



INTERCONNECTS

# Optics In and Around the Data Center

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# About

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ITU-T SG15 G.709.x FlexO editor

OIF 800LR/1600CL editor

IEEE 802.3 participant



# Outline

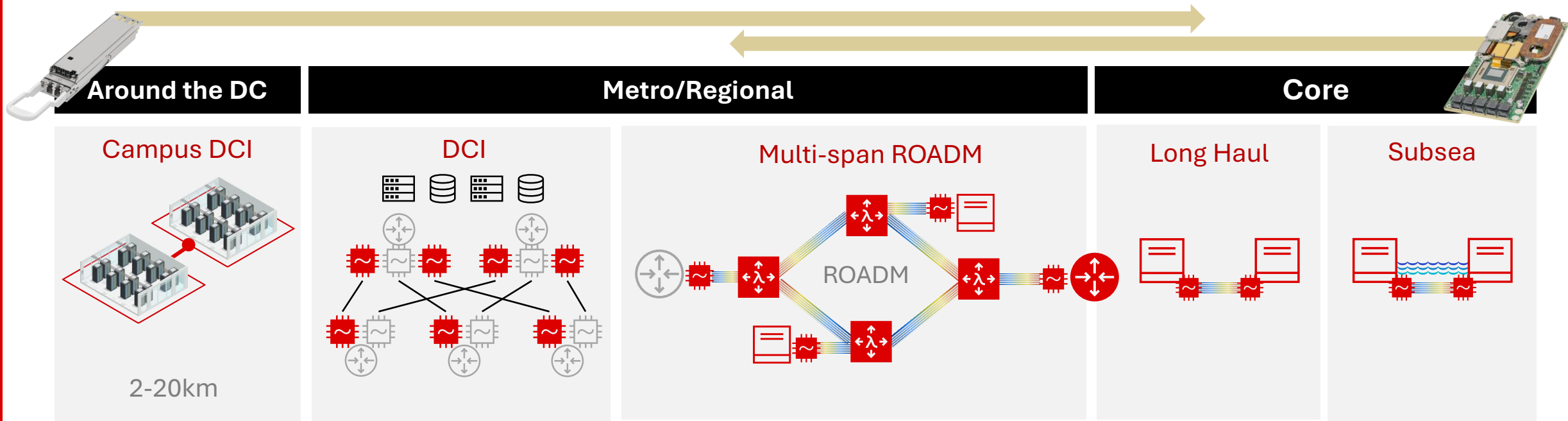
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- 1 Applications Overview
- 2 In and Around Datacenter
- 3 SDO Updates
- 4 Evolution of FlexO
- 5 New 1.6T Interfaces and B1T

