

# Comments on current wavelength plans

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**Joint**  
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# Observations on wavelength plans

- In July meeting, two US wavelength options for 25G EPON, 1270 and 1310 nm

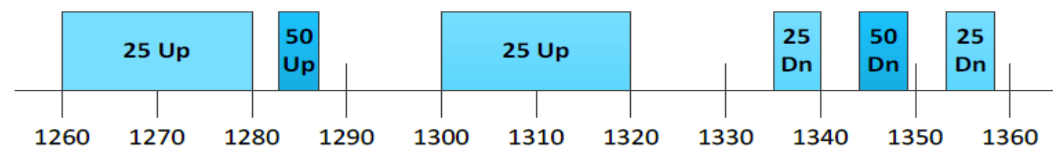
**Motion #5**

802.3ca shall adopt an upstream wavelength plan for the first 25G and new 10G (EQ based) channel with two options,  
Option 1: at 1310nm width 20nm; WDM coexistent with 10G-EPON  
Option 2: at 1270nm width 20nm; WDM coexistent with G-PON reduced wavelength set.  
TDM coexistence with legacy PONs is not required.  
Moved: Frank Effenberger                      Second: John Johnson  
For: 21    Against: 1    Abstain: 4  
Technical (≥ 75%)    Motion Passed

- In Sep meeting, two upstream wavelength plans were shown in the contribution [kramer\\_3ca\\_3\\_0917](#)

## New Plan

- Start with 25G/10G and 25G/25G by 2019, when operator A needs it
- Add 50G wavelengths by 2025, when operator B needs it
- 6 wavelengths total to get to 100G/100G



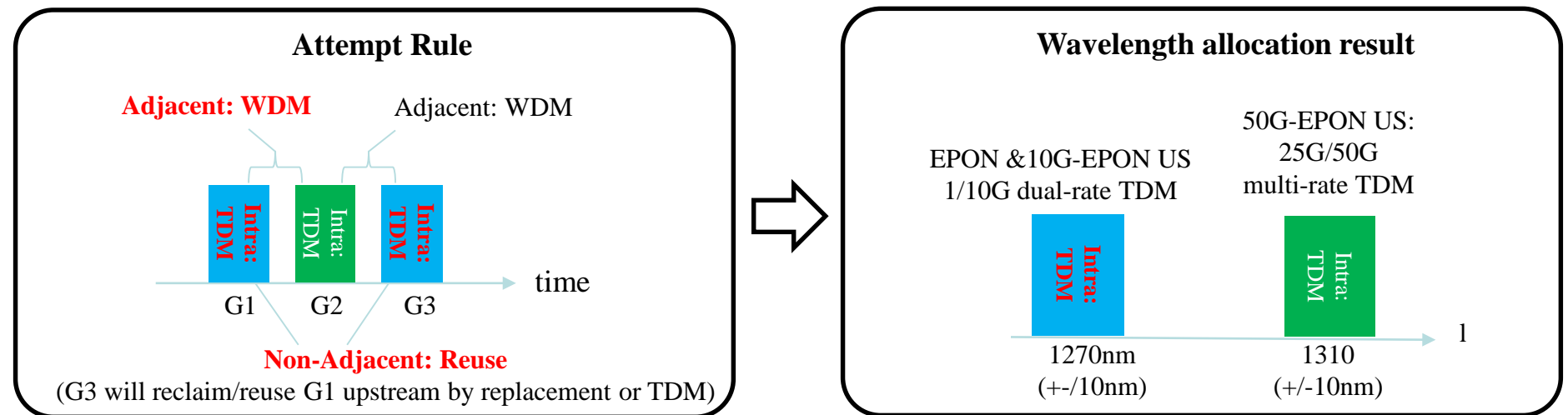
*kramer\_3ca\_3\_0917.pdf*

# Comments on wavelength plan options

- Not appropriate to have two bands for 25G and extra band for 50G
- One principle proposed, given valuable low cost wavelength resources:

- TDM coexistence for PON systems in same generation
- WDM coexistence for PON systems in the consecutive generation
- US wavelength bands reused by inter-generation PON systems (e.g. 1G PON and 50G PON)

Note: “Generation” refers to PON technologies selected by specific operator when considering migration. For each specific PON technology (e.g. 25G PON), different operators may consider it as different generation.



