



Converged Wavelength Plan for 25GEPON, 50GEPON and Beyond



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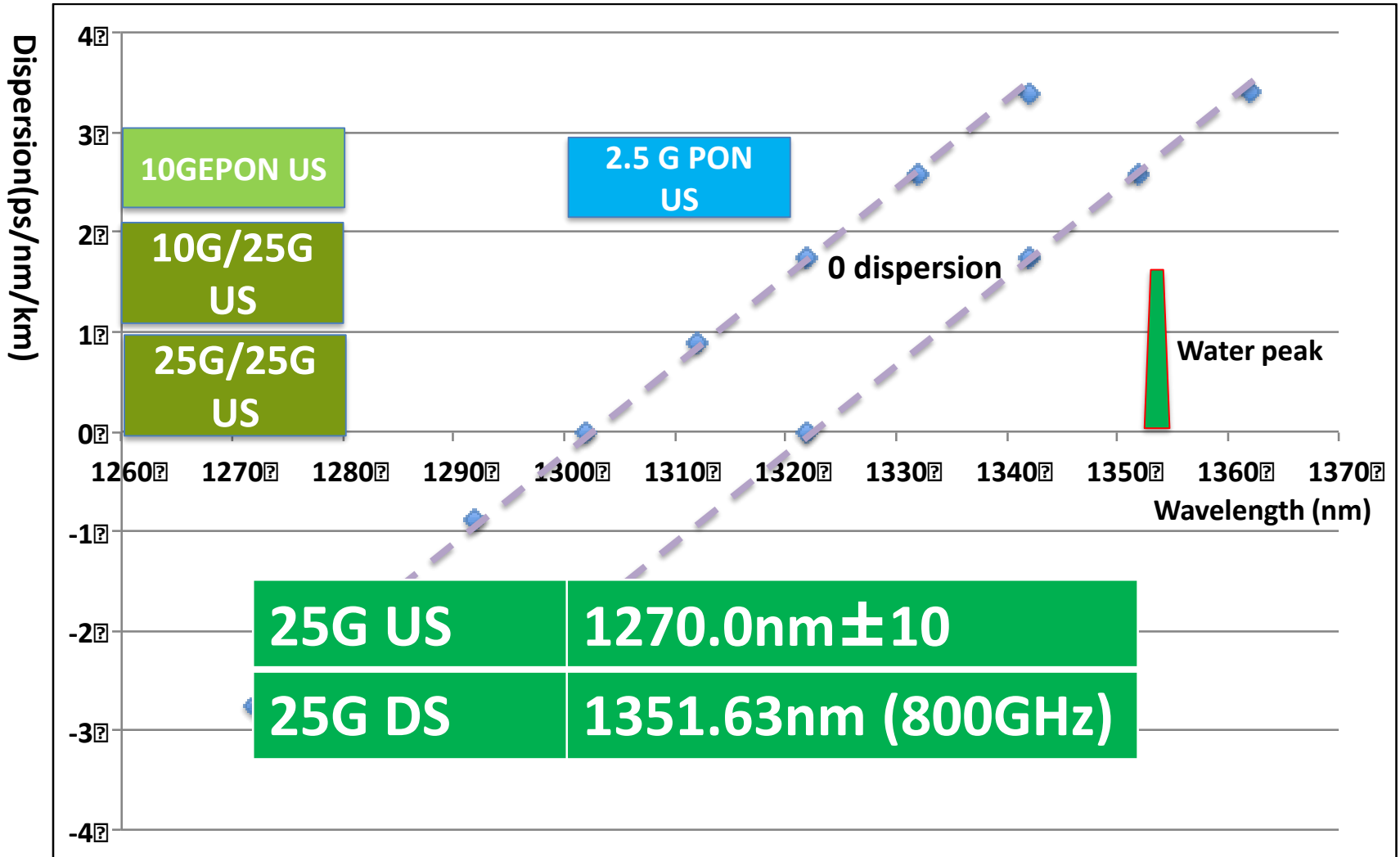
Outline

- Grey 25GEPON wavelength plan
- 2X25GEPON wavelength plan
- Converge with serial 50GEPON and beyond in the future

Grey or colored?