# Overview of applications

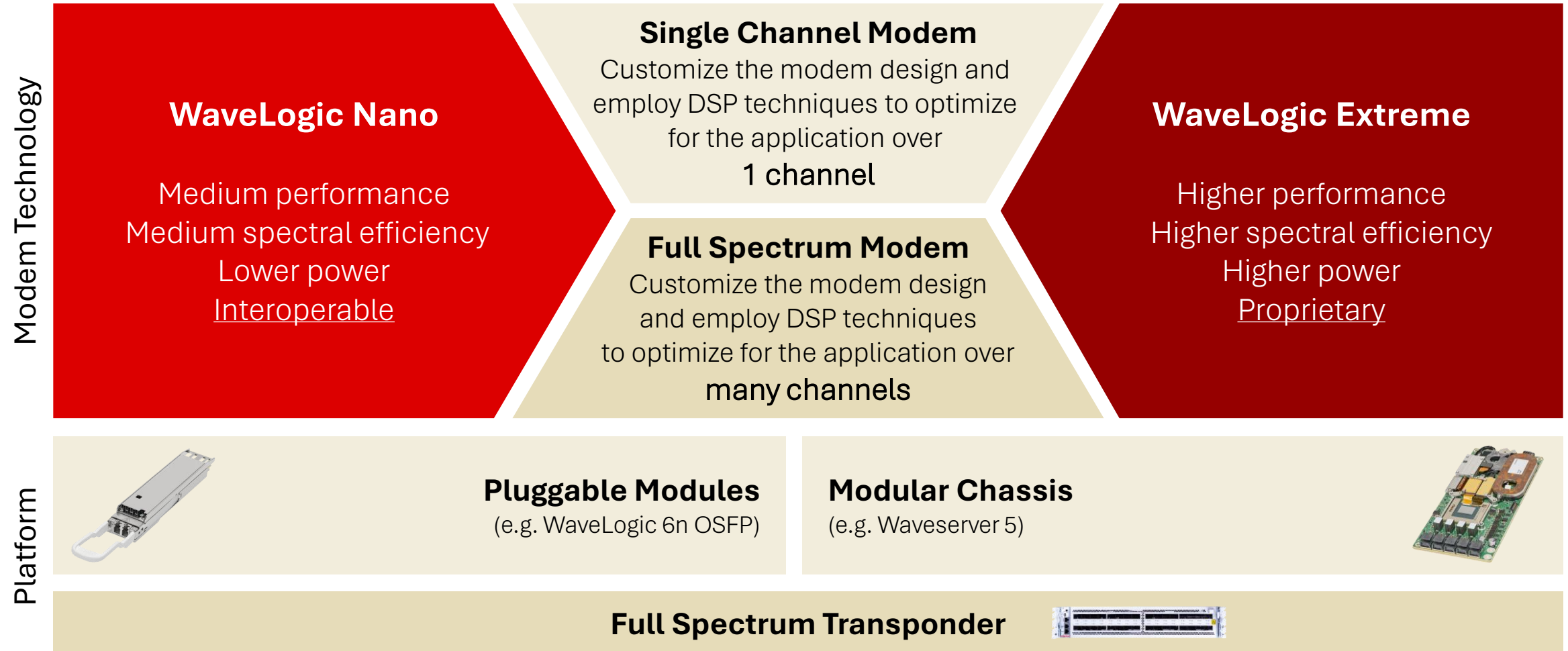
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- Optical interfaces are widely deployed today in different form factors
- Transponders and plugs have obvious markets
- Deployments in metro/regional applications see mix of plugs and transponders



# Modems and platforms

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# AI Interconnect Applications

IMDD Coherent

ZR and Coherent-Lite ideal for training over distance  
Campus interconnect "LR"  
C-band / DWDM

Coherent-Lite to overcome OCS loss – High loss "FR"

IMDD FR/DR in this segment  
CPO announcements in ScaleOUT

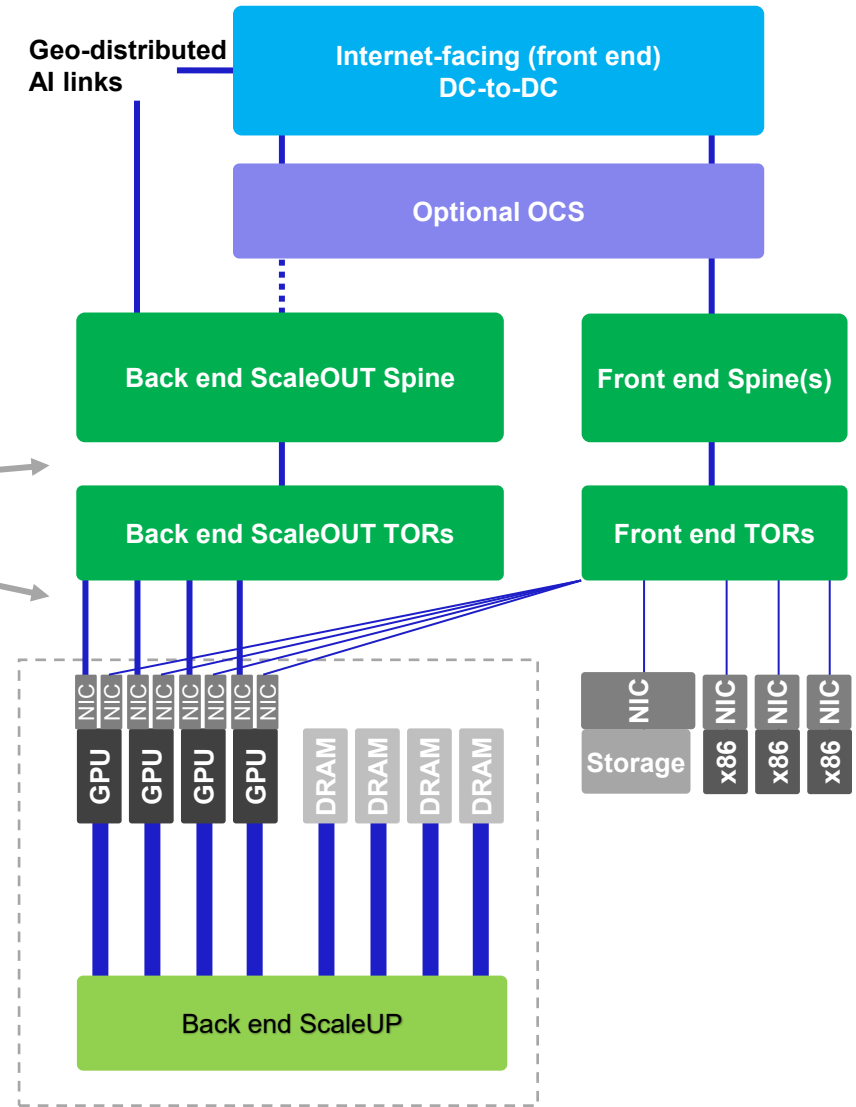
IMDD SR/DR likely to continue dominating <500m  
DR offers breakout capabilities for increased radix  
Copper (AEC/DAC) options