# Wavelength Plan Proposal

## ■ An US wavelength plan is proposed for 50G PON with two options

- Option 1: 1300-1320nm, WDM coexistence with 10G EPON, XG(S)-PON, 25G EPON(option 2),
- Option 2: 1260-1280nm, WDM coexistence with GPON (reduced), and 25G EPON (option1)

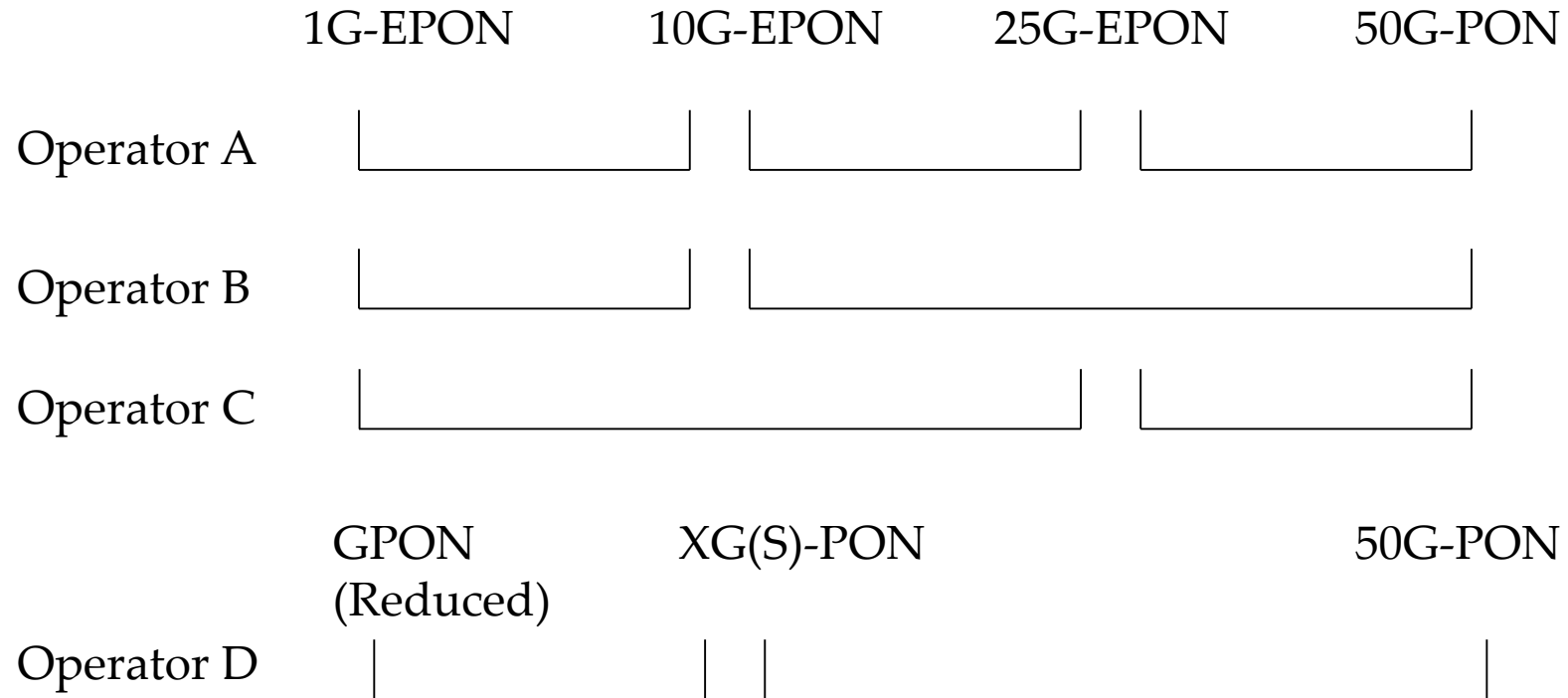
*For each option, different US rates will be accommodated in the same wavelength band and work in TDM way*

*This plan can satisfy operators' migration and coexistence strategy as much as possible*

