CONNECTING AT THE SPEED OF LIGHT

Defining 800ZR and 800LR; An OIF Update

OFC 2023

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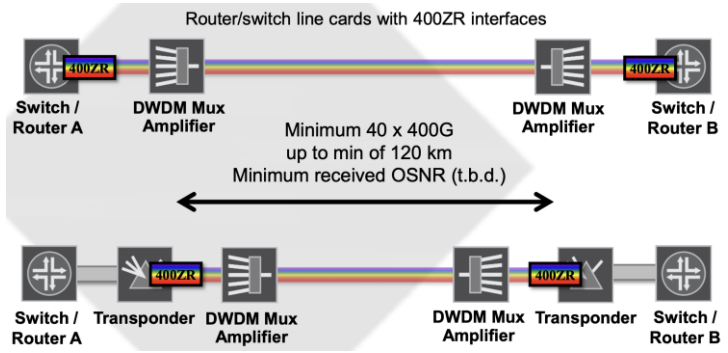
400ZR – A Success Story



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Open ROADM

OpenZR+
MULTI-SOURCE AGREEMENT

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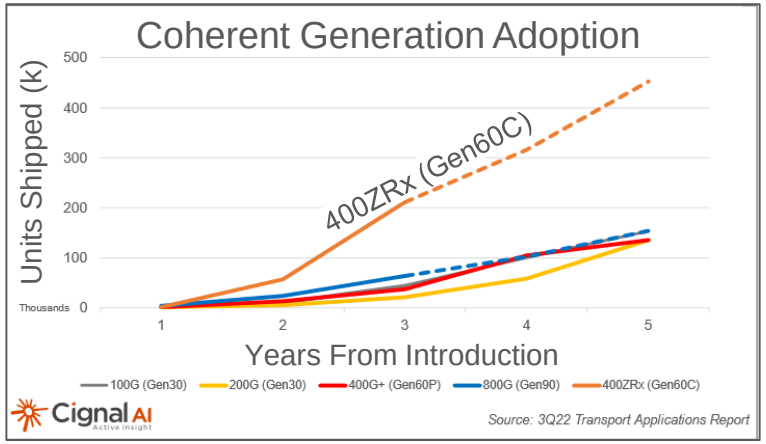

- Early project start
- Broad industry support
- Clearly defined objectives

- Higher performance
- Additional use cases
- Expand addressable market

- Fastest ramping coherent technology
- Increased adoption of standardized interfaces

400ZR triggered a fundamental change in the coherent transport market….and it's not going back

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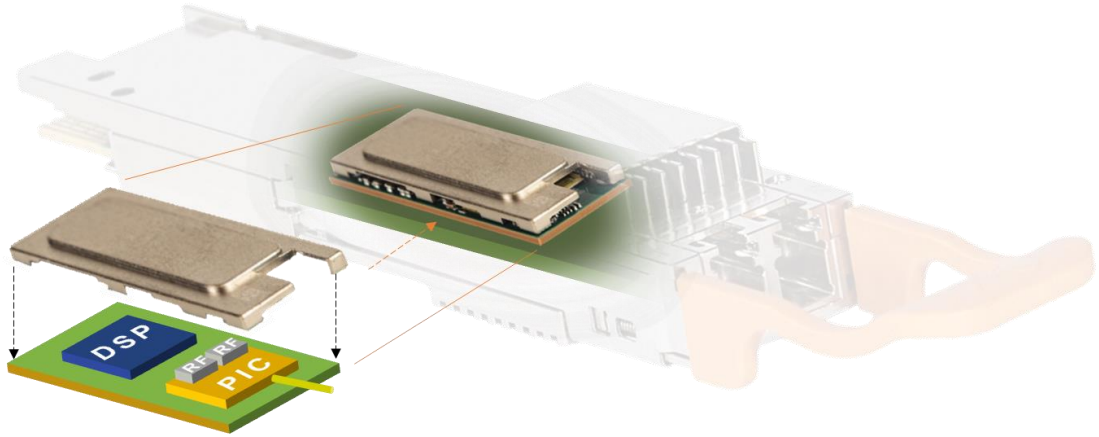
Unleashing the Full Potential of Silicon

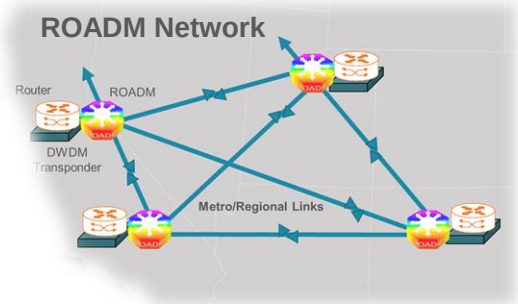
- Building on generations of silicon photonics successfully deployed in the most challenging applications
- Leverage standard CMOS packaging
  - Increased automation
- Fewer interconnections
  - Highly reliability
- Improved signal integrity mitigates implementation penalties



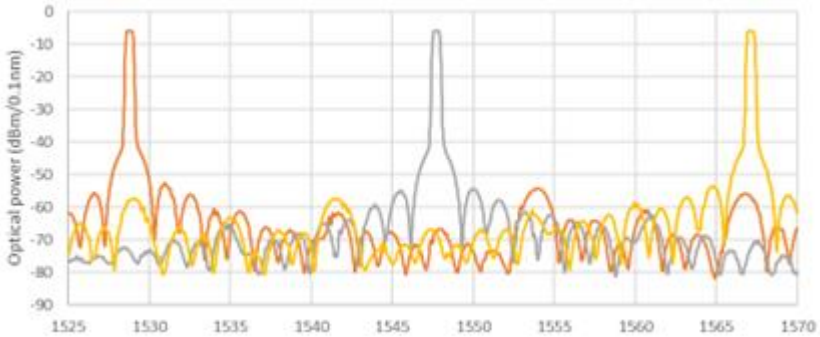
3D Siliconization

The fast ramp of these products was enabled by mature silicon photonics and advanced packaging technology