Accelerator links using mix of copper and optics  
Possible CPO for IMDD 448G ?

Ethernet

Ethernet, UEC, IB

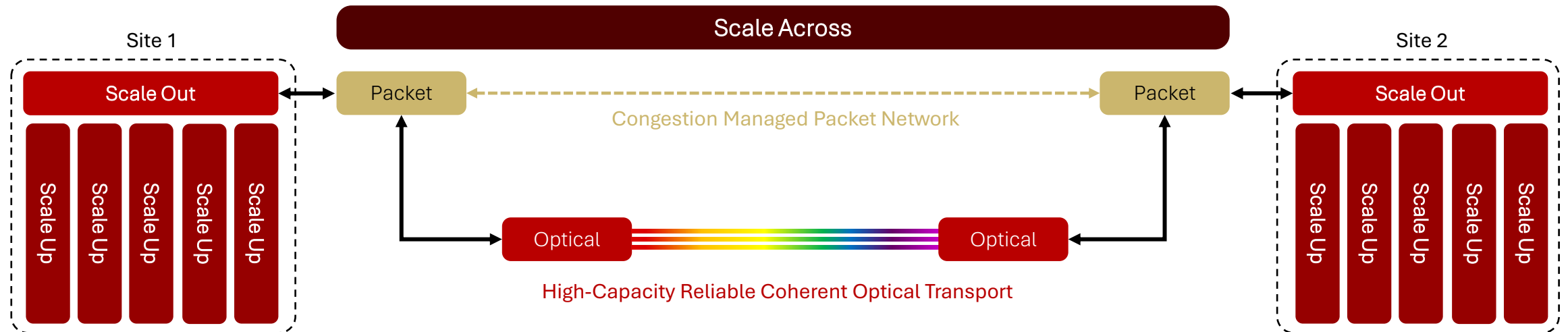
Ethernet, UEC, UAlink, Nvlink, PCIe



# Scale across: Training over distance

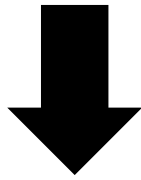
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- Backend networks are extending, connecting scale out across WAN
- New application, driven by power constraints
- Requirements: massive capacity, distances, full fiber, traffic type (homogenous), lossless/reliability
- Dedicated routers, dedicated line systems (C&L), dedicated transponders



