



**TURKMENISTAN
DIGITAL FORUM**

14-16 November 2024
Ashgabat, Turkmenistan
www.turkmentelecoms.com

Juniper Networks innovations

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JUNIPER
NETWORKS

Driven by
Experience™

Disclaimer

This statement of product direction sets forth Juniper Networks' current intention and is subject to change at any time without notice. No purchases are contingent upon Juniper Networks delivering any feature or functionality depicted on this statement.



AT A
GLANCE

 **FOUNDED**
1996

 **HEADQUARTERED**
Sunnyvale, CA

 **2023 REVENUE**
\$5.57B

GLOBAL REACH

11,100
EMPLOYEES



120
LOCATIONS



50
COUNTRIES



24/7 AVAILABILITY
TO ADDRESS ALL CUSTOMER NEEDS

OUR MISSION:

We make every connection count.

OUR VISION:

To lead AI Networking; making every user experience exceptional.

**WE
SUPPORT**



10 out of
Forbes 10
COMPANIES
GLOBALLY



30 of the 30
WORLD'S
TOP CLOUD
OPERATORS



40 out of 40
TOP GLOBAL
SERVICE
PROVIDERS



17 of the 20
MOST PROMINENT
UNIVERSITIES
GLOBALLY



18 out of 20
LARGEST
GLOBAL
BANKS



8 out of 10
TOP
TECHNOLOGY
COMPANIES



8 of the 10
TOP
GLOBAL
RETAILERS

All stats based on global industry lists, with material (>\$10K) Juniper SA from 2022.

**OUR
SOLUTIONS**



**Industry's most
scalable & automated
AI-Native WAN**



**Industry's most assured
AI-Native Secure Automated
Data Center**



**Industry's only AI-Native
and Cloud-Native Campus
and Branch Solution**



Industry-first distributed security services architecture



AI-Native Networking Platform



4X a Leader

Gartner Magic Quadrant™
Wired & Wireless LAN
Infrastructure

3X in a row

Furthest in Vision, Highest in Execution
in Magic Quadrant™ Wired & Wireless
LAN Infrastructure

3X a Leader

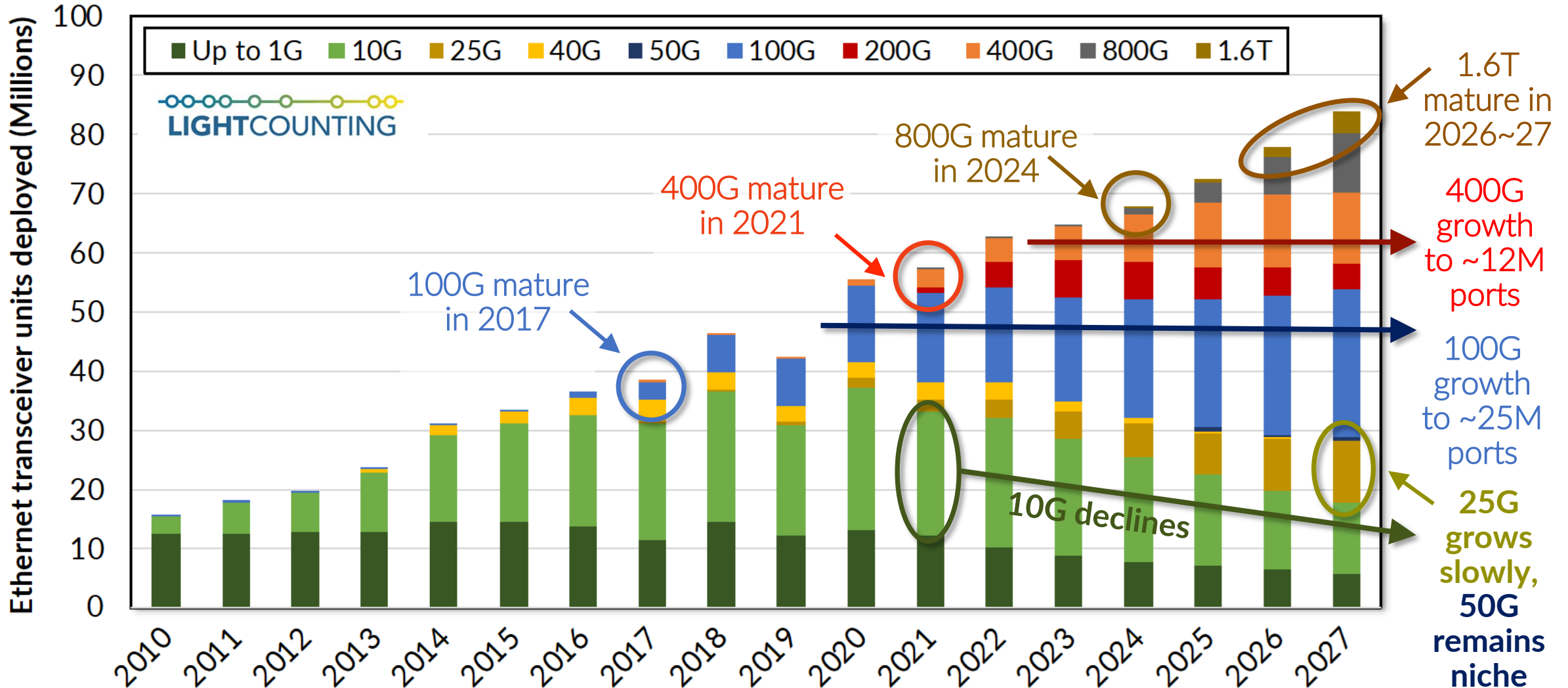
Gartner Magic Quadrant™
Indoor Location Services

