

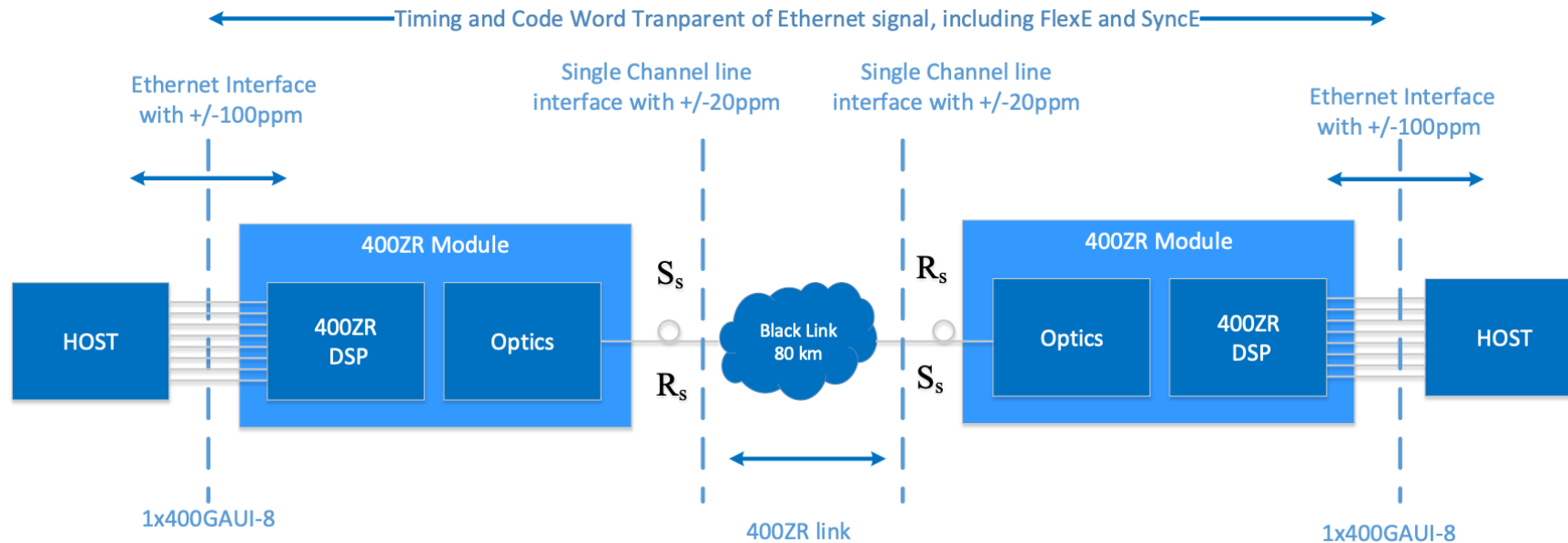


PLL INTEROP DEMO  
ECOC 2022

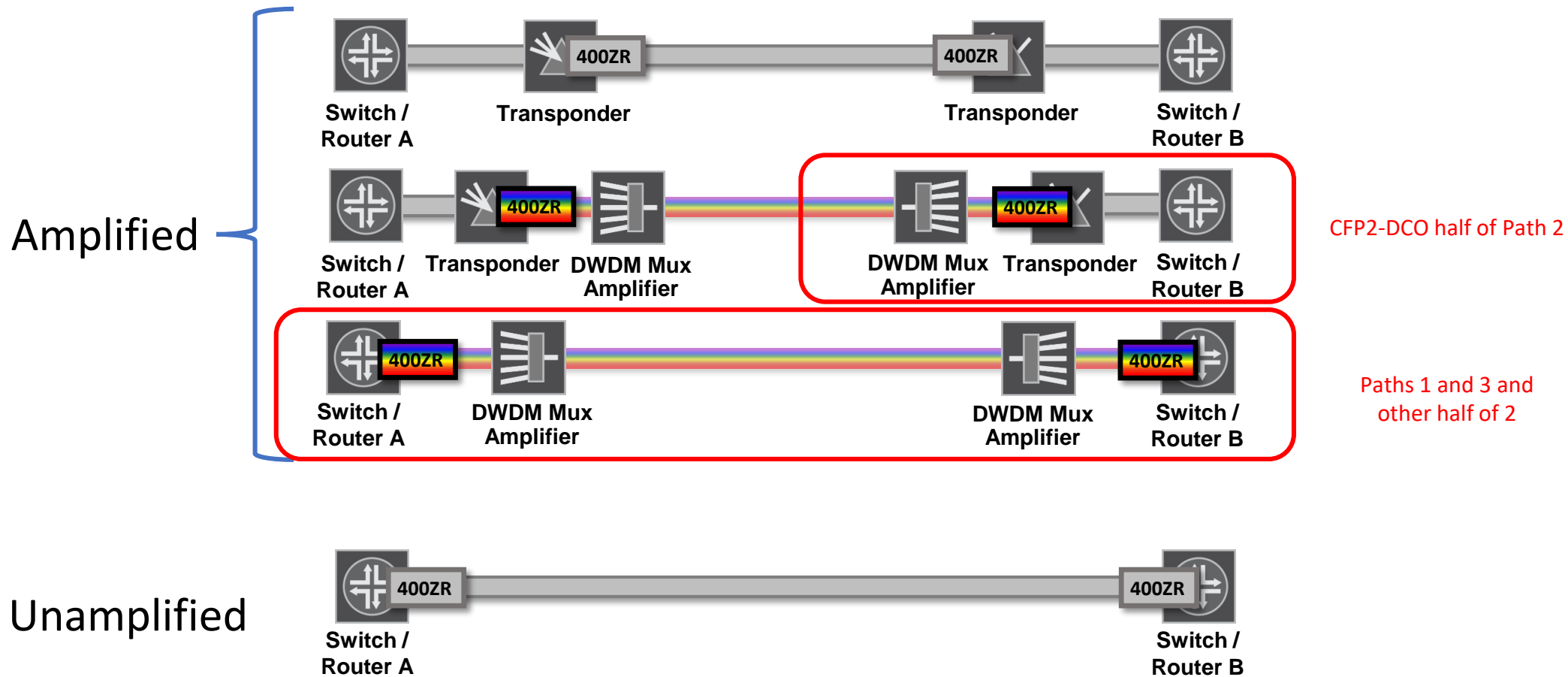
400ZR

# What is 400ZR?

- 400ZR is an interoperable, cost-effective, 400Gb/s interface based on single-carrier coherent DP-16QAM modulation, low power DSP supporting absolute (Non-Differential) phase encoding/decoding, and a Concatenated FEC (C-FEC) with a post-FEC error floor  $<1.0E-15$ .
- 400ZR operates as a 400GBASE-R PHY.