400G Developments Continue

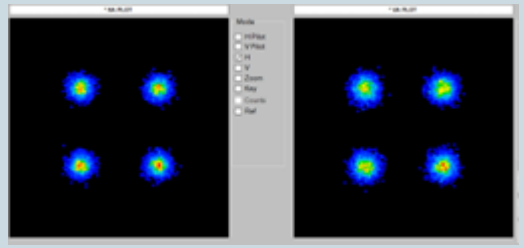


- High TX power (Bright) deployments starting this year
  - Supports OpenZR+ and Open ROADM modes
  - Seamless deployment in ROADM line system
  - Range of brownfield & greenfield applications
  - ✓Several published field trials at this years OFC



- 400G ER1 - 400G for P2P applications up to 40km
- 400G Long-haul (QPSK) being standardized

Open ROADM	**400G LH**
	FlexO-4e-DO
	118.203 Gbd
	QPSK



Measured – Silicon photonics in Module

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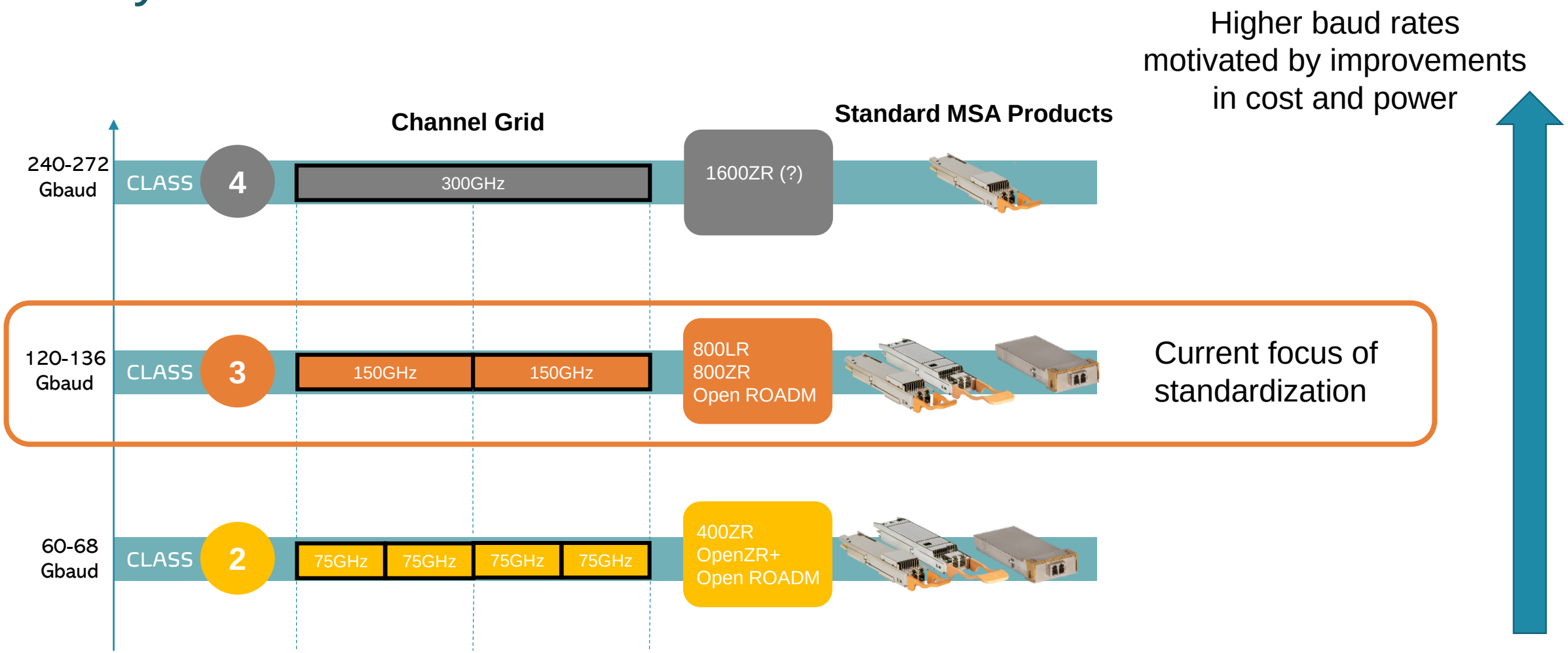
Beyond 400ZR/ZR+



800ZR – Similar, but Different

- More varied use cases depending on network operator, some planning to wait for 1.6T
- Key assumptions
  - 16QAM modulation
  - 118Gbaud – double the 400ZR baud rate
- Receiver considerations
  - oFEC selected for improved OSNR sensitivity
  - Minimum input power higher at 118Gbaud
- Transmitter considerations
  - Recognition that 400G market now includes both amplified and unamplified configurations
  - Co-existence with 400ZR on the same line system requires 3dB higher transmit power for 800ZR
  - Three different transmitter power ranges proposed to address range of applications
    - -11 to -14dBm: Lowest Cost
    - -7 to -11dBm: Co-exist with 400ZR
    - 0 to -7dBm: Co-exist with traditional DWDM

Thank You