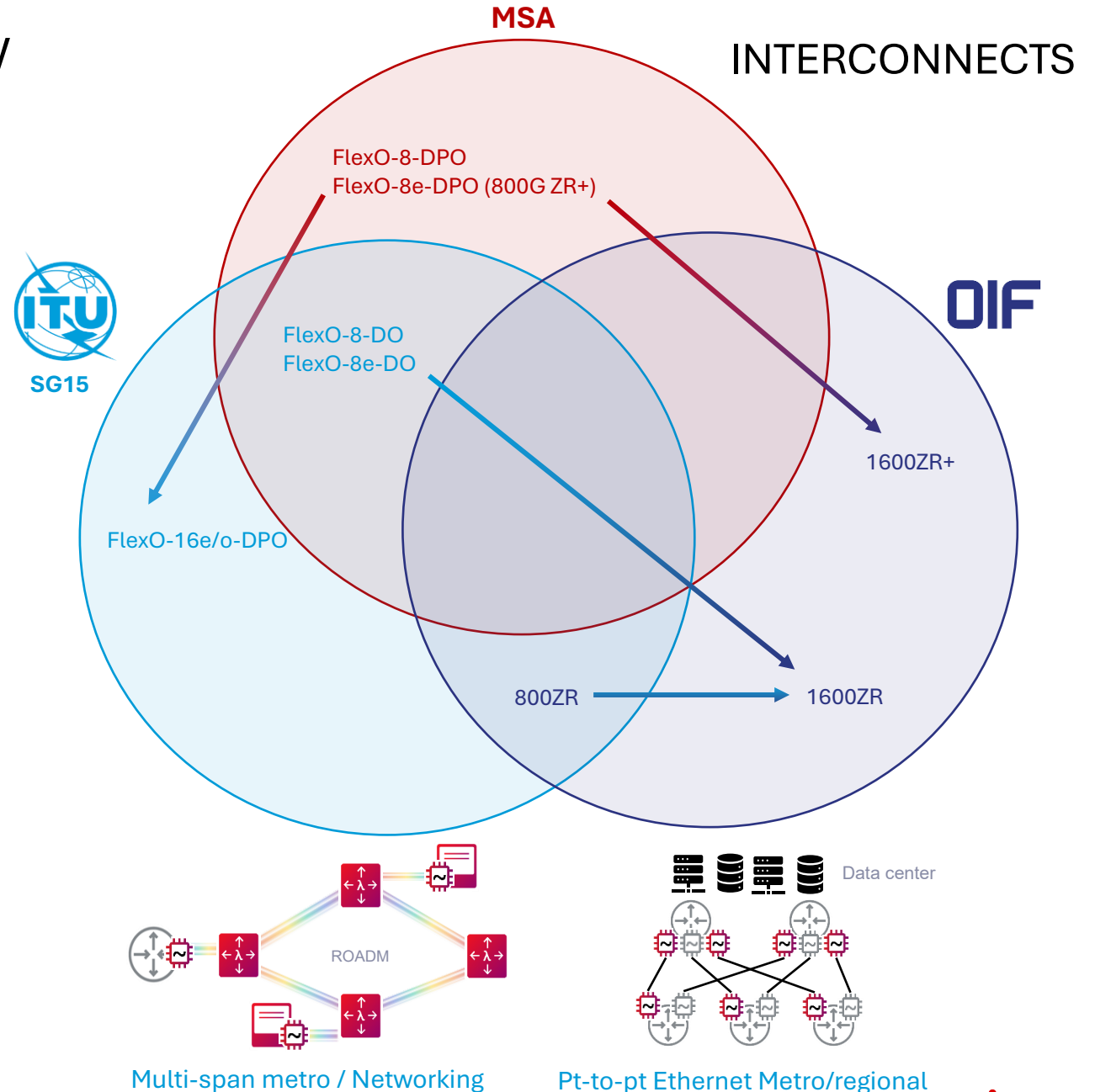
# Optical Standards Overview

800G



1.6T

Line rate	800G	1600G
100km DCI	800ZR	1600ZR
1000km Pt-to-Pt Ethernet	800G ZR+ FlexO-8e-DPO FlexO-8e-DO	1600ZR+ FlexO-16e-DPO
1000km Multi-span	FlexO-8-DPO FlexO-8-DO	