# 400ZR Point-to-Point Use Cases



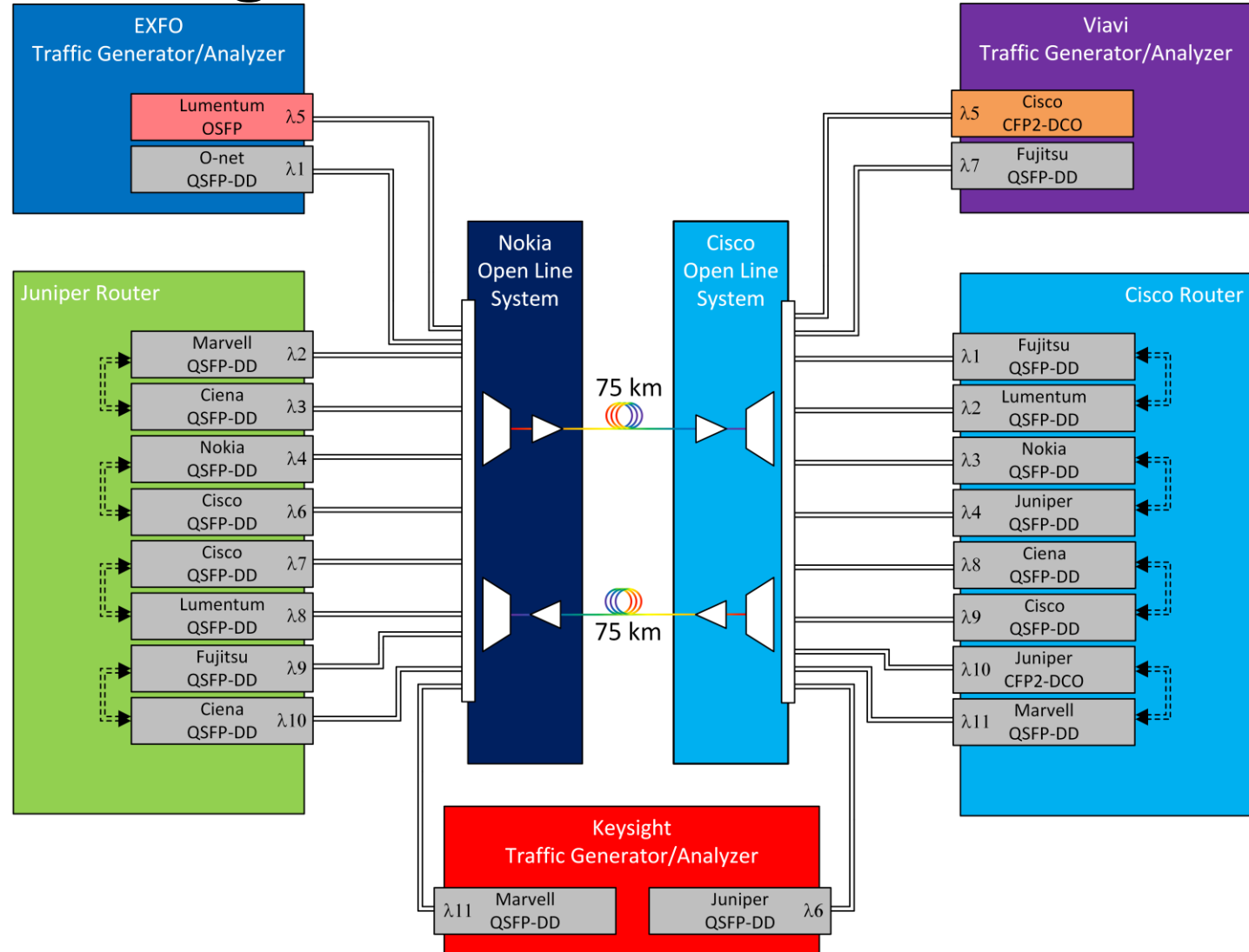
# 400ZR Strengths

- 400ZR enables the DCI application to happen without requiring significant additional equipment (size, space, power, expense).
- 400ZR interoperability supports an IPoDWDM infrastructure where switches are optically linked to each other over an open line system(OLS) using 400ZR modules.
  - Significant cost, space, and power savings by skipping grey optics and transport chassis.
- DCI network architectures built around OLS and 400ZR give data center operators and carriers greater choice in the equipment/components they use to build them.
- Low cost 400ZR allows data centers to be distributed across a region, providing more agility and scalability than the mega data center.

