

UPGRADE PATHS

- From 100G to 400G in Data center, Last Mile and DCI





SIMPLIFYING UPGRADES FROM 100G TO 400G

- Empowering Data Centers, Last Mile, and DCI

At Solid Optics, we recognize that the landscape of network technology is continuously evolving. As your reliable partner, we are here to assist you through an important transition in network technology: upgrading from 100G to 400G.

In this presentation, we will shed light on the strategic pathways for enhancing your network's capabilities. We aim to provide not just product information, but a comprehensive guide for your journey from 100G to 400G. Our focus will be on diverse settings such as Data Centers, Last Mile connectivity, and DWDM in Data Center Interconnects (DCI).

We will delve into the details of high-density and high-speed transceivers, DAC and AOC cables, and the nuances of 400G to 4x100G breakout architectures. Emphasizing careful planning and backward compatibility, we are committed to ensuring a smooth and well-informed transition for your network.

Our goal is to equip you with the necessary insights and confidence to make the best decisions for upgrading your network. With the expertise and support from Solid Optics, your path to a more capable and efficient network starts here.

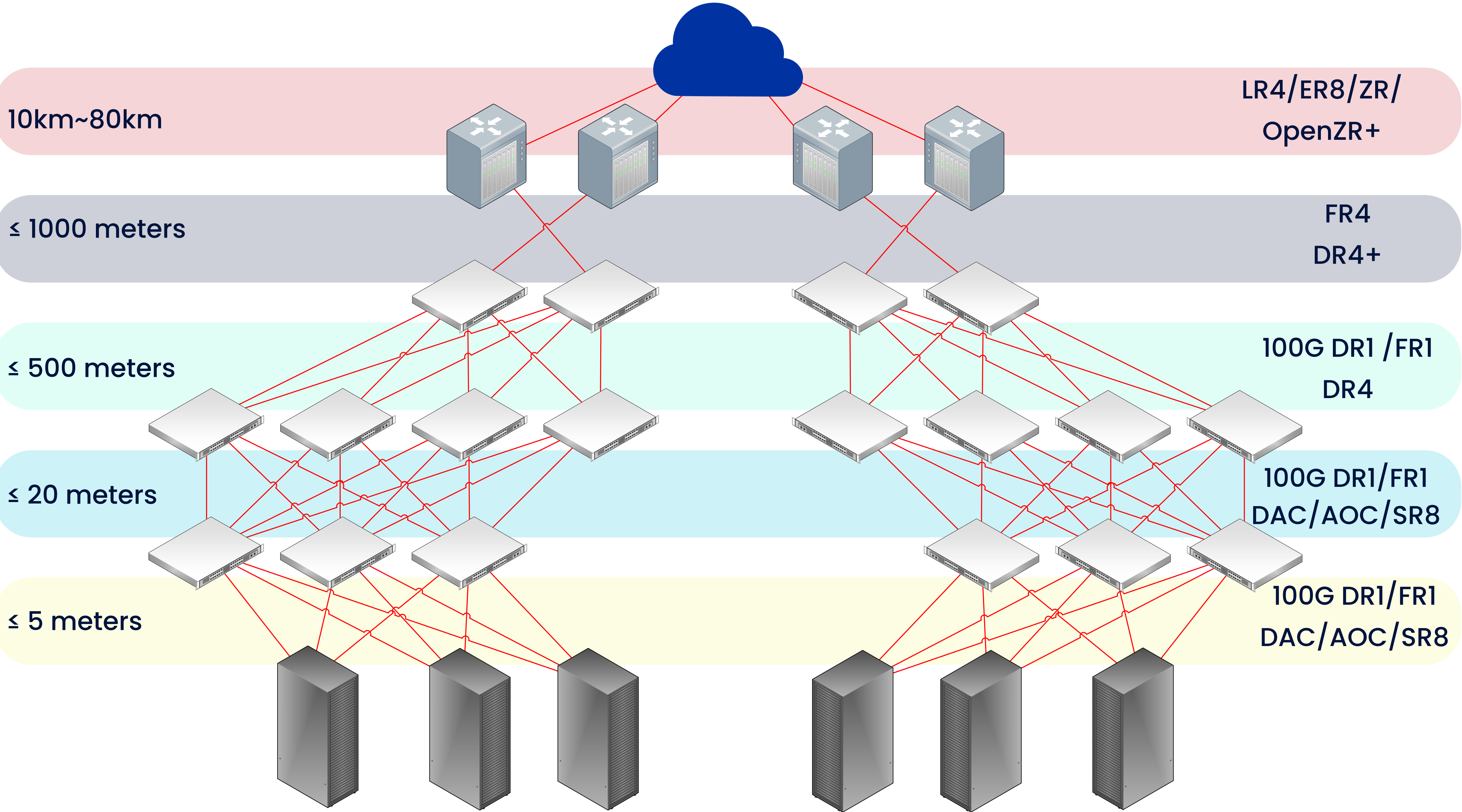


