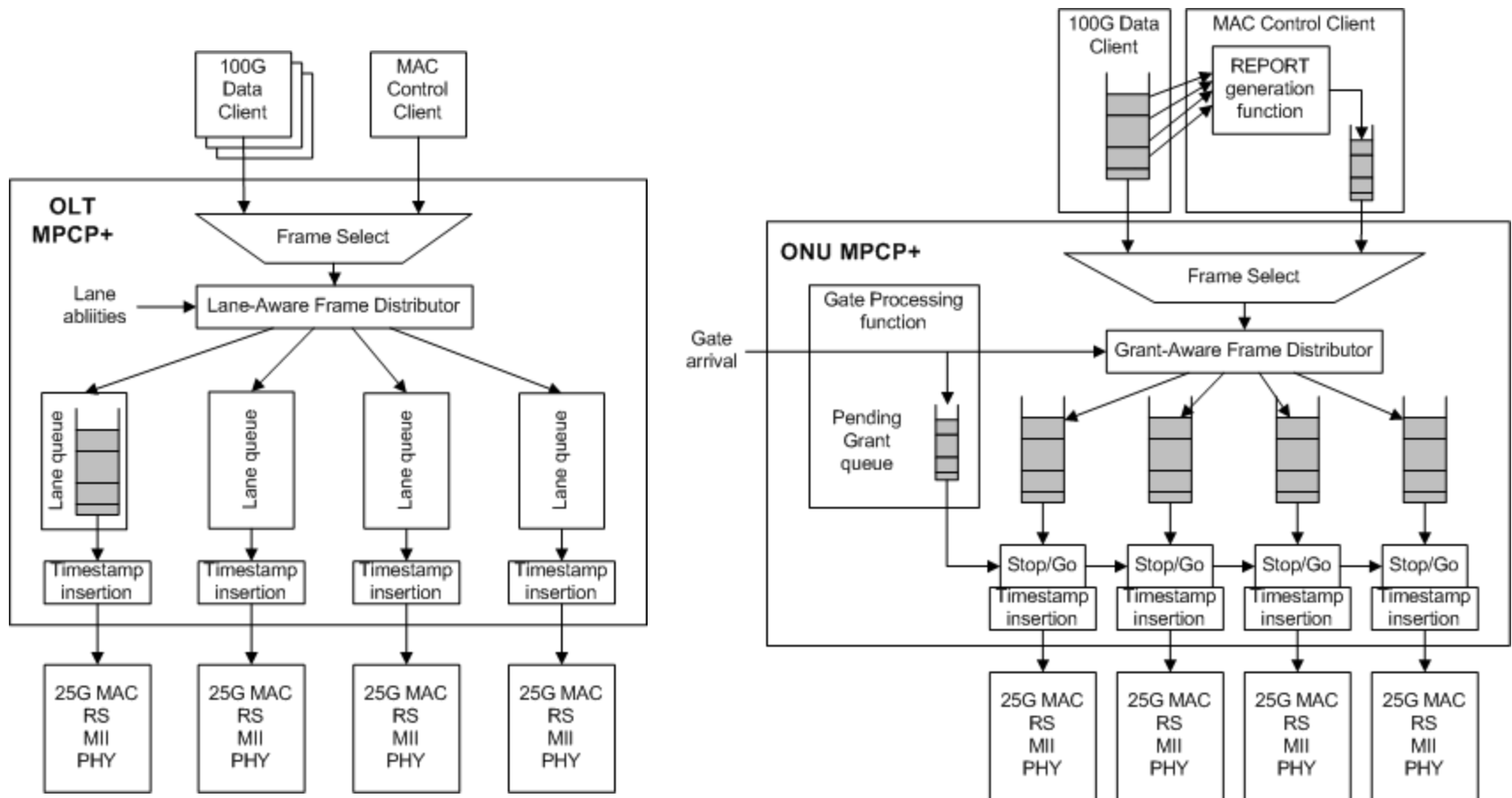
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**Version:** V1.0(20YYMMDD)

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# Architecture presented in Macao