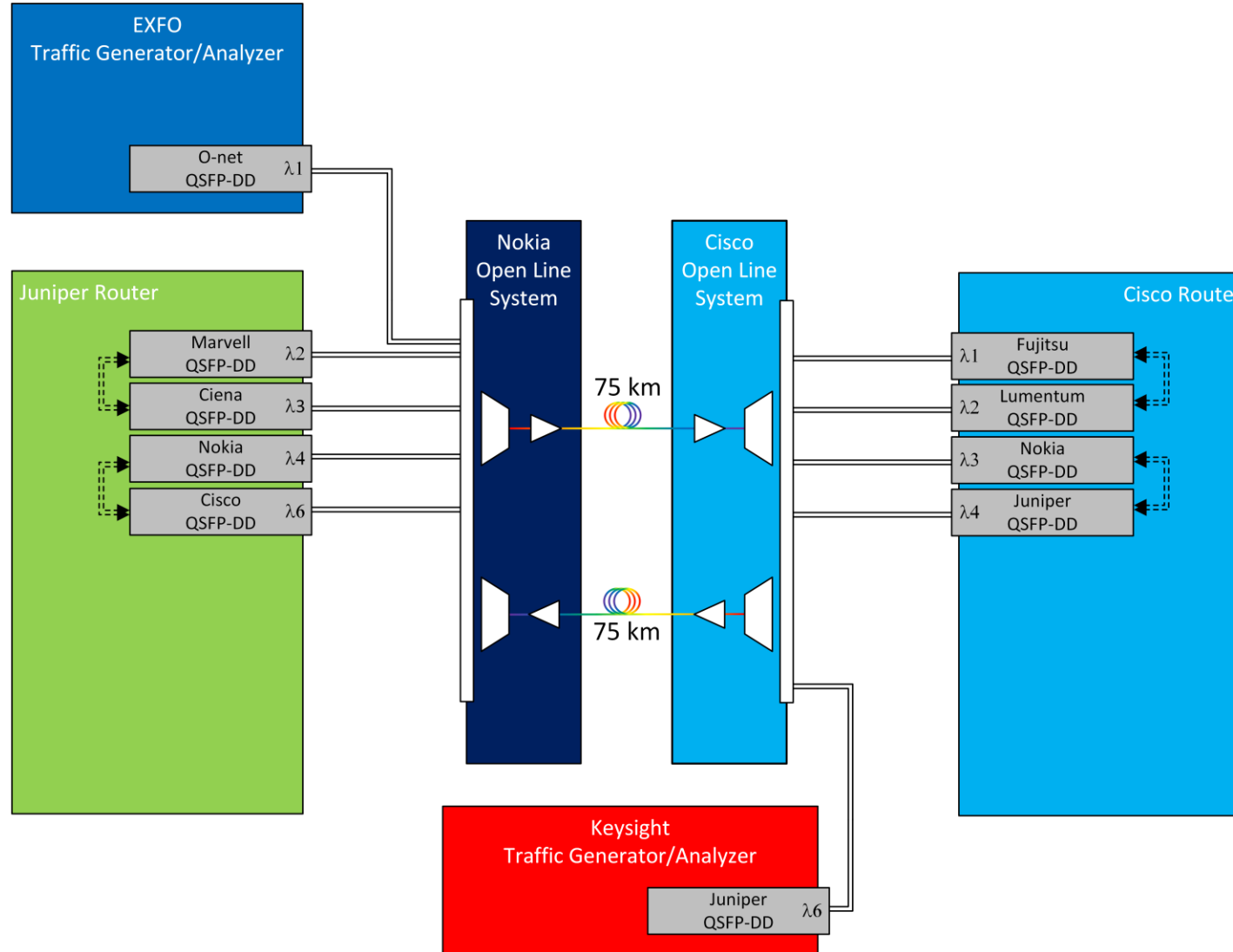


# 400ZR Demo Block Diagram

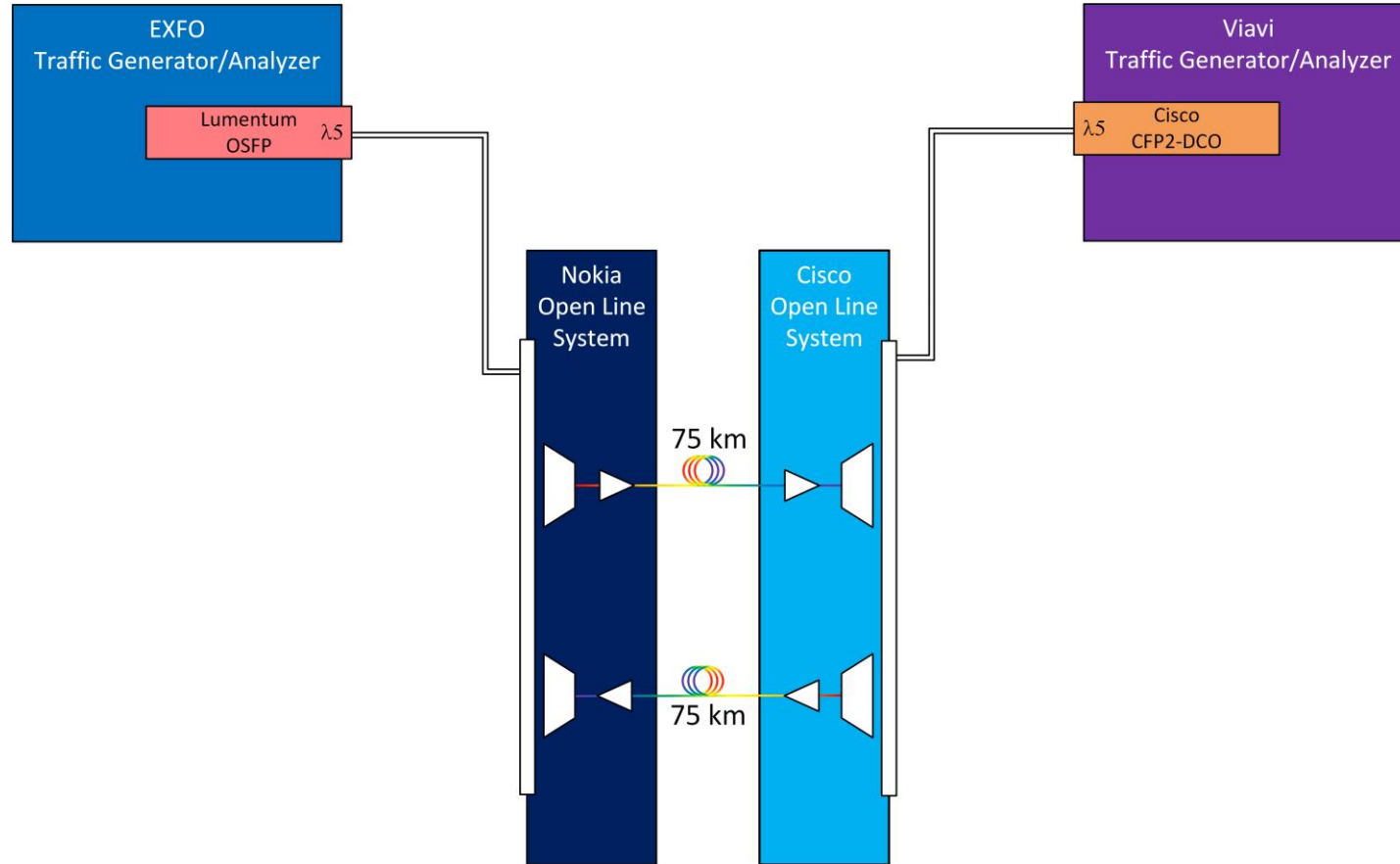
- Eight Module Vendors
  - 22 Modules
- Two Router Vendors
- Two OLS Vendors
- Three Test Equipment Vendors