## ■ If want to achieve coexistence among GPON(reduced), XG(S)-PON and 50G PON, then TDM method should be considered

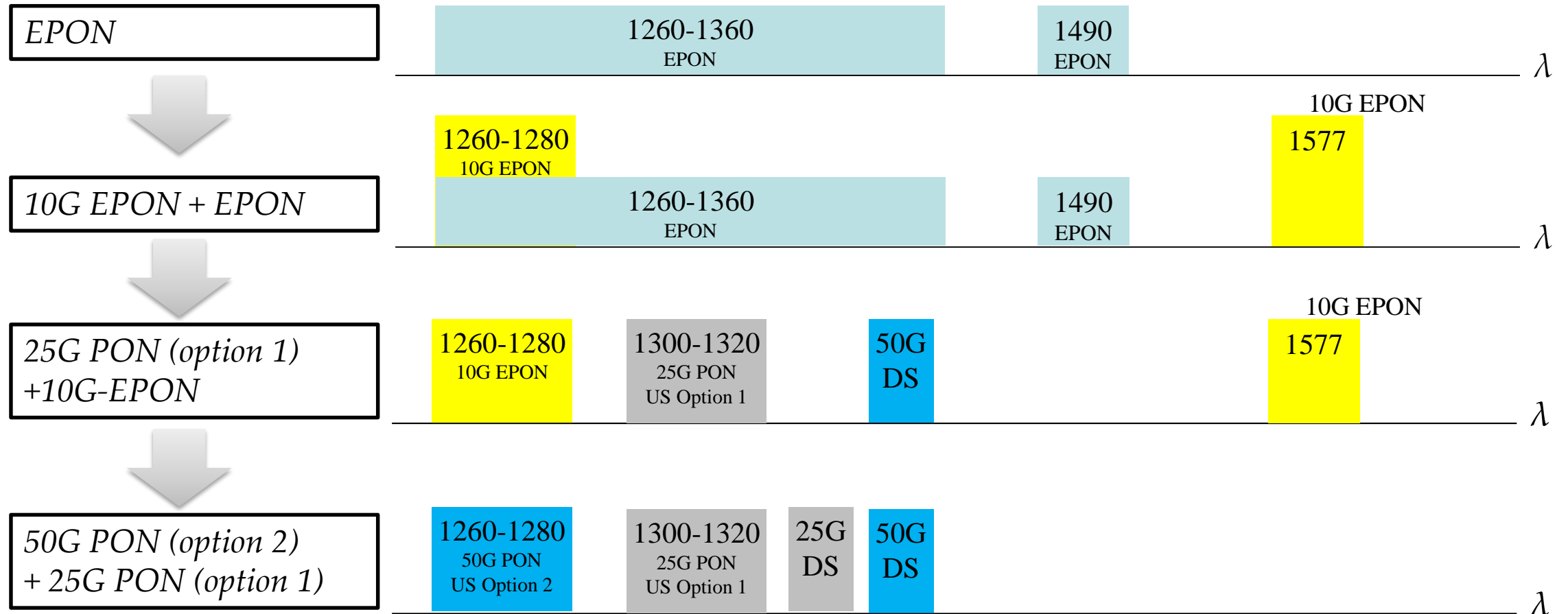
- “US wavelength bands reused by inter-generation PON systems” is proposed

# Technology evolution examples



# Technology evolution example of Operator A

EPON → 10G EPON + EPON → 25G PON (option 1) + 10G-EPON → 50G PON (option 2) + 25G PON (option 1)