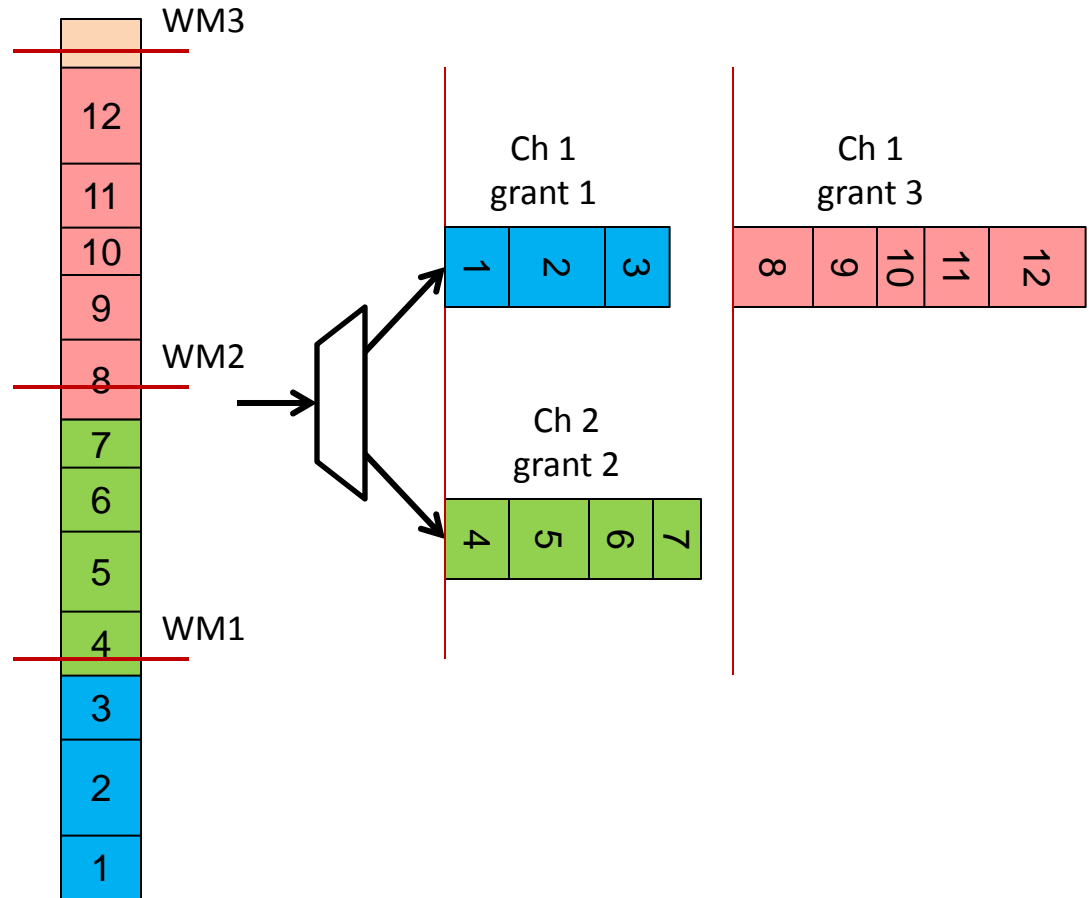


# Issues with baseline

- **REPORT scheme forces buffers at OLT to buffer entire burst**
  - Burst size will be limited by available buffer size in MPCP layer
- **Frame Distributor must switch MPCP frames to proper channel <OR> all to one channel**
  - There are distinct advantages in sending MPCP frames over all channels (also see [remein\\_3ca\\_3\\_0516.pdf](#))
    - GATEs don't need coding if always sent on the channel they are intended for
    - Doesn't burden the single 25G channel (presumably most crowded channel) with all MPCP traffic exasperating congestion issues.
- **Frame Distributor in OLT and ONU are different**
  - It would be nice to only have to design it once.