- “Grey “ 25GEPON (dai_3ca_01_18) is named in contrast with “colored” 25GEPON
- “Colored” 25GEPON architectures have two sets of upstream wavelengths that result in two types of 25GEPON ONUs with different colors
- The issues of the colored 25G solution were discussed in dai_3ca_02a_09_17. The main concern is that it creates long term operational and evolutionary problems

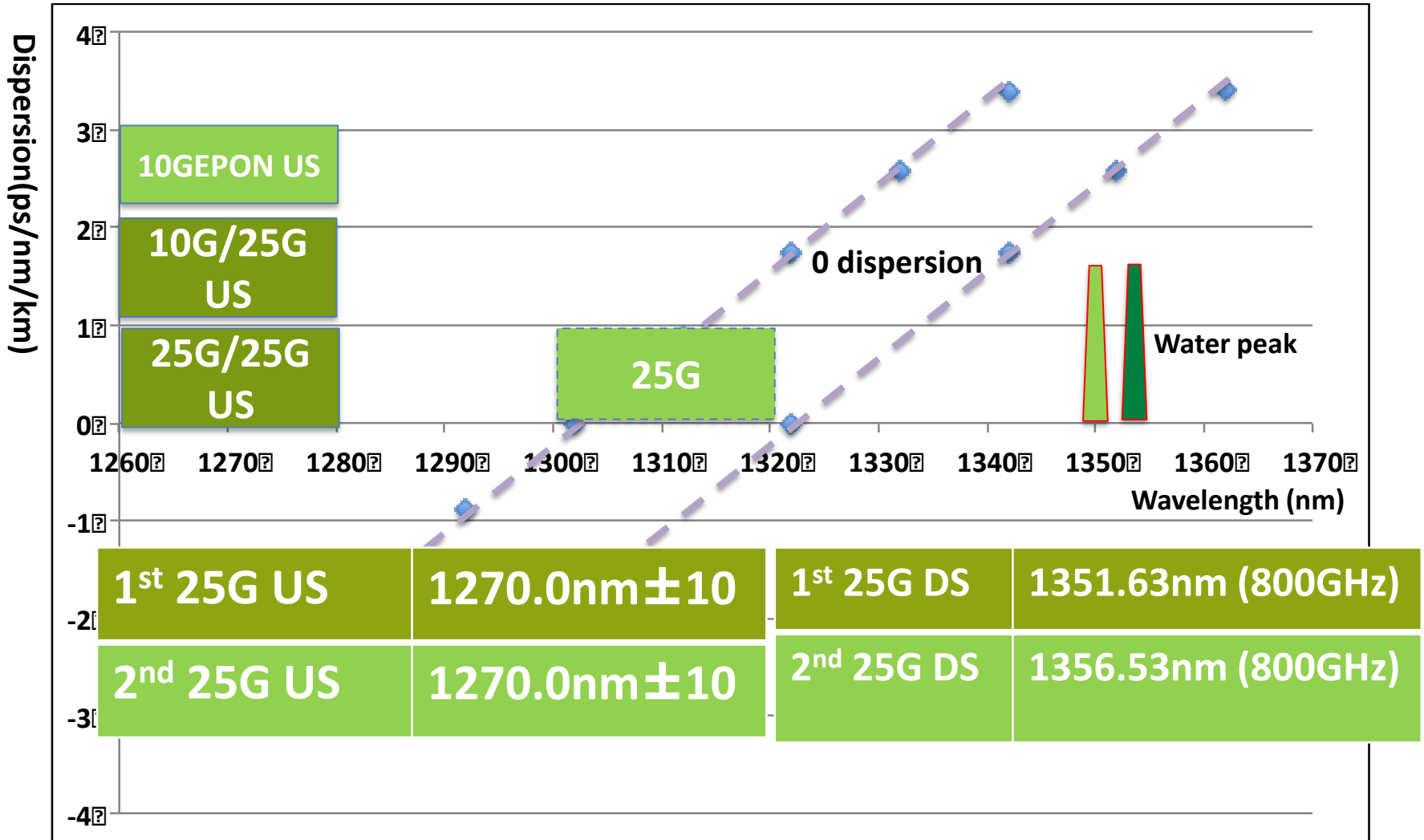
Grey 25G wavelengths allocation



Grey 25GEPON

- Grey 25GEPON has only one upstream wavelength centered at 1270nm with 20nm width. It may further tighten to 10nm width with cooled DFB lasers
- All the coexistence issues with legacy PONs (10GEPON, GPON) are dealt with 1st 25G channel
- At 50G rate, whether using channel bonding with 2x25G or single 1X50, the coexistence with legacy PONs will not be an issue