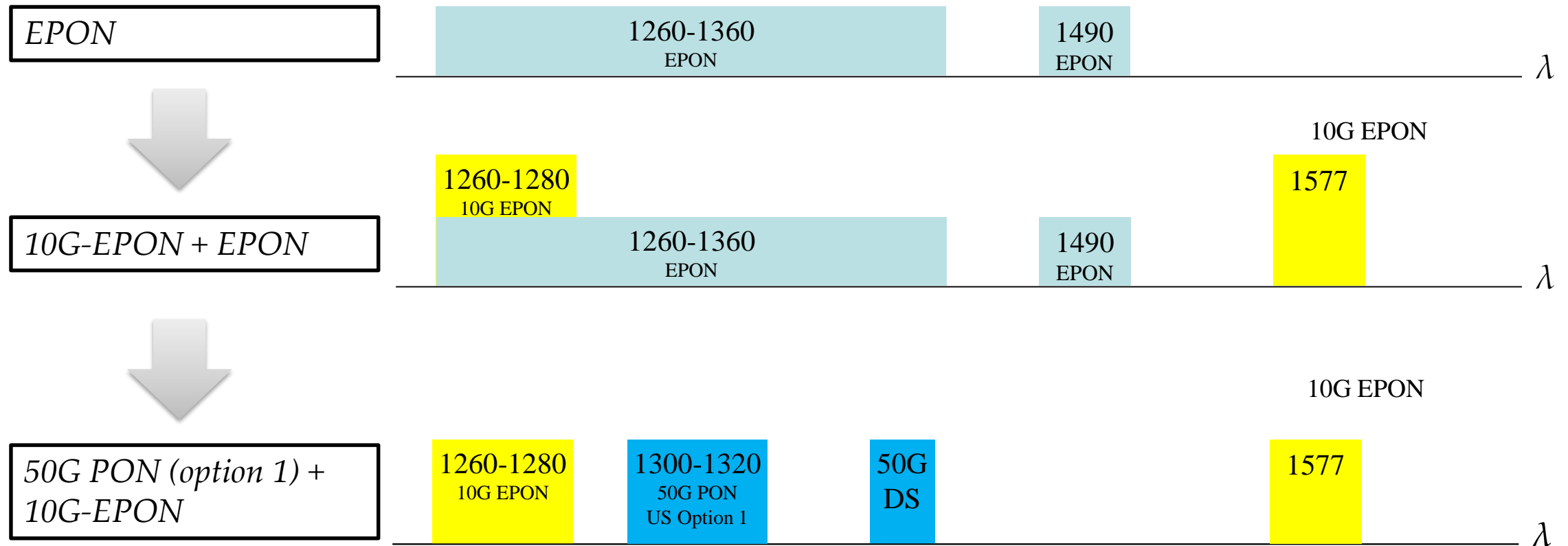


Note1: all DS wavelength of 25G & 50G PON in the figure are examples, and not the focus of the discussion

Note2: in last step, TDM method could be implemented to support 10G EPON and 50G PON coexistence (US)

# Technology evolution example of Operator B

EPON  $\rightarrow$  10G-EPON + EPON  $\rightarrow$  50G PON (option 1) + 10G-EPON