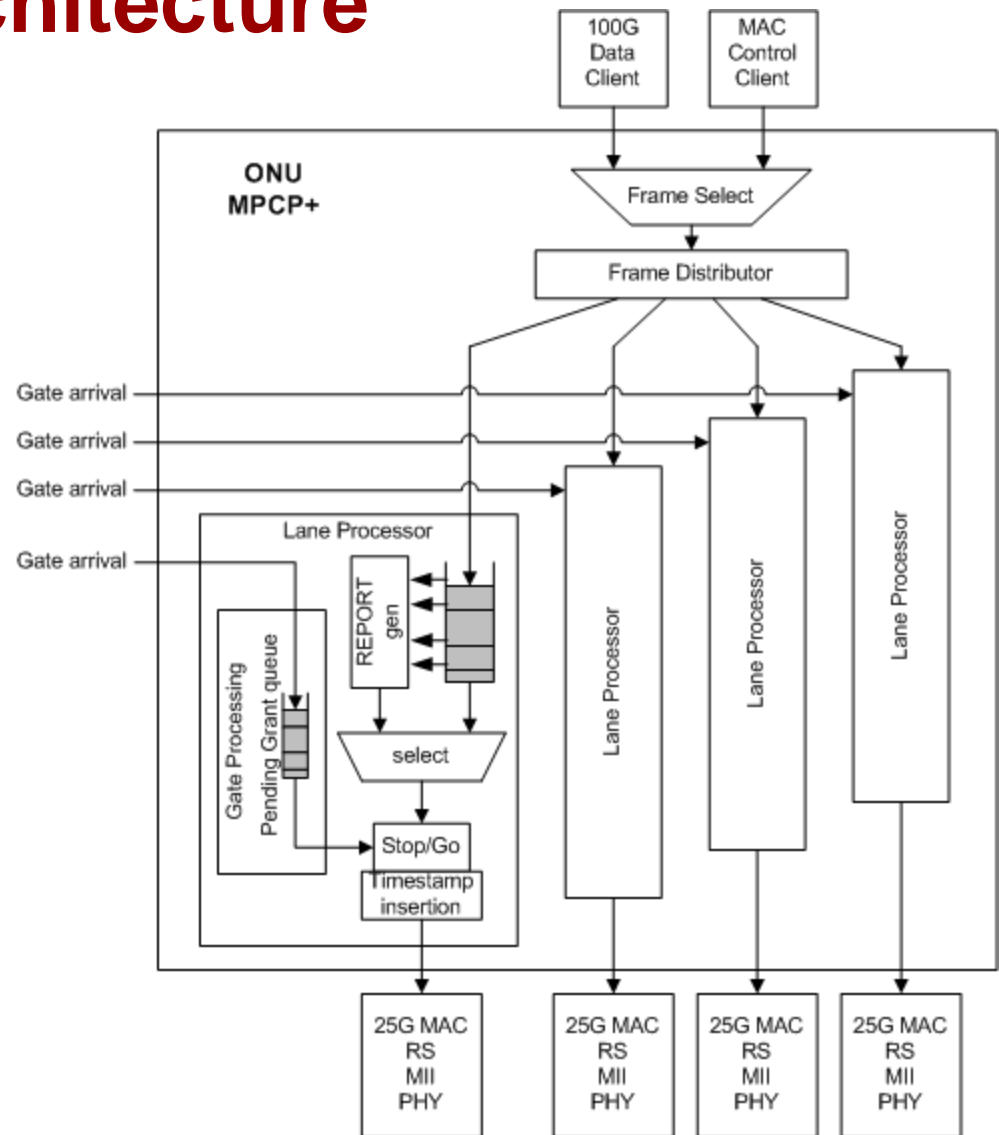
# Macao presented burst demux

- Frame 4 may arrive before frame 3 (or even 1)
- Buffers will be required to hold entire burst (~3.25 MB per channel for 1 ms burst )
- There is no way to guarantee that channel 1 will be available before channel 2. Grants will not be able to be scheduled in precise order



# An alternative architecture

- **Distribute frames before REPORT generation**
  - Channel associated
  - Allows finer granularity (REPORT per channel as opposed to single REPORT)
- **Grants issued based on common report level to ensure no out of order frames**