2nd 25G wavelengths allocation



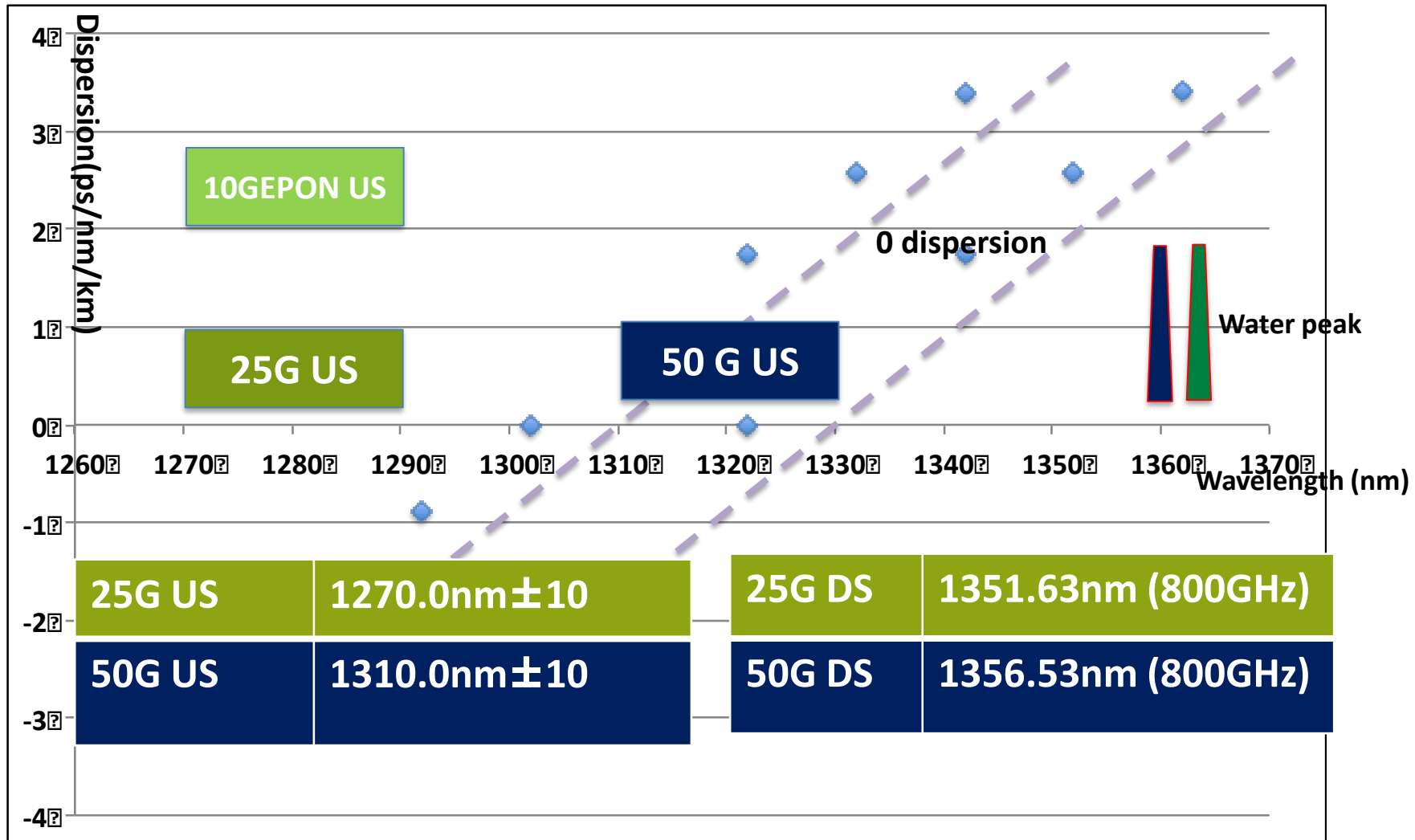
2X25GEPON

- When 50G line rate is needed, it is safe to assume 2.5GPON will fade out
- Therefore, the 2nd 25G channel can reuse the GPON upstream wavelength
- The 2nd 25G upstream wavelength is centered at 1310nm with 20nm width. It may be tighten to 10nm width with cooled DFB laser
- The 2x25GPON only needs to coexist with 10GEPON