5 of 5 use cases

Highest scores in five out of five Use Cases in the
2024 Gartner Critical Capabilities for Wired and
Wireless Infrastructure

The Ethernet (R)evolution

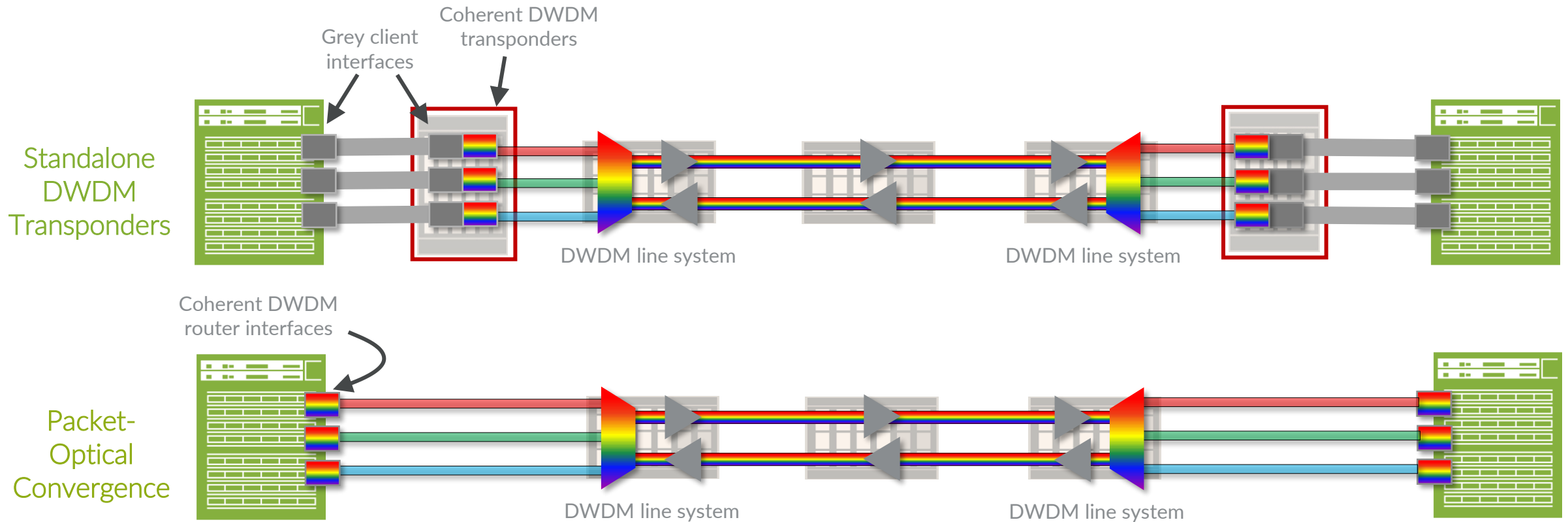
Past, present and future of ethernet transceiver sales across the industry