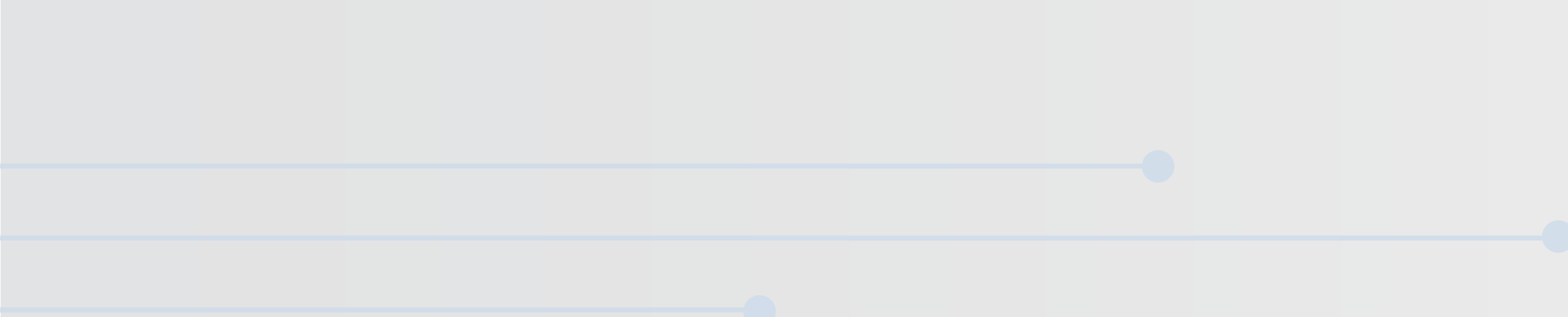
THE NETWORK TRANSFORMATION FROM 100G TO 400G

A Comprehensive Infrastructure Overview



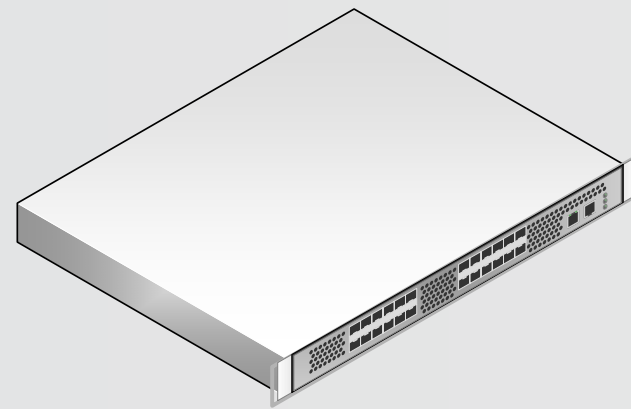
**THE NETWORK TRANSFORMATION
FROM 100G TO 400G**



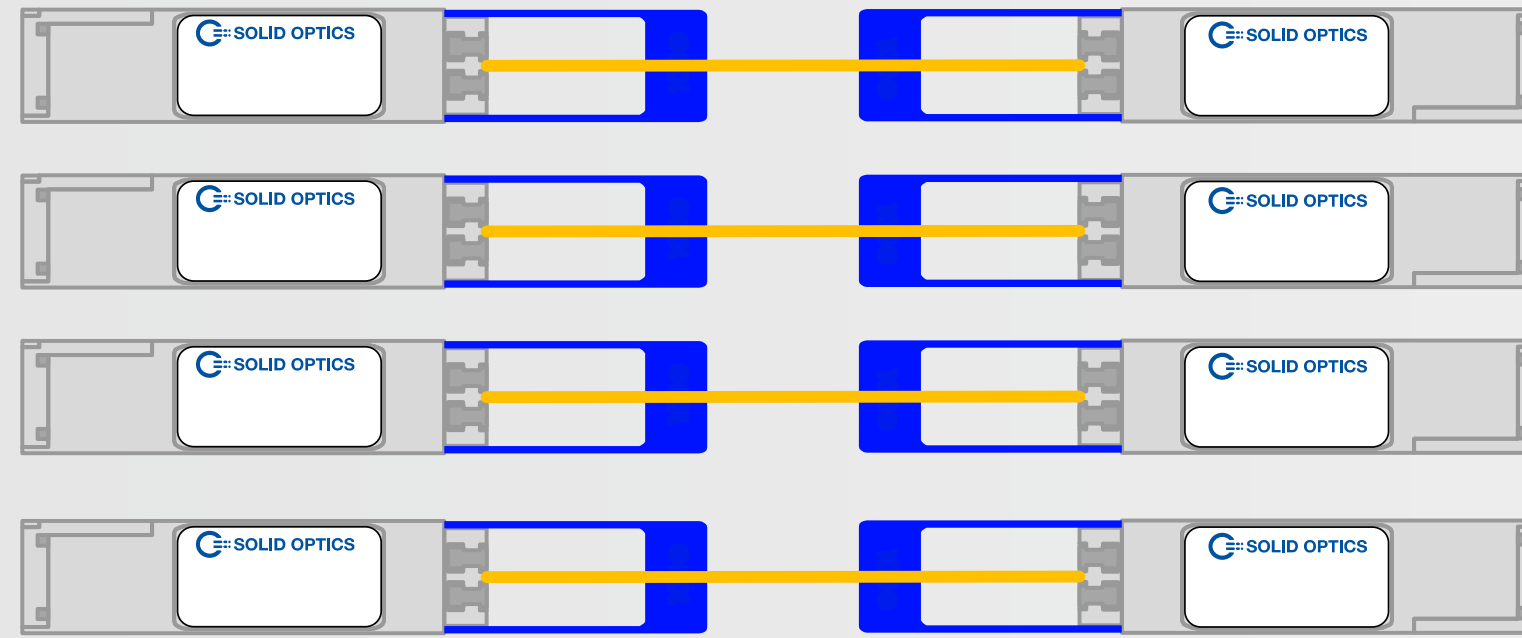


DATA CENTER TOP-OF-RACK NETWORK UPGRADE

Navigating the 100G to 400G Upgrade Path



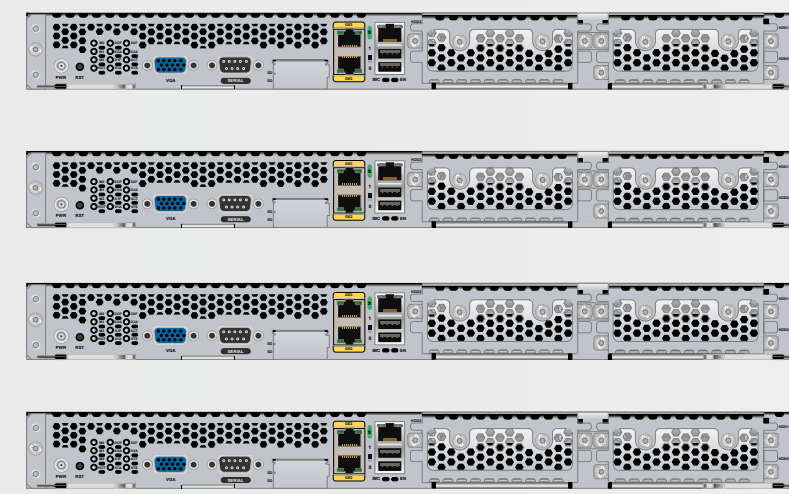
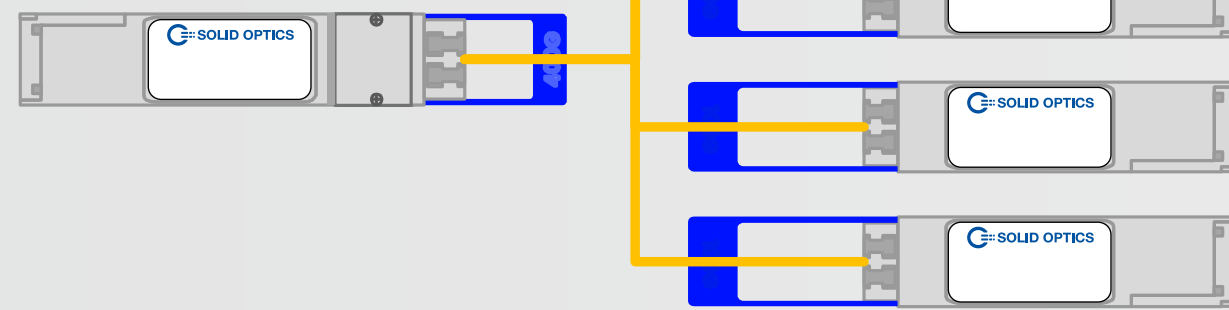
QSFP28 100G | SR4



HIGHER DENSITY AND SPEED PROVIDED BY 400G TO 4X100G AOC, DAC OR 4X100G 2X100G BREAKOUTS

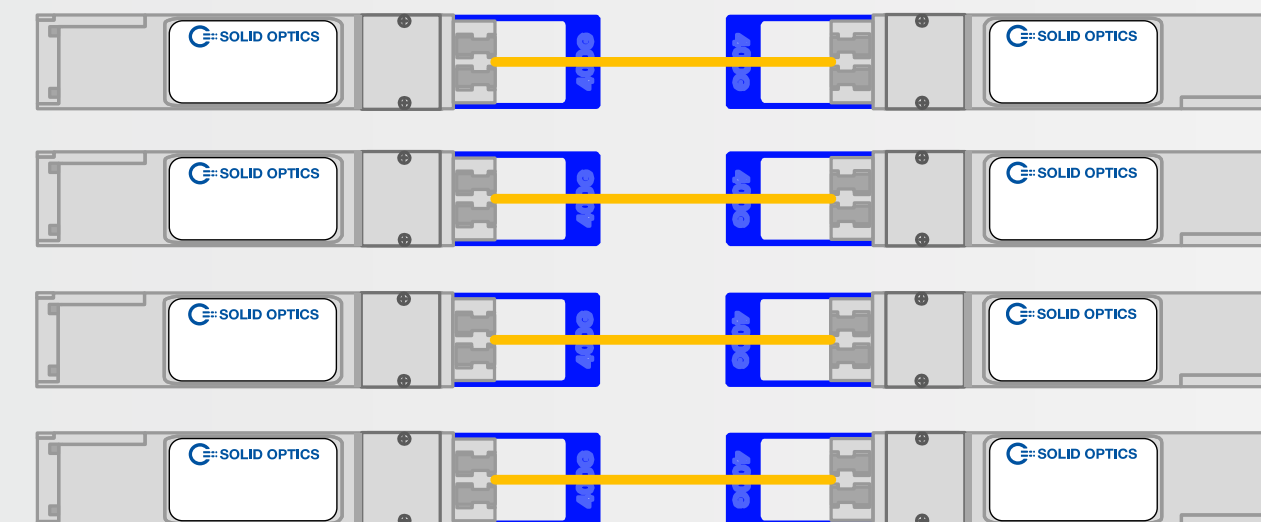
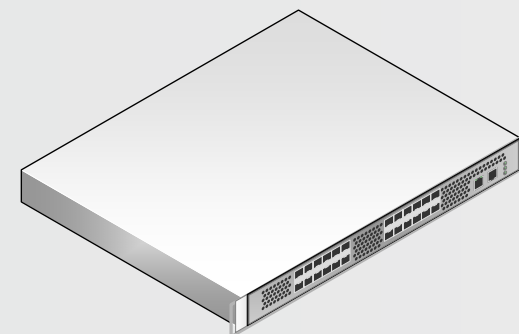
QSFP28 100G | SR BD