# ITU-T SG15 FlexOTN

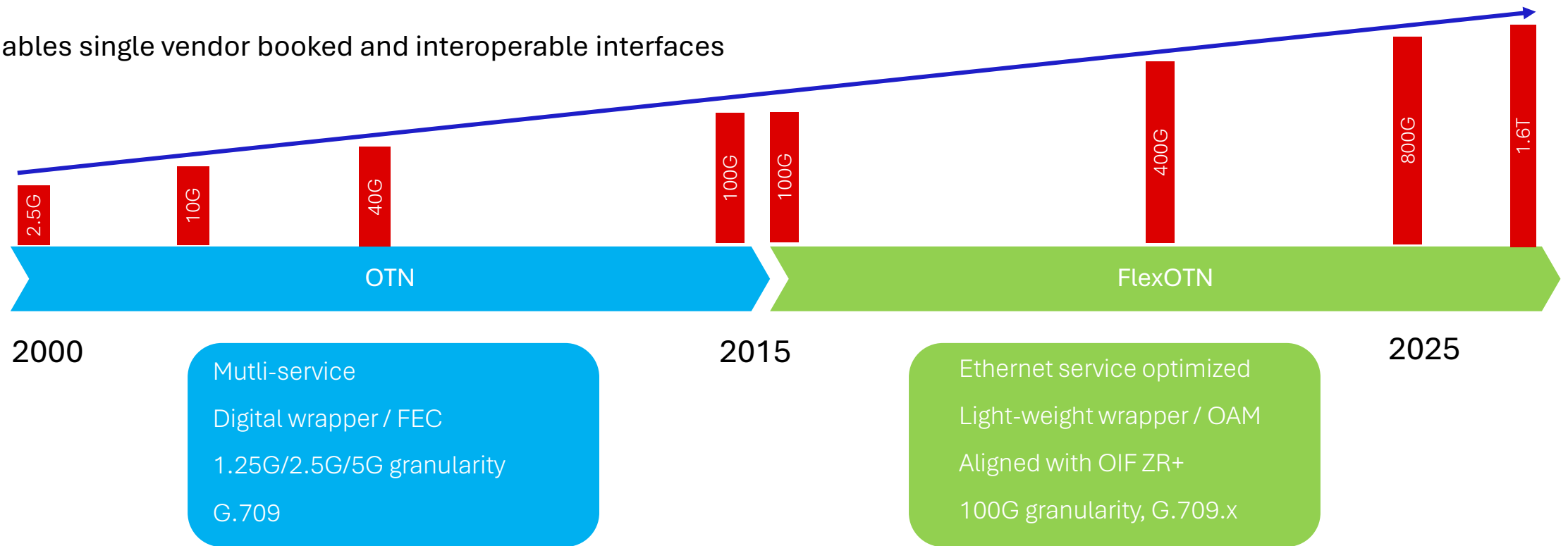
OTN has evolved to next phase FlexOTN

FlexOTN 10 years in the making, optimized around Ethernet transport

Networking technology that complements ZR+

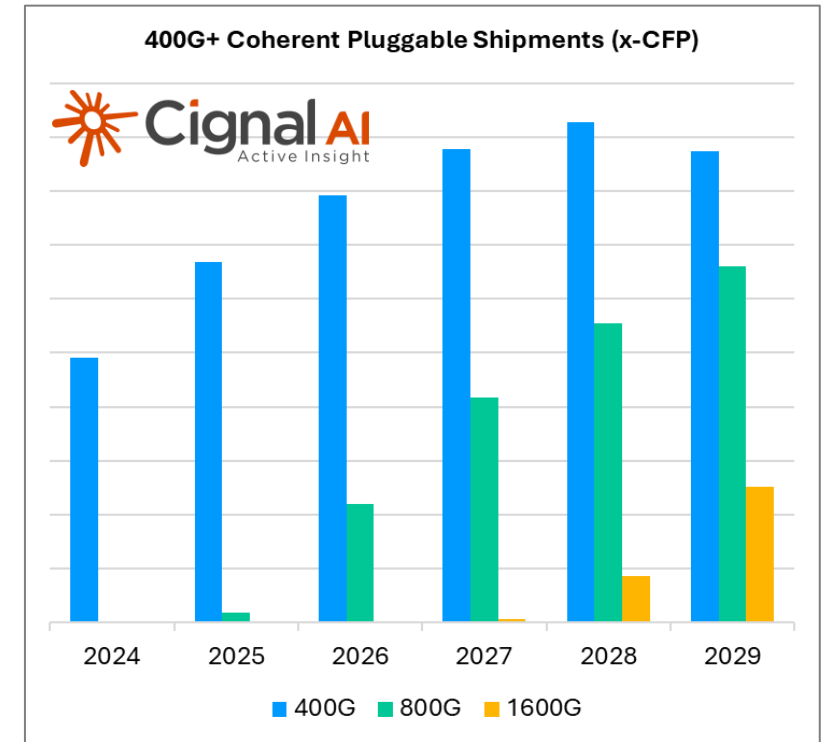
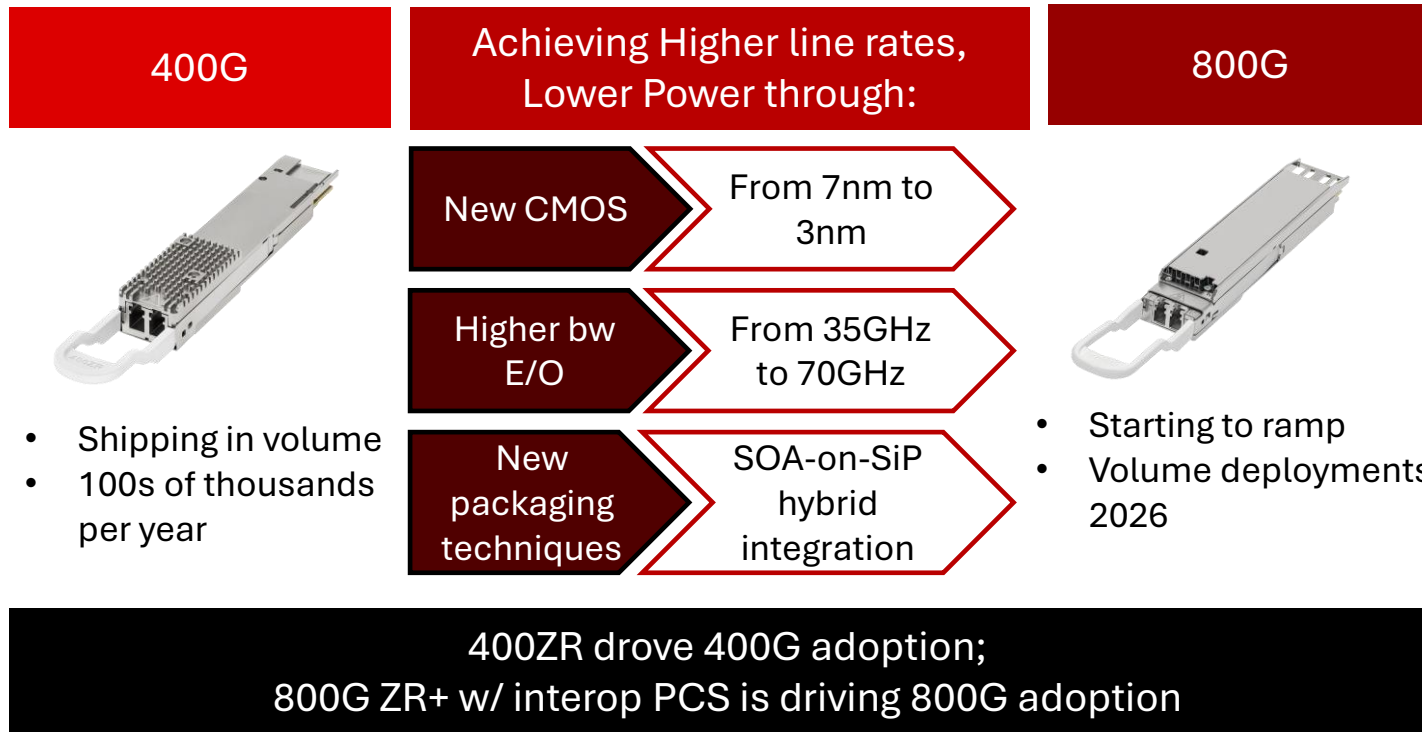
Addresses service provider applications

Enables single vendor booked and interoperable interfaces



# Mature ecosystem 400G and 800G pluggables

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Source: Signal AI, Optical Components Report, Jan 2026

# ITU-T SG15 Q11 B1T Work Items

## G.709.1

- FlexO-xo frame bit rates
- Common Ethernet clients (including 1.6TE) to FlexO-ne/FlexOPy GMP mapping procedures
- FlexOPy path (LO, HO, vSHO) GMP mapping procedures
- FlexOPy path to section GMP mapping procedures
- FlexOPy path overhead
- ODUCn (with possible n-1) to FlexO path GMP mapping procedures

## G.709.5

- 800G and 1.6T interfaces based on 200G/lane architecture and in alignment with IEEE 802.3dj.
- RSH, which is concat scheme using Hamming inner FEC code

## G.709.6

- New 1.2T and 1.6T interfaces
- Probabilistic Constellation Shaping and 2 Digital Subcarriers

## G.709.mfi

- Module to framer interfaces (MFIs) for flexible OTN signals – electrical

Thank you

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