



# Seeking the Common Ground for FSAN/ ITU-T NG-PON2 and IEEE NG EPON



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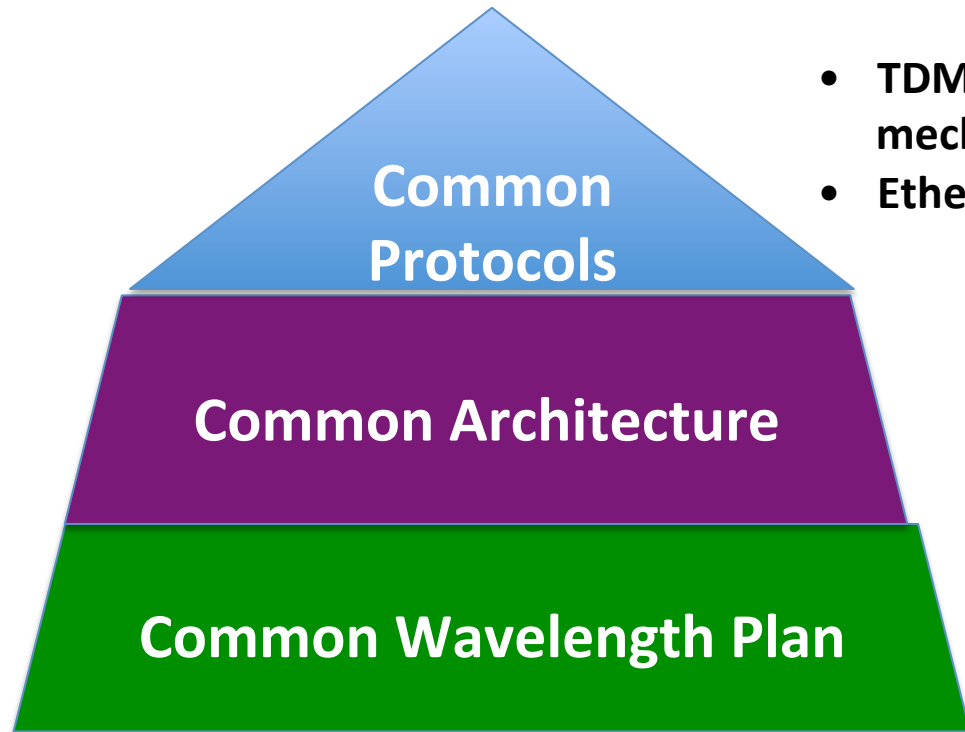
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# What could be in common?



- TDM PON P2MP scheduling mechanisms are similar
- Ethernet services are dominant
- TDM PON ODNs are similar
- WDM PON architectures are diversified
- All PONs share the same wavelength resources

**Seek the common denominator; allow diversification.**

# Common protocols

## Feasibility

- The P2MP scheduling mechanism of TDM PONs are similar
  - The higher layer services are the same

### PROS

- Unified access network products
- Consolidated market
- Lower cost

### CONS

- Backward compatibility
  - Products
  - Management system
- Optimum migration path to high capacity
  - TDM or WDM is still a question for NG EPON

# Common Architecture

## Feasibility

- The ODN topologies of TDM PONs are similar
  - WDM PON architectures are diversified

### PROS

- Allows different TDM PONs to share components
- Lower cost

### CONS

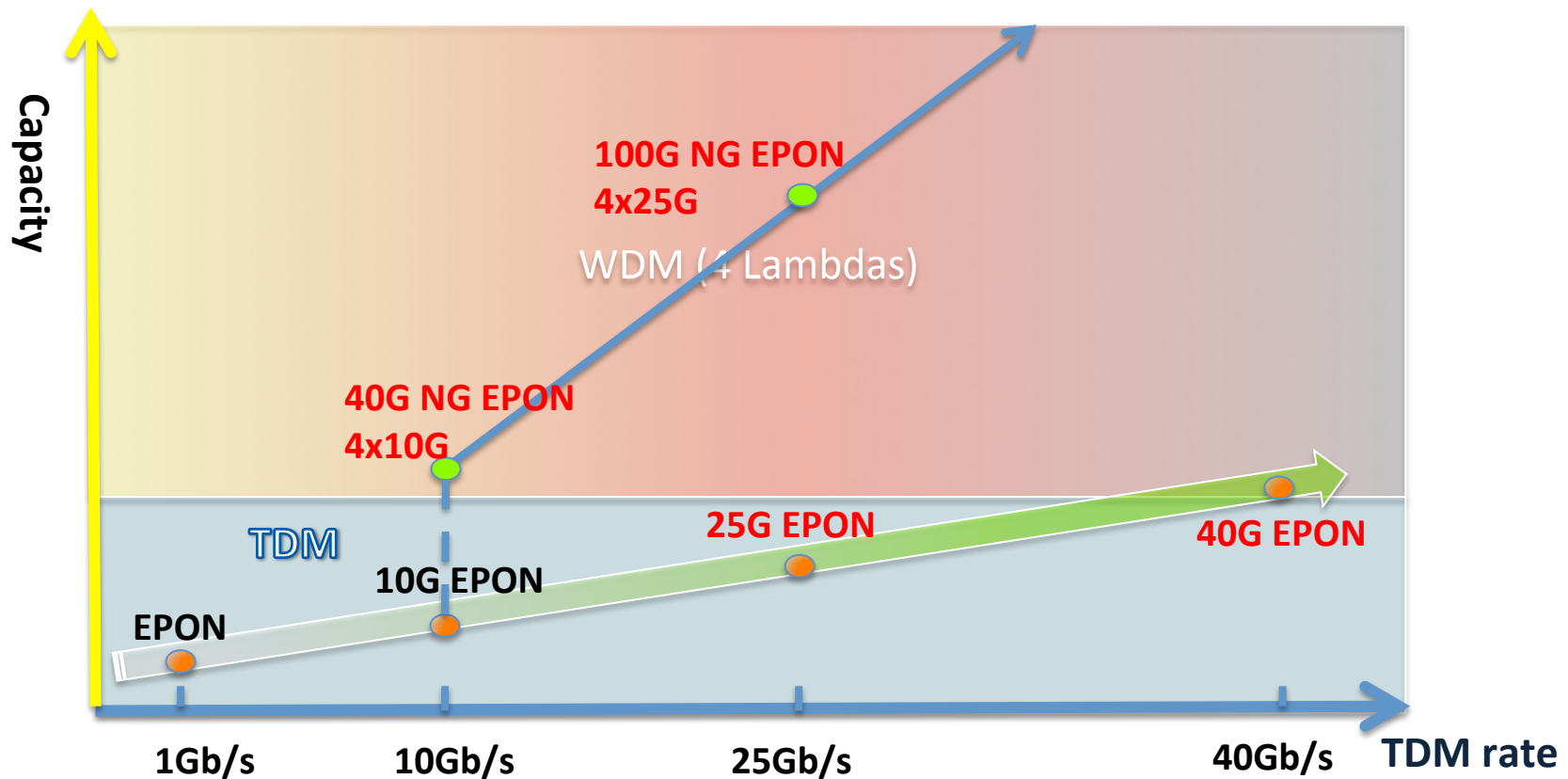
- History issues
  - NG-PON2 uses hybrid TDM and WDM architecture
  - WDM PON architectures are still diversified
  - NG EPON architecture is still open
- Optimized solution is time dependent
  - Technologies which were not feasible yesterday may available today