QSFP-DD 400G | SR4



HIGHEST SPEED PROVIDED BY 400G SR4, AOC OR DAC

QSFP-DD 400G | SR4





400G TO 100G BREAKOUT SOLUTIONS

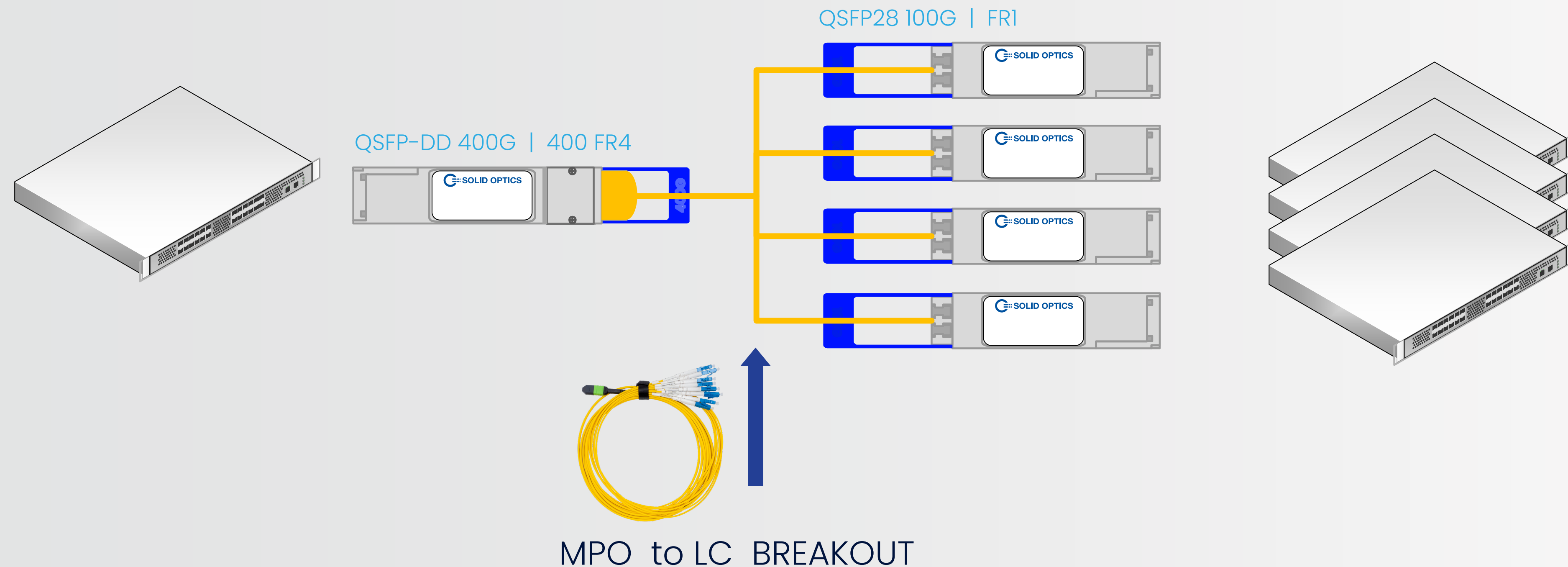
Planning 400G to 4x100G Breakout Architectures Demands Careful Consideration Across the Physical Layer

Interoperability Challenges:

The deployment of 100G CWDM4 and LR4 (NRZ modulation) highlights a key challenge: they are not inherently interoperable with PAM4 400G interfaces.

Fiber Cabling Adaptations:

This transition necessitates accommodating new connectors, including SN and MPO-16, as part of the fiber cabling considerations.





400G TO 100G BREAKOUT SOLUTIONS

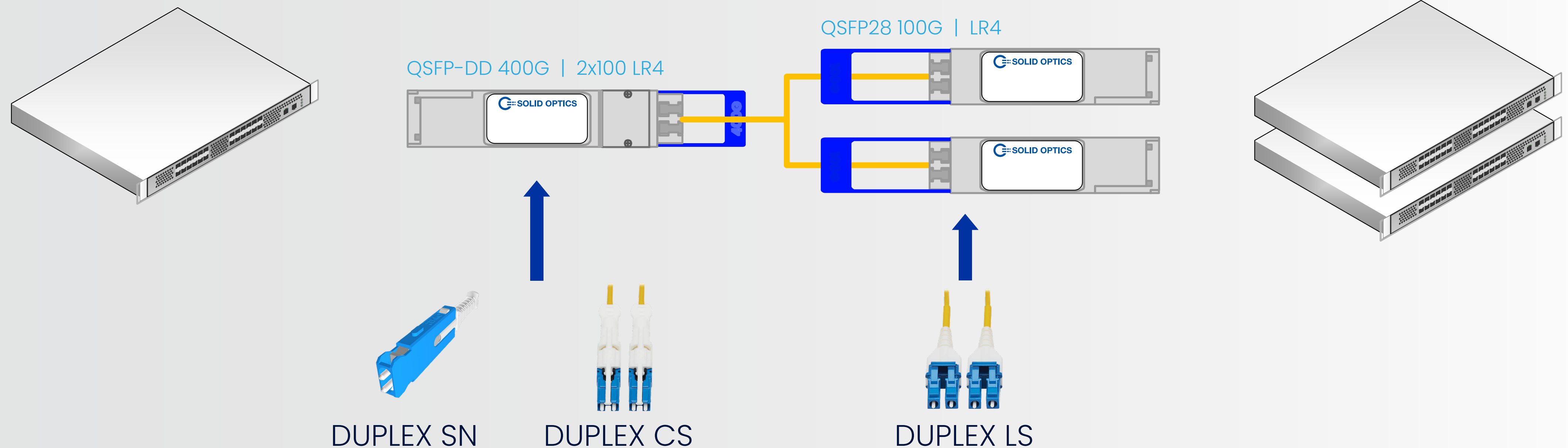
Seamless Backwards Compatibility: 200G to 2x100G Breakouts

Interoperability Across NRZ Modulation - LR4 and CWDM4

When transitioning from 200G to 2x100G breakouts, you can maintain interoperability with NRZ modulation standards like LR4 and CWDM4.

Fiber Cabling Adaptations:

As part of the process, it's important to consider the integration of new Duplex CS connectors into your existing infrastructure, which may necessitate the use of conversion media.