Adapted from Lightcounting, September 2022 High Speed Ethernet Optics Report

The promise of IPoDWDM

Before and after adoption

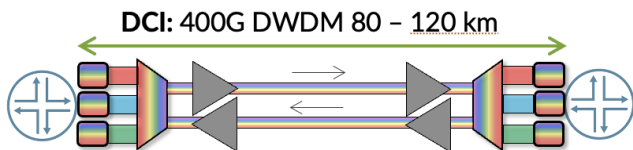


IP-optical integration eliminates hardware components, increases reliability, lowers cost, reduces power consumption, and simplifies operations

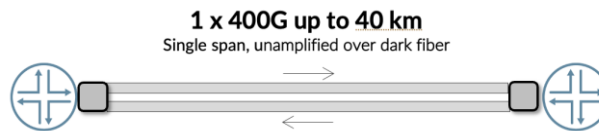
Juniper's comprehensive portfolio of 400G ZR/ZR+ coherent pluggable optics



Amplified DWDM Pt-to-Pt Applications



Dark Fiber Applications

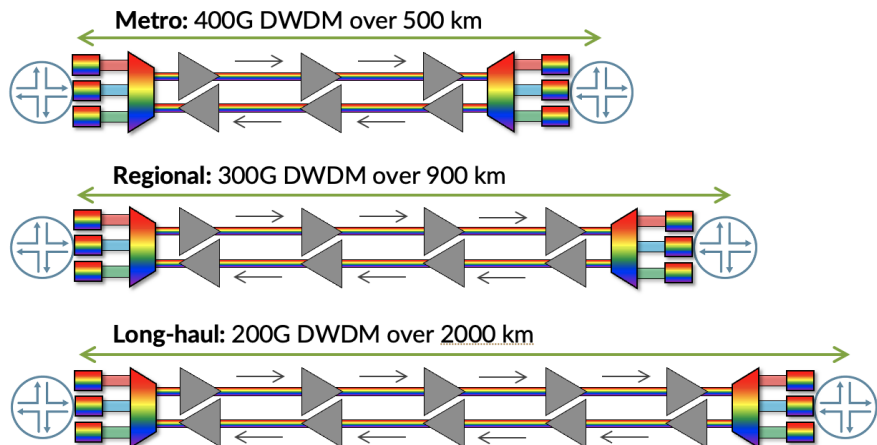


400G ZR

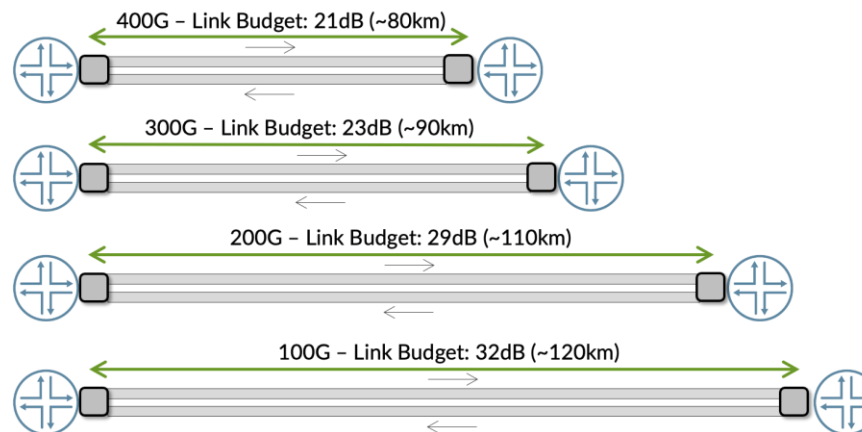
- 400G, 4x100G
- DCI, campus use cases



Metro, Regional, Long-haul DWDM Applications



Dark Fiber Applications (0 dBm)