- The coexistence with 10GEPON is already supported with the 1st 25G channel

Serial 50GEPON

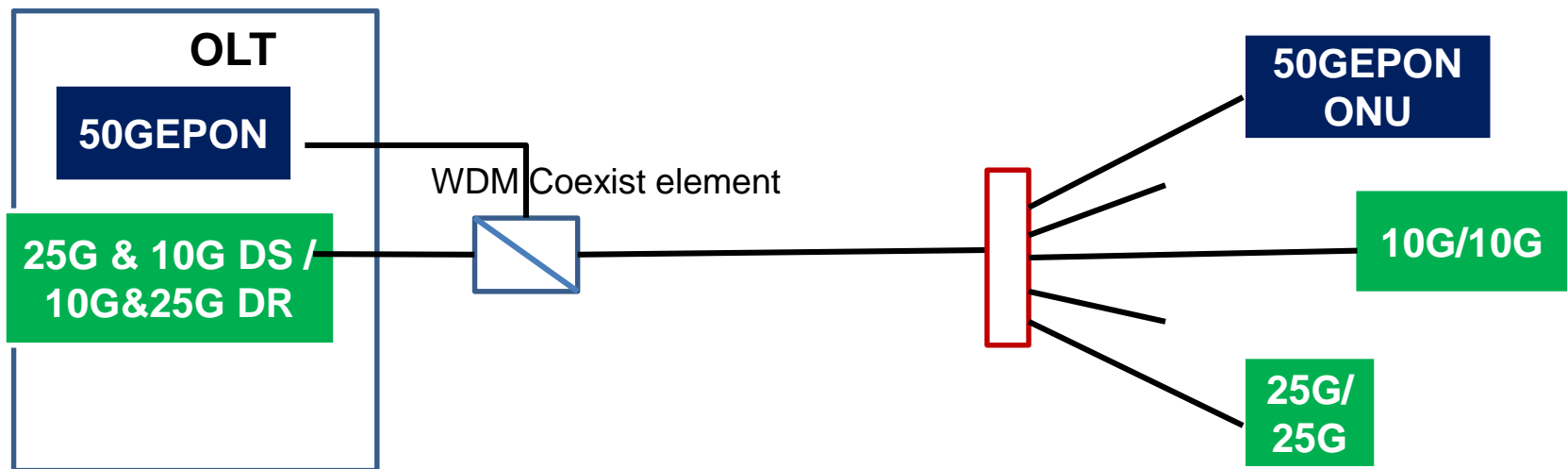
- Serial 50G line rate PON may be feasible with advanced modulations, such as PAM4
- The serial 50GEPON should coexist with 25GEPON and 10GEPON
- The upstream of serial 50GEPON could reuse GPON upstream wavelength
 - Centered at 1310nm with 20nm width; it could be tighten to 10nm width with cooled DFB laser