400G TO 100G BREAKOUT SOLUTIONS

- Product Specifications & Mapping Overview

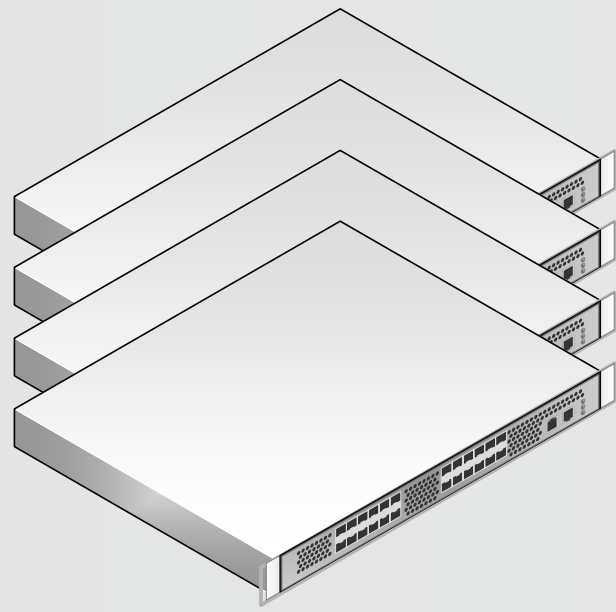


400G SOLID OPTICS PARTNAME	400G INTERFACE	CONNECTOR 400G	DATA RATE	MEDIA	MAX DISTANCE	100G INTERFACE	CONNECTOR 100G	OPTICAL SIGNALING	OPTICAL TYPE	100G SOLID OPTICS PARTNAME
QDD-400G-SR4-MPO-SO	SR4.2	MPO-12	400G	MMF	100M	SR1.2	DUPLEX LC	PAM4	850-910 BIDI	QSFP-100G-SR-BD-SO
QDD-4-400G-DR4-MPO-SO	DR4	MPO-12	400G	SMF	500M	DR1	DUPLEX LC	PAM4	100G LAMBDA	QSFP-100G-DR1-SO
QDD-4-400G-DR4+-MPO-SO	FR4	MPO-12	400G	SMF	2KM	FR1	DUPLEX LC	PAM4	100G LAMBDA	QSFP-100G-FR1-SO
QDD-400G-LR4-MPO-SO	L44	MPO-12	400G	SMF	10KM	LR1	DUPLEX LC	PAM4	100G LAMBDA	QSFP-100G-LR1-SO
N/A Yet	2XSR4	MPO-24	200G	MMF	100M	SR4	DUPLEX LC	NRZ	PARALLEL	N/A Yet
QDD-2x100G-CWDM4-DCS-SO	2XCWDM4	DUPLEX CS	200G	SMF	2KM	CWDM4	DUPLEX LC	NRZ	CWDM4	QSFP-100G-CWDM4-IR-LC-SO
QDD-2x100G-LR4-DCS-SO	2XLR4	DUPLEX CS	200G	SMF	10KM	LR4	DUPLEX LC	NRZ	LAN-WDM	QSFP-100G-LR4-LC-SO
N/A Yet	2X4WDM-10	DUPLEX CS	200G	SMF	10KM	4WDM-10	DUPLEX LC	NRZ	LAN-WDM	N/A Yet
N/A Yet	4XFR	DUPLEX SN	400G	SMF	2KM	FR1	DUPLEX LC	PAM4	100G LAMBDA	N/A Yet
N/A Yet	4XLR	DUPLEX SN	400G	SMF	10KM	LR1	DUPLEX LC	PAM4	100G LAMBDA	N/A Yet

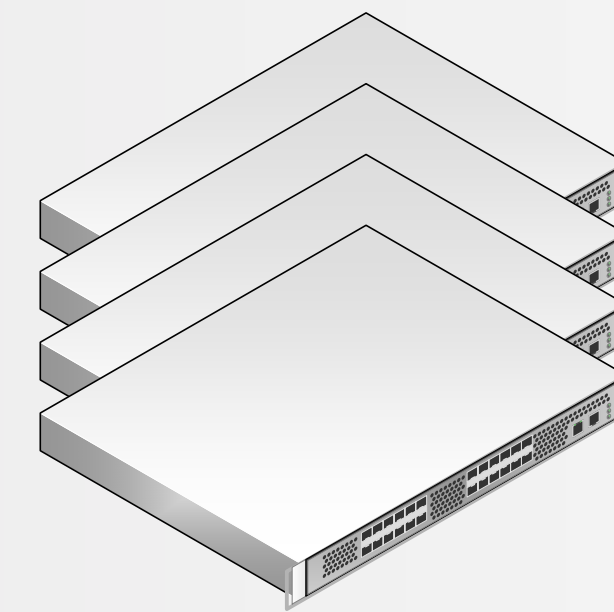
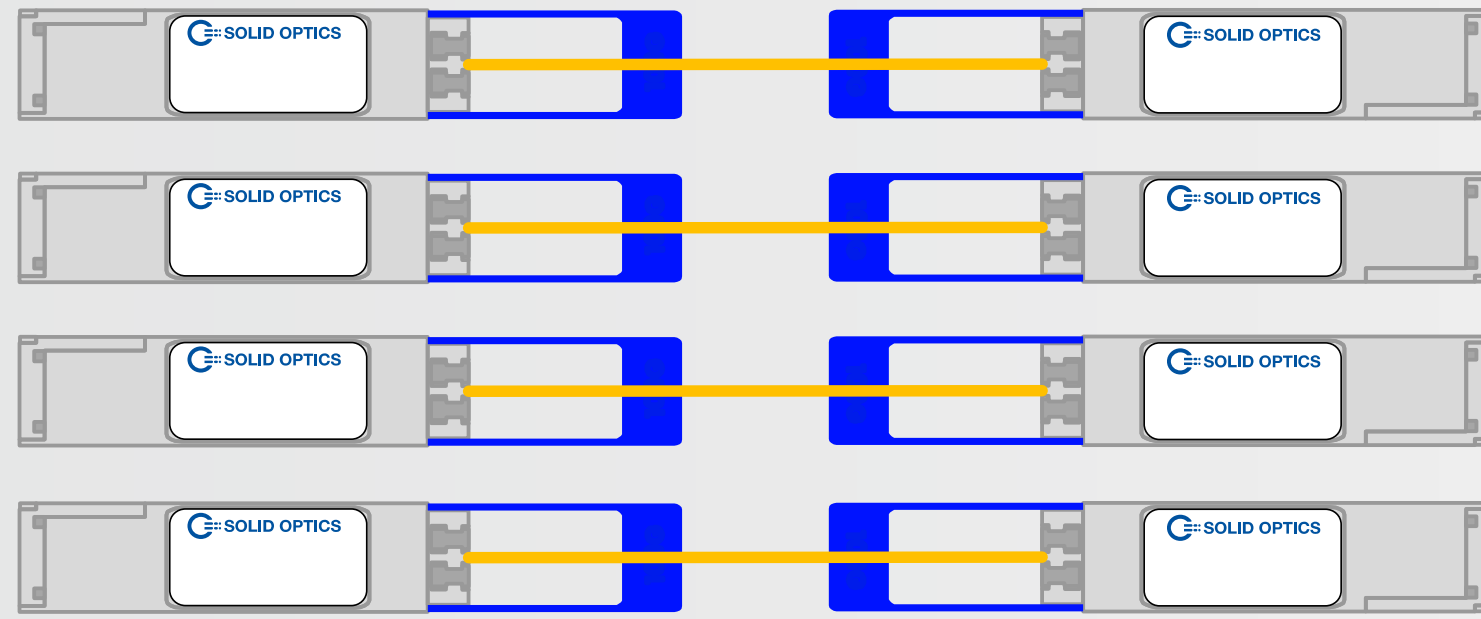