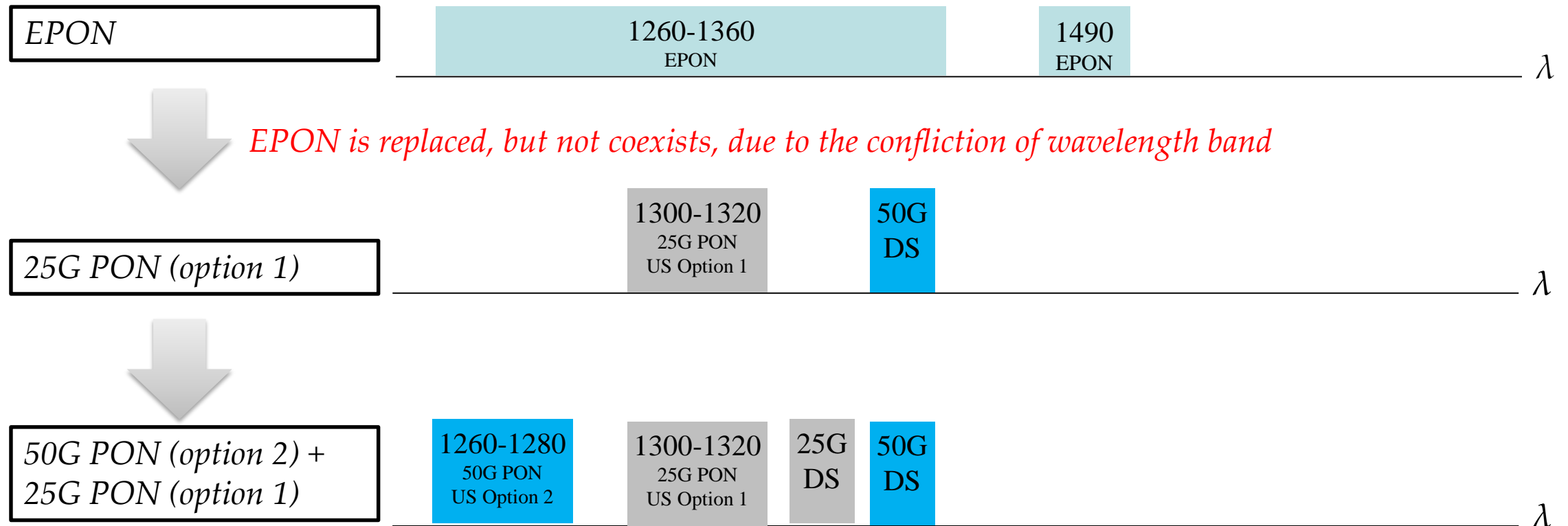


Note: all DS wavelength of 50G PON in the figure are examples, and not the focus of the discussion



# Technology evolution example of Operator C

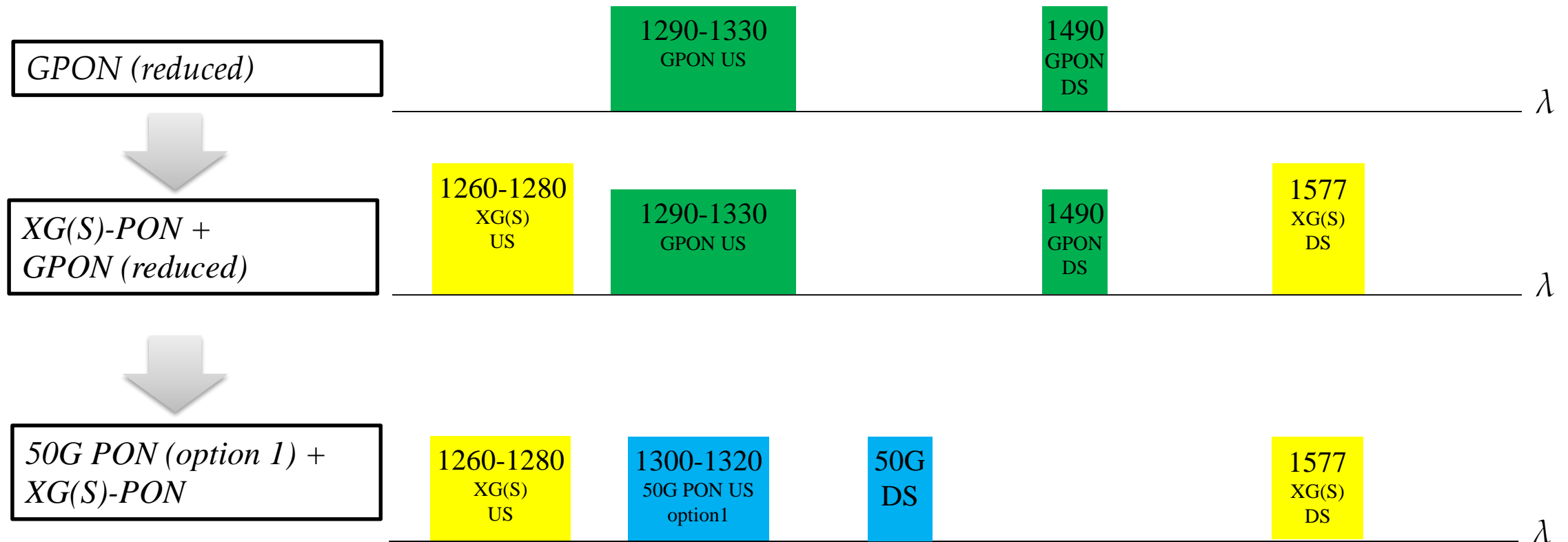
EPON → 25G-EPON (option 1) → 50G PON (option 2) + 25G PON (option 1)



Note: all DS wavelength of 25G & 50G PON in the figure are examples, and not the focus of the discussion

# Technology evolution example of Operator D

*GPON (reduced) → XG(S)-PON + GPON (reduced) → 50G PON (option 1) + XG(S)-PON*



*Note: all DS wavelength of 50G PON in the figure are examples, and not the focus of the discussion*

*Note2: in last step, TDM method could be implemented to support GPON and 50G PON coexistence (US)*

**Thanks !**