100G-EPON:
Channel bonding for upstream

ZTE
Tomorrow never waits

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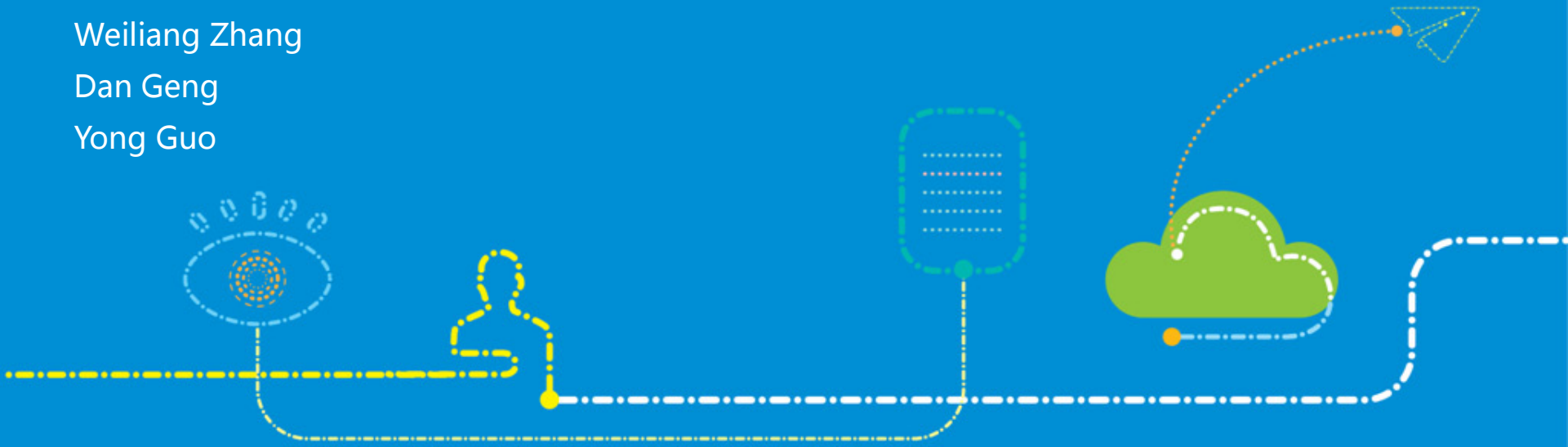

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Introduction

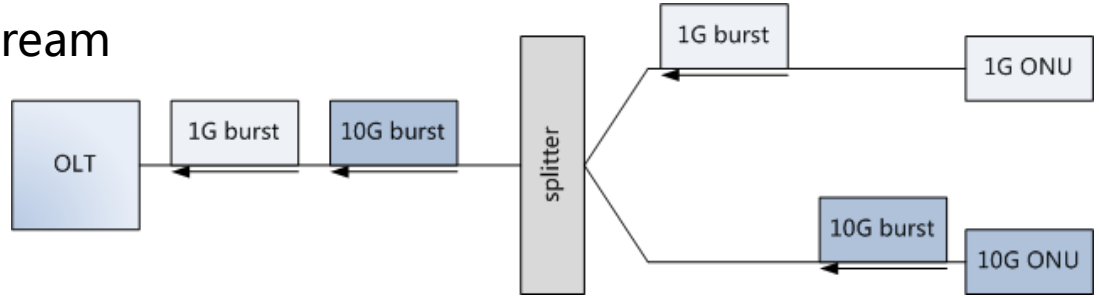
In Macau, upstream channel bonding is for further study