LAST MILE NETWORK UPGRADE

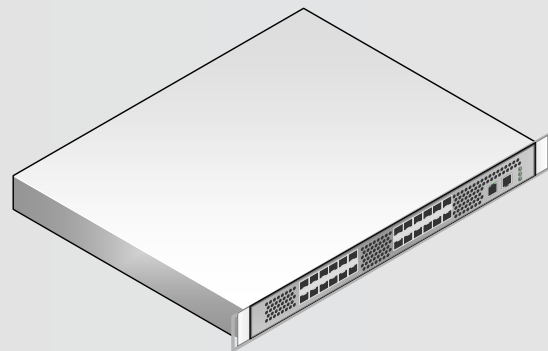
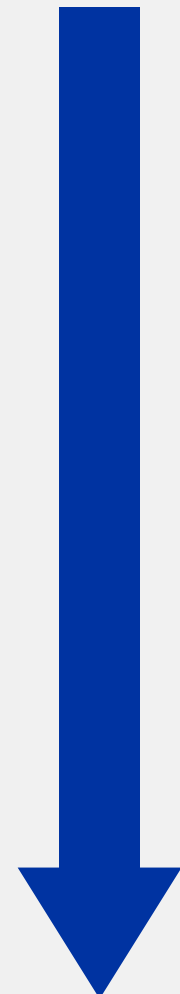
Transitioning from 100G to 400G



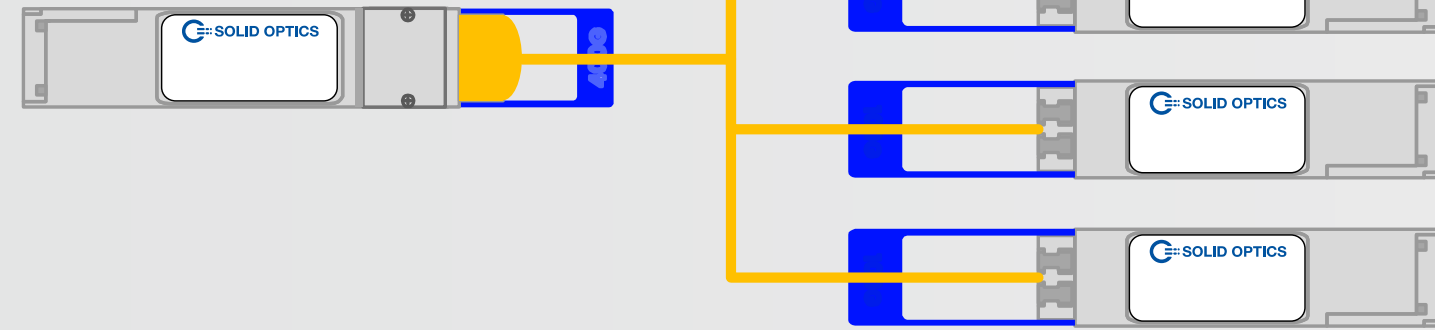
QSFP28 100G | LR4



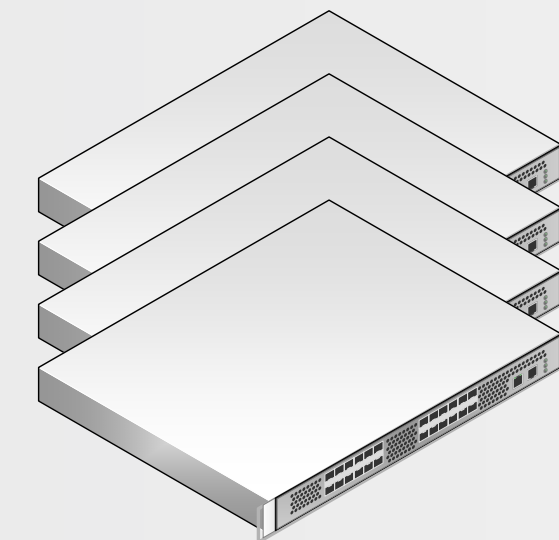
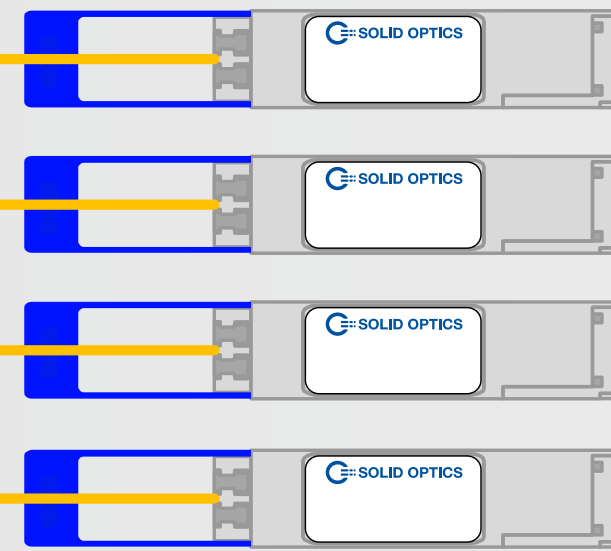
HIGHER DENSITY AND SPEED PROVIDED BY 400G TO 4X100G DR4, FR4 AND LR4 TO SINGLE LAMBDA