# REPORT/GATE scheme

- **REPORT**

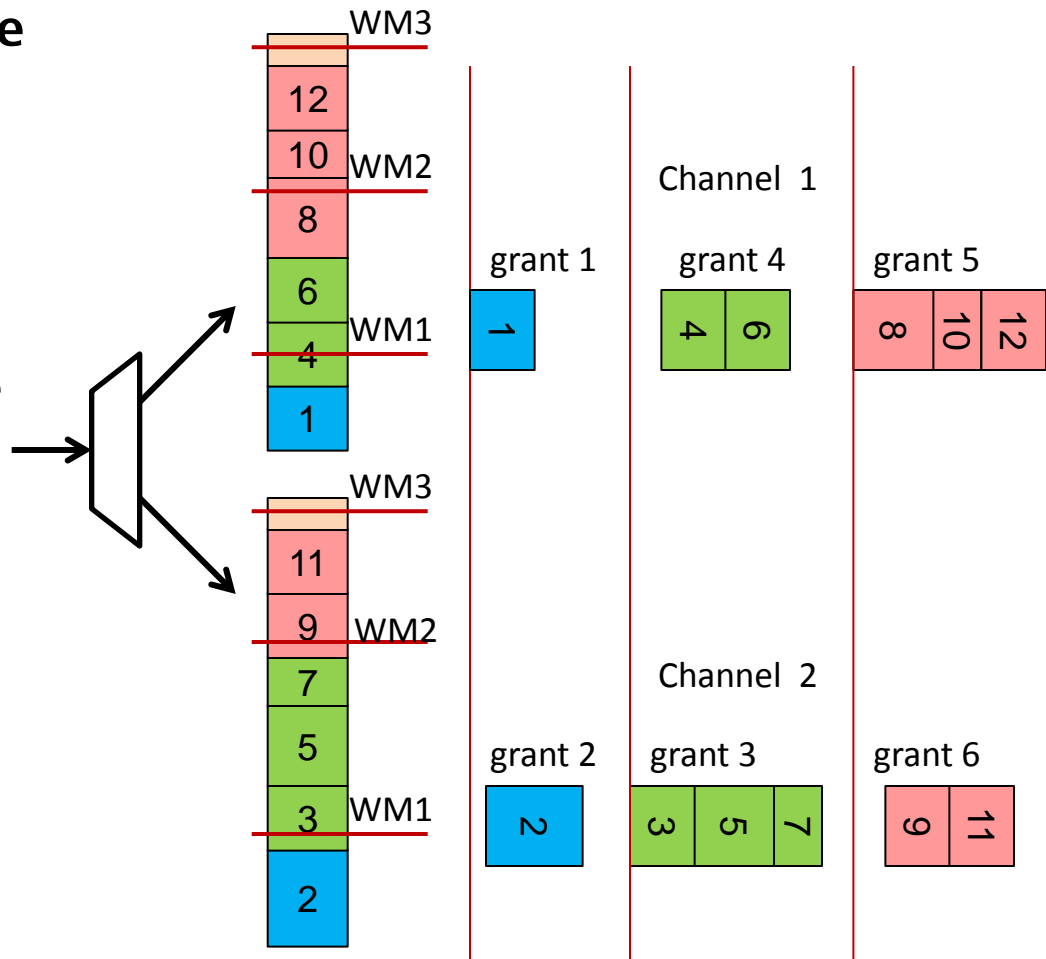
- The ONU notes the frame number  $N$  of the 1<sup>st</sup> enqueued frame that exceeds threshold  $T_0$  in any lane
- REPORT  $T_0$  then contains all frames with a frame number less than  $N$
- Repeat process for thresholds  $T_1$  to  $T_7$

- **GATE**

- GATEs for multiple channels are issued to the same threshold level for each channel (ex. Grant all frames below  $T_3$  in all lanes)

# Multiple queues burst demux

- Frames distributed in same order as in OLT
- Reorder queues can be smaller
- Multiple REPORTs provide finer granularity
- GATEs better able to accommodate channel availability



Thank you

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