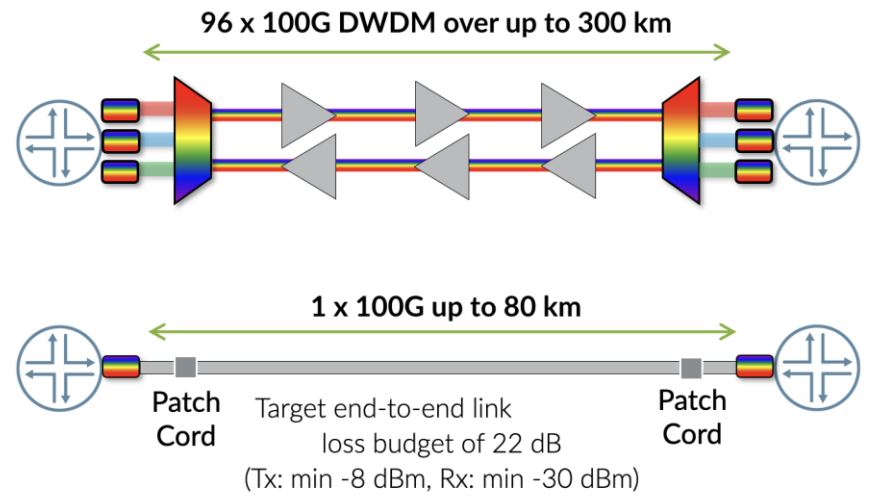
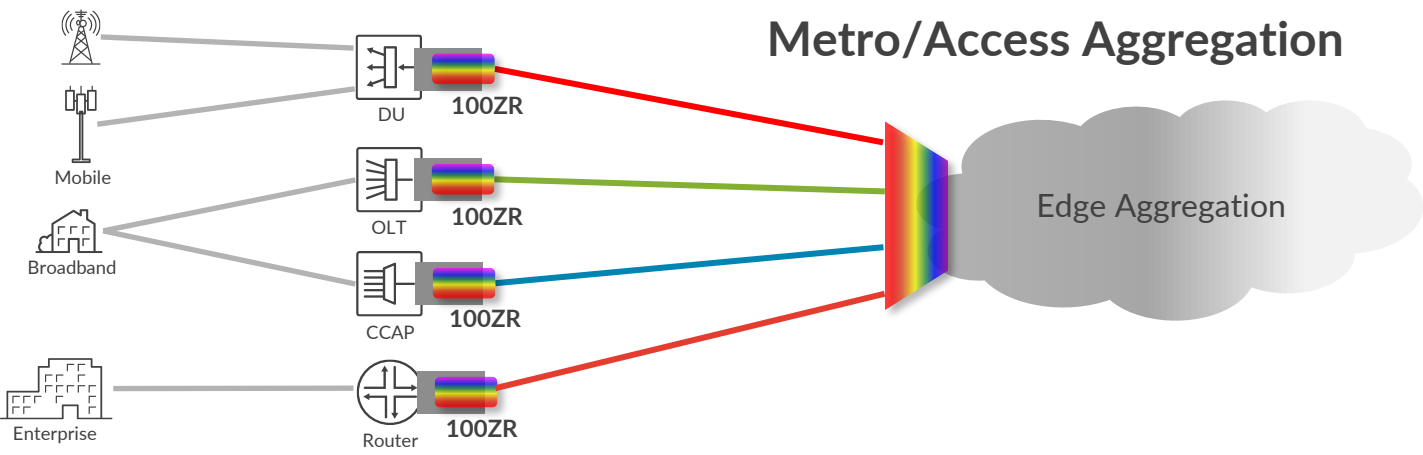
400G ZR+ 400G ZR+ 0dBm

- 400G/300G/200G/100G
- Metro, regional, core, long-haul, ultra-long-haul use cases



JCO400 portfolio supports the full breadth of 400G Use Cases

Redefining the optical edge with coherent 100ZR



Optical Edge – CSP Top of Mind

> 75% operators surveyed:

“100G coherent pluggable optics are at least “important” for their edge and access evolution strategy” *

Use Cases

5G mobile midhaul/backhaul	40%
5G mobile fronthaul	37%
Enterprise CPE connectivity	36%
Extend geographic reach into previously unreachable	33%
General 10G direct-detect pluggable upgrade	33%
Residential broadband aggregation	32%
PON overlay for enterprise services	23%

Global CSP Responses

DU – Distributed Unit
 OLT – Optical Line Termination
 CCAP – Converged Cable Access Platform
 © 2024 Juniper Networks

*Source: Heavy Reading Survey - [The next frontier for coherent pluggable optics: 100G](#) - Nov 2022

SFP56-DD Form-Factor

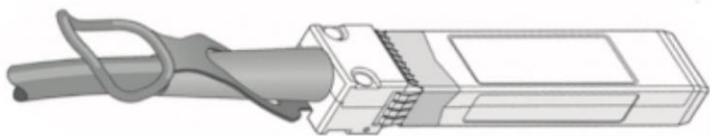
Further Optimizing 100GE Pluggables



QSFP28

4X25G Electrical Interface

- **Limited port flexibility**
 - Native backwards compatibility only to QSFP+ 40G
 - QSA mechanical adapter required for SFP 1G/10G/25G support
- **Physically larger form-factor:** 156 mm²
 - Up to 36 x QSFP28 ports in 1RU