Converge with serial 50GEPON in the future



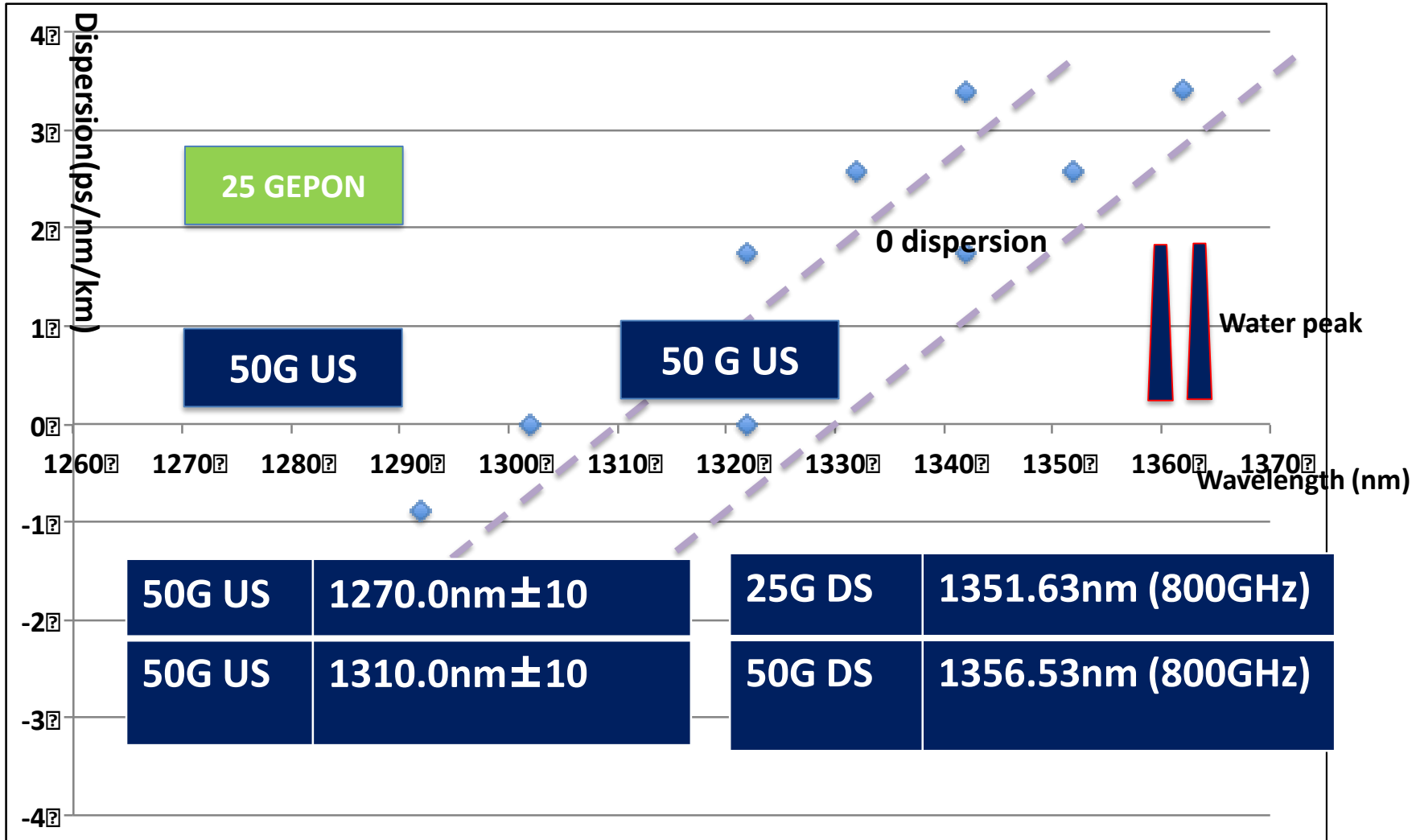
Coexistence of serial 50GEPON

- Serial 50GEPON will likely be moved to another project
- With the proposed wavelength plan, the serial 50GEPON could WDM coexist with 10GEPON, XGS-PON and 25GEPON



DR – Dual rate receiver

Scales to 100Gbps



Conclusions

- Contains coexistence issues with legacy PONs with the grey 25GEPON, and enables smooth migration to 2x25G or 1x50G and scales up to 100G (2x50G)
- The proposed wavelength plan for 25GEPON, 50GEPON reuse GPON and 10GEPON upstream wavelengths. It only needs to allocate two 800GHz channels for downstream in upper O band
- The proposed wavelength plan scales to 100G



Thanks

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