QSFP-DD 400G | FR4

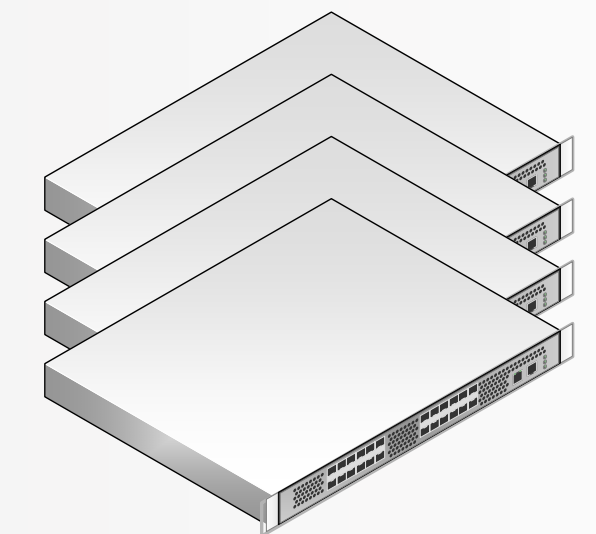
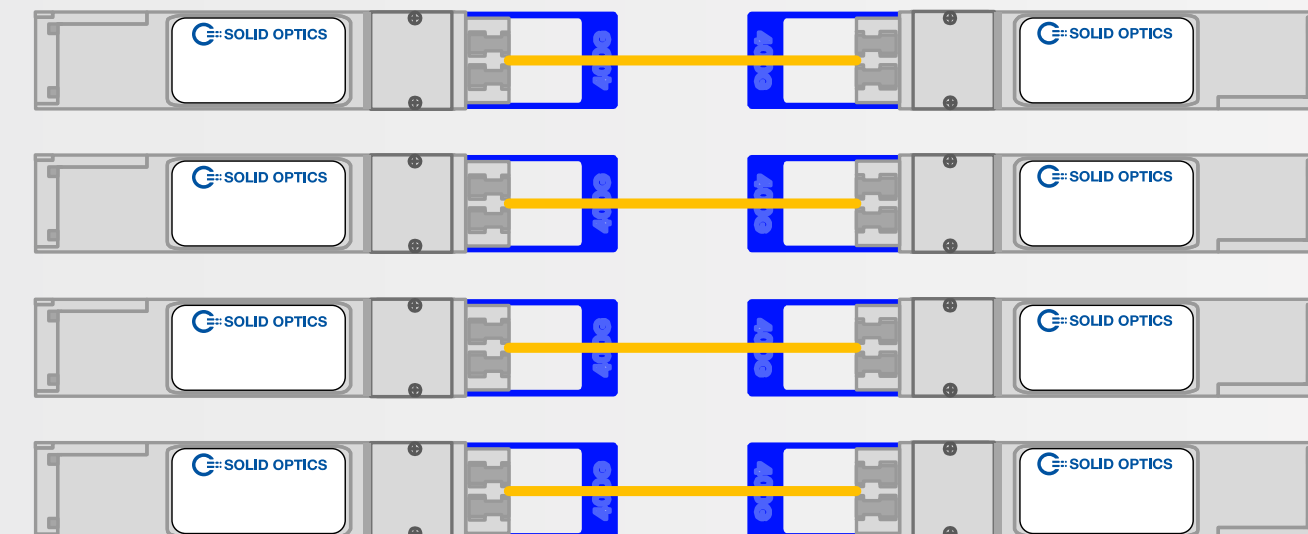
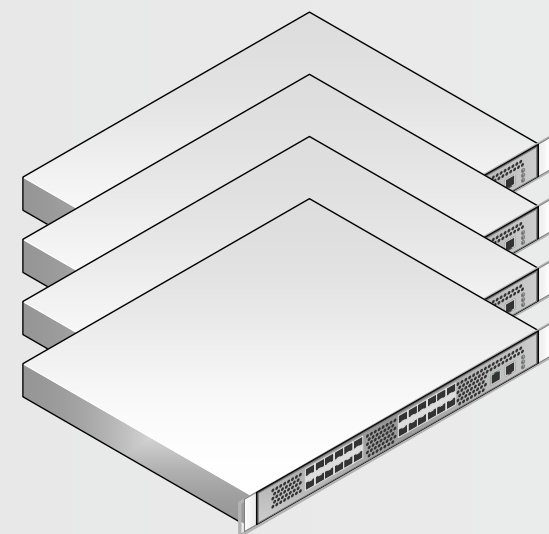