**Isaac Newton:** “If I have seen *further* it is by *standing on the shoulders of giants...*”

# Common Wavelength Plan

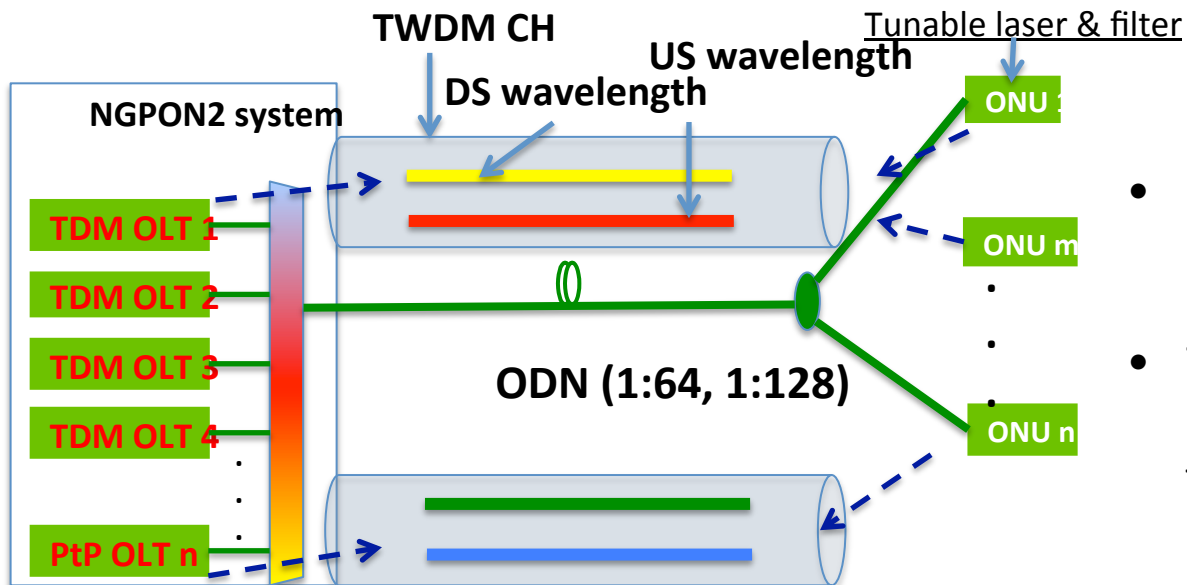
- All TDM PONs and/or WDM PONs share the same wavelength resources
  - A common wavelength plan is feasible
- A common wavelength plan conserves wavelength resources
- A common wavelength plan could be defined to facilitate the migration to WDM PON in the future
- However, whether a common wavelength plan will reduce the cost of optical components depends on the architecture that has been chosen
  - NG-PON2 uses tunable optics, 100GHz or 200GHz DWDM
  - If NG EPON uses fixed optics, non WDM; a common wavelength plan may not result in big cost reductions in optical components

# Towards higher capacities for NG EPON



- TDM or WDM is still a question...
- Advanced modulations are still choices...

# The true benefit of NG-PON2 wavelength plan



- NG-PON2 is hybrid TDM PON (10Gb/s) and WDM (TWDM)
- The PtP WDM is an WDM PON architecture based on tunable optics

- **NG-PON2 may help settle the architectural direction of WDM PON**
  - WDM PON based on tunable optics
- **The wavelength plan of NG-PON2 may serve as a common ground**
  - Could be used for TDM PON today and migrate to WDM PON in the future

# Conclusions

- **A common wavelength plan is the maximum common denominator between NG-PON2 and NG EPON**
- **The benefits of cost reduction of optical components depends on the actual architecture of NG EPON**
- **The true benefit of adapting the FSAN/ITU-T NG-PON2 wavelength plan is the migration to WDN PON in the future**
- **We should be seeking the common denominator while allowing diversification**





Thanks

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