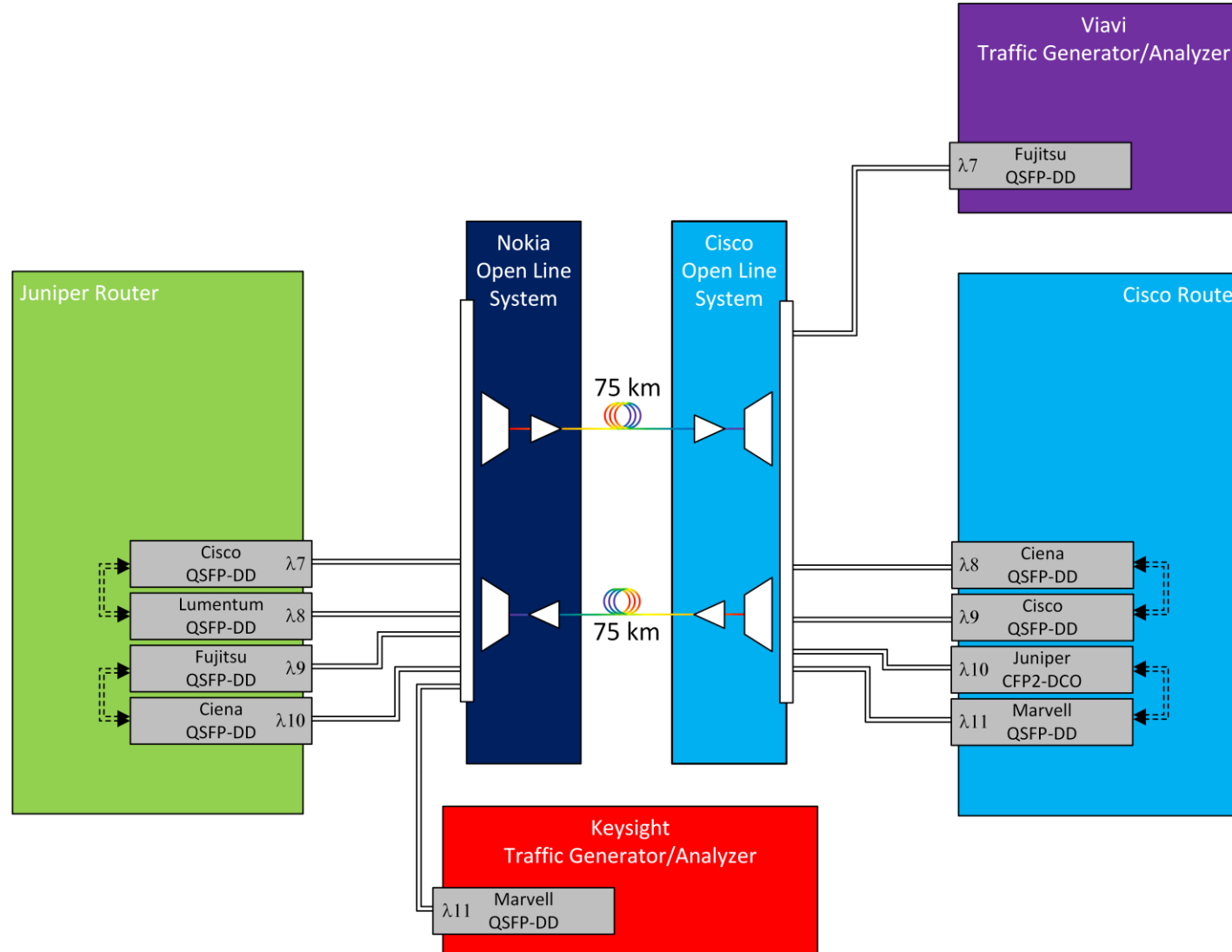
# 400ZR Demo Path 1



# 400ZR Demo Path 2



# 400ZR Demo Path 3





# 400ZR Demo Channel Plan

	frequency (THz)	Left-side Port	Module		Module	Right-side Port
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## Path 1

$\lambda 1$	194	EXFO 2	O-net QSFP-DD	OLS	Fujitsu QSFP-DD	Cisco 1
$\lambda 2$	193.925	Juniper 1	Marvell QSFP-DD	OLS	Lumentum QSFP-DD	Cisco 2
$\lambda 3$	193.85	Juniper 2	Ciena QSFP-DD	OLS	Nokia QSFP-DD	Cisco 3
$\lambda 4$	193.775	Juniper 3	Nokia QSFP-DD	OLS	Juniper QSFP-DD	Cisco 4
$\lambda 6$	193.625	Juniper 4	Cisco QSFP-DD	OLS	Juniper QSFP-DD	Keysight 1

## Path 2

$\lambda 5$	193.7	EXFO 1	Lumentum OSFP	OLS	Cisco CFP2-DCO	Viavi 1
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## Path 3

$\lambda 7$	193.25	Juniper 5	Cisco QSFP-DD	OLS	Fujitsu QSFP-DD	Viavi 2
$\lambda 8$	193.325	Juniper 6	Lumentum QSFP-DD	OLS	Ciena QSFP-DD	Cisco 5
$\lambda 9$	193.55	Juniper 7	Fujitsu QSFP-DD	OLS	Cisco QSFP-DD	Cisco 6
$\lambda 10$	193.475	Juniper 8	Ciena QSFP-DD	OLS	Juniper QSFP-DD	Cisco 7
$\lambda 11$	193.4	Keysight 2	Marvell QSFP-DD	OLS	Marvell QSFP-DD	Cisco 8



# 400ZR Demo Participants



OIF @ ECOC  
All Presentations,  
Vendor Handouts,  
and More!