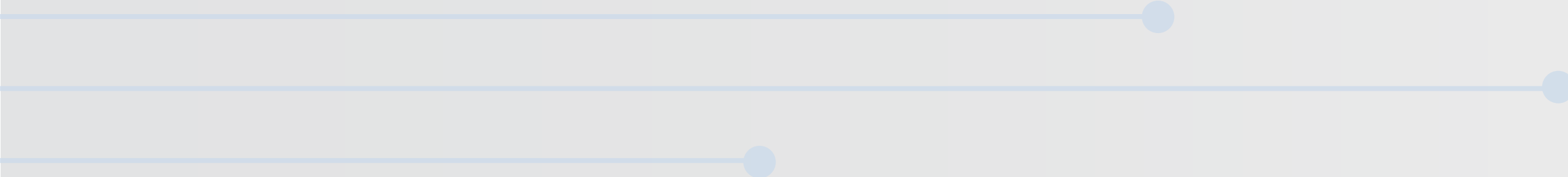
QSFP28 100G | FR1



HIGHEST SPEED PROVIDED BY 400G DR4, FR4 AND LR4

QSFP-DD 400G | LR4



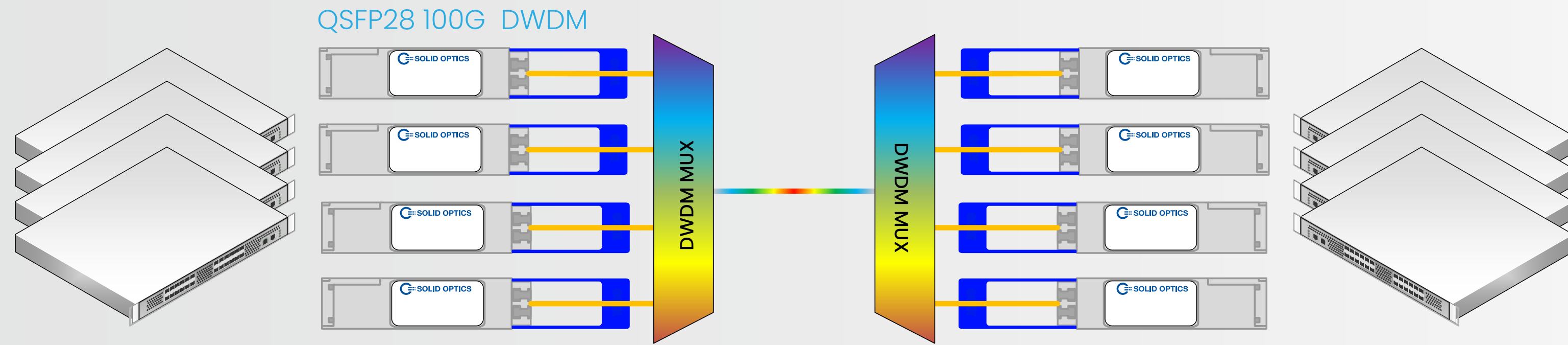


DATA CENTER INTERCONNECT NETWORK UPGRADE

From 100G to 400G for Superior Performance

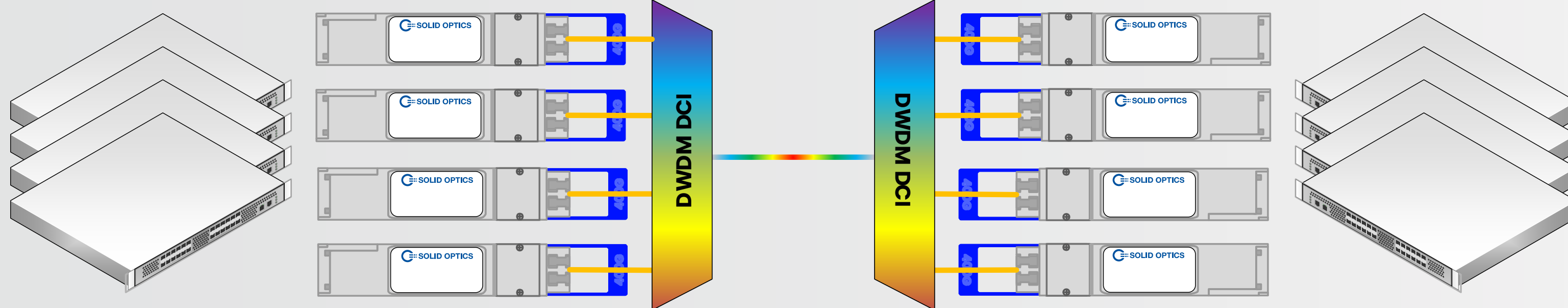


DATA CENTER INTERCONNECT NETWORK UPGRADE



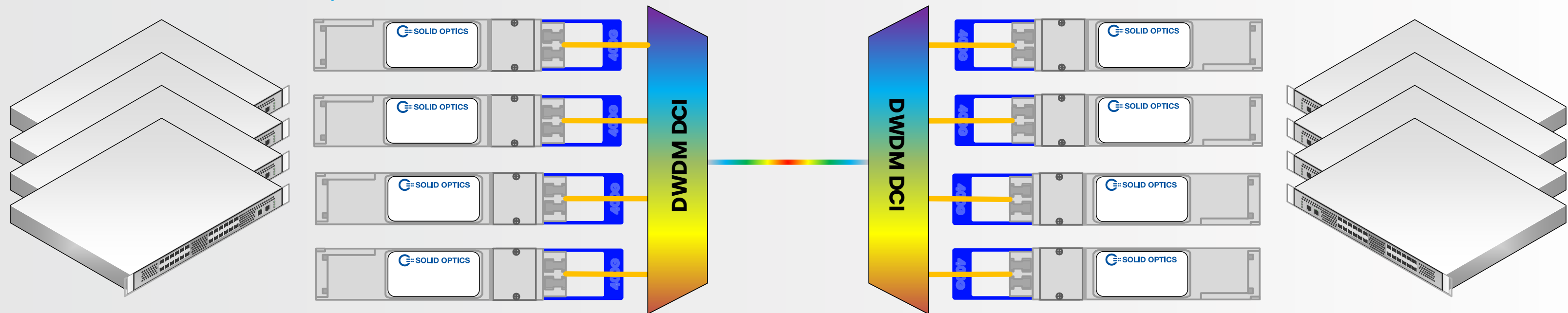
ZR DCI UP TO 120KM

QSFP-DD 400G ZR DWDM



OPEN ZR+ LONG HAUL UP TO 600KM

QSFP-DD 400G ZR+ DWDM





COMPARING 400G WDM SOLUTIONS:

A closer look at DWDM ZR, DWDM OpenZR+, DWDM ZR 1db Tx (Optional 3dB)

400G DWDM ZR

- Requires dedicated network hardware
- Needs EDFAs
- Moderate Power Consumption
- Suitable for distances of up to 120Km
- Offers tunable wavelength

400G DWDM OpenZR+

- Requires dedicated network hardware
- Requires EDFAs
- High Power Consumption
- Supports longer distances, up to 600Km
- Provides a tunable wavelength

400G DWDM ZR 1dB Tx (Optional 3dB)

- Requires dedicated network hardware
- Needs EDFAs
- High Power Consumption
- Supports distances of up to 600Km
- Offers tunable wavelength
- Designed for use in ROADMs



Get in touch

We hope this guide has offered a comprehensive insight into simplifying your network's upgrade from 100G to 400G. Should you have any questions or need further assistance, we're just a call or an email away.

Thank you.

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