This presentation proposes a simple method for upstream channel bonding

Basic idea of multi-rate upstream in coexistence

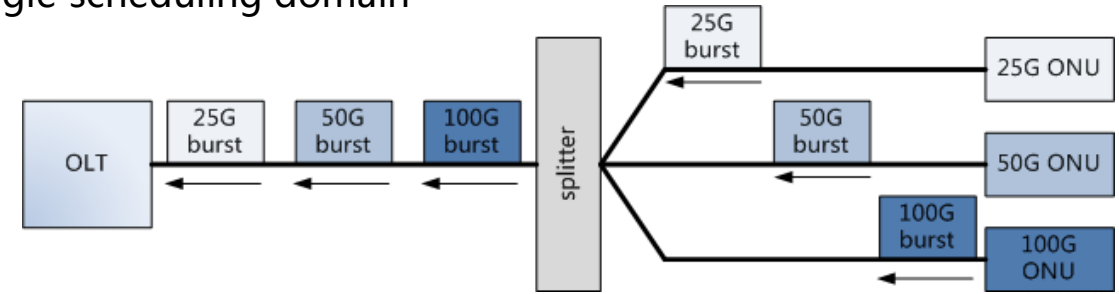
In 10G-EPON asymmetric upstream

- Dual rate using TDMA

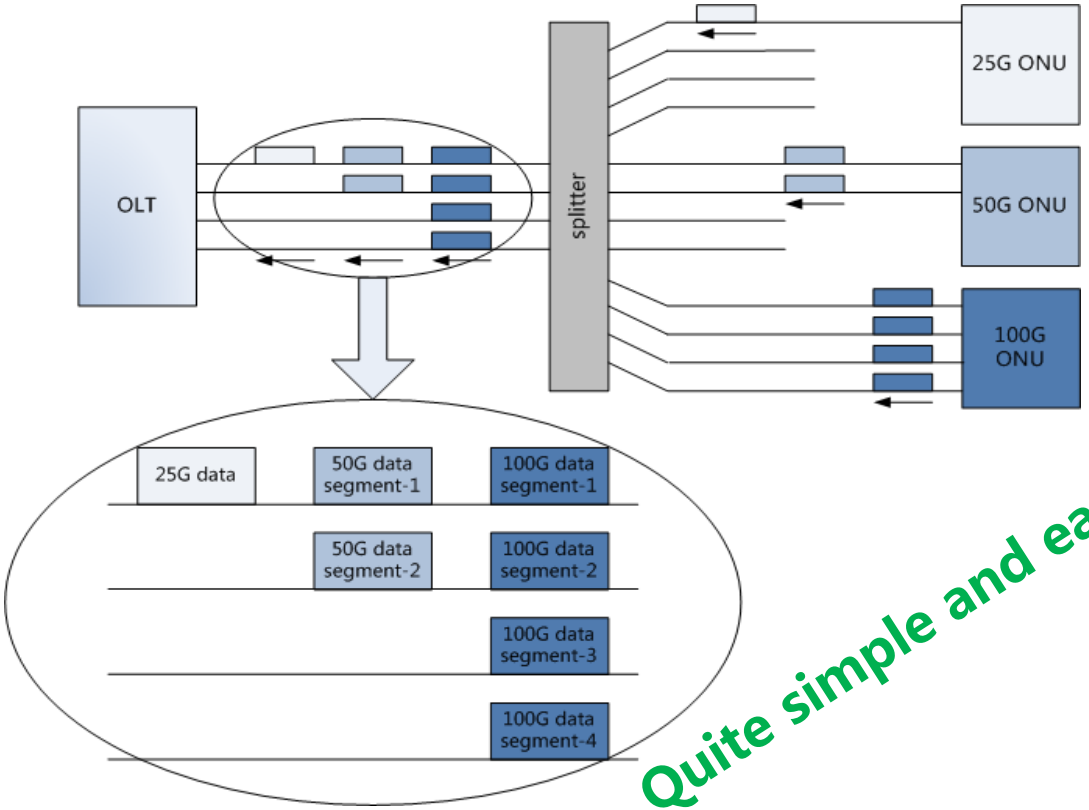


In 100G-EPON, triple rate (25Gb, 50Gb and 100Gb) coexistence is required

- TDMA can also be used for triple rate coexistence
- All 4 25Gb channels in a single scheduling domain
- Simple and straightforward



Proposal for upstream channel bonding



Quite simple and easy!

◆All 4 sub-channels in a single scheduling domain

◆ONUs request bandwidth in all its supported sub-channels

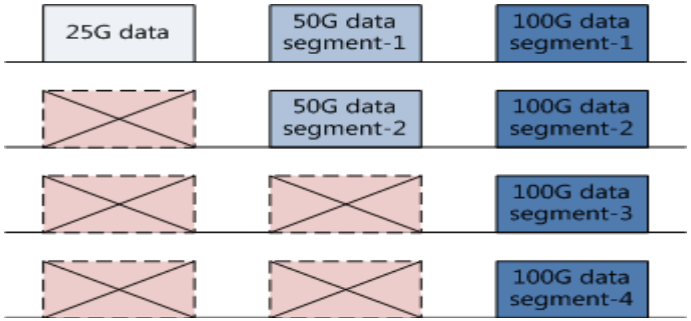
◆OLT grants in the big channel and evenly separates the bandwidth in the ONU-supported sub-channels

◆ONUs divide every packet into N(number of supported sub-channels) parts and transmit the parts in the supported sub-channels.

Analysis of proposed method

◆Timeslots assigned for lower speed ONUs on unsupported channels can not be used by other ONUs.

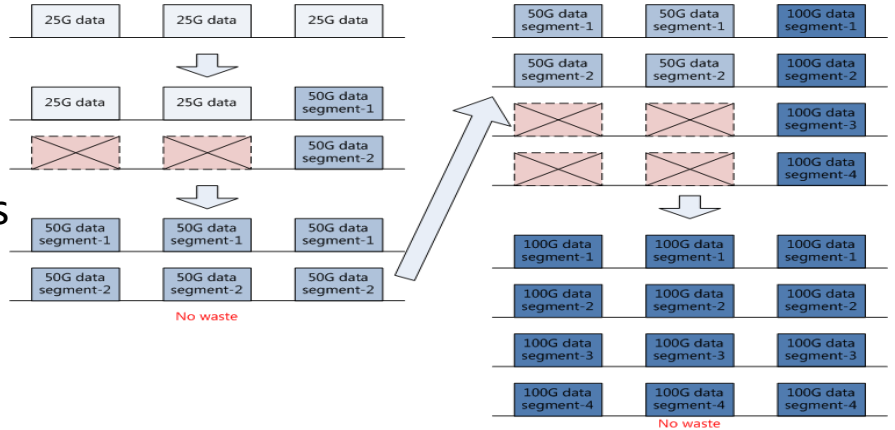
◆So, bandwidth waste is inevitable in this method.



◆But from the perspective of network migration, multi-rates coexistence is an intermediate step.

◆The final target would be all 100G ONUs in this network.

◆If multi-rate ONU coexistence is required across entire life of 100G-EPON, bonding methods with higher bandwidth efficiency would be better choice.



Thank you

Tomorrow never waits