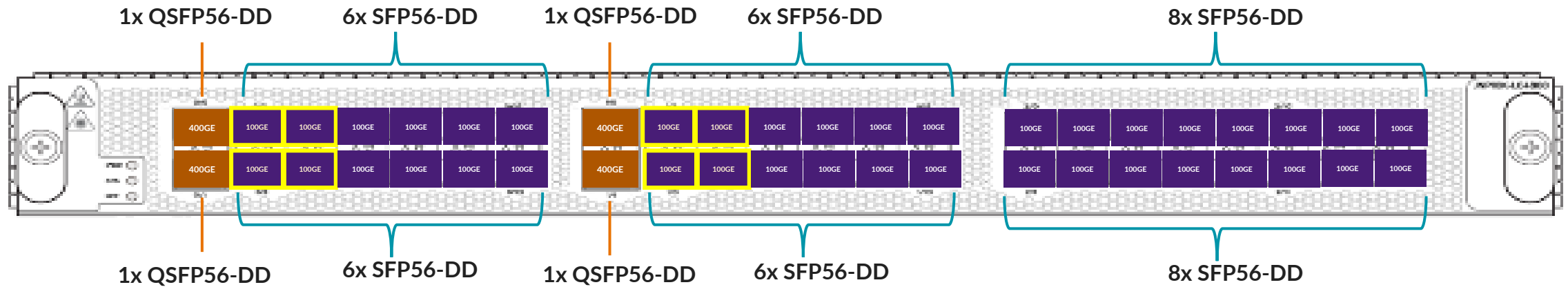


SFP56-DD

2X50G Electrical Interface

- **Unparalleled port flexibility**
 - Native backwards compatibility to SFP-based 1G/10G/25G/50G
- **Miniaturized form-factor:** 113.9 mm²
 - Up to 48 x SFP56-DD ports in 1RU (33% density improvement)
- **Simpler module architecture yields cost and power savings**
 - Improved manufacturability will lower costs significantly over time
 - Up to 25% less power than QSFP28 single-lambda optics

LC4800 – 4.8T Multi-rate Line Card



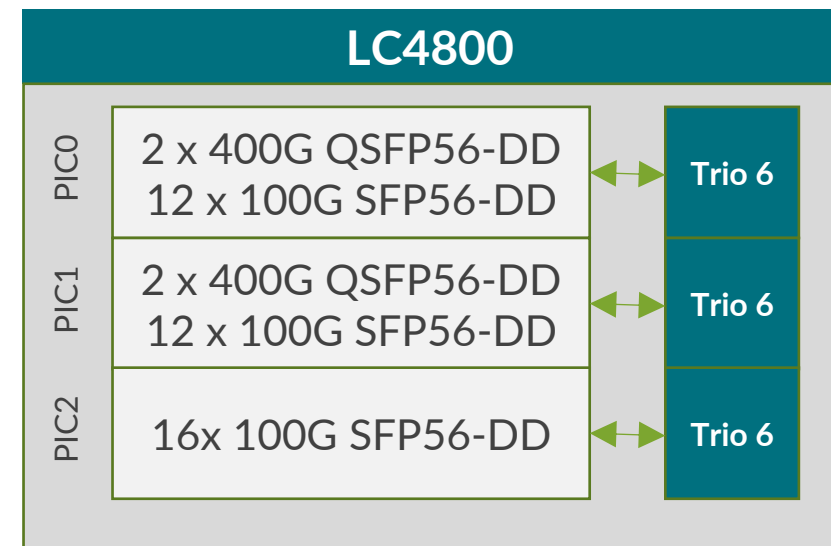
Dense 100GE via QSFP56-DD and SFP56-DD ports

SFP supports 1GE/10GE/25GE/50GE/100GE

Low power consumption, 0.09W/G typical

Secure connectivity with MACSec & Inline IPSec

Multi-rate Supports 1GE to 400GE



Juniper MX remains the most trusted brand in Edge

16+

Years of Edge
Leadership



220,000+

MX Routers Shipped &
Counting



100%

of SPs in Global
Fortune 500



>600M

Subscriber licenses
issued since 2016



3000+

Active Customers

+3% YoY

In Multi services Edge
Market Share



Fastest Ramping
products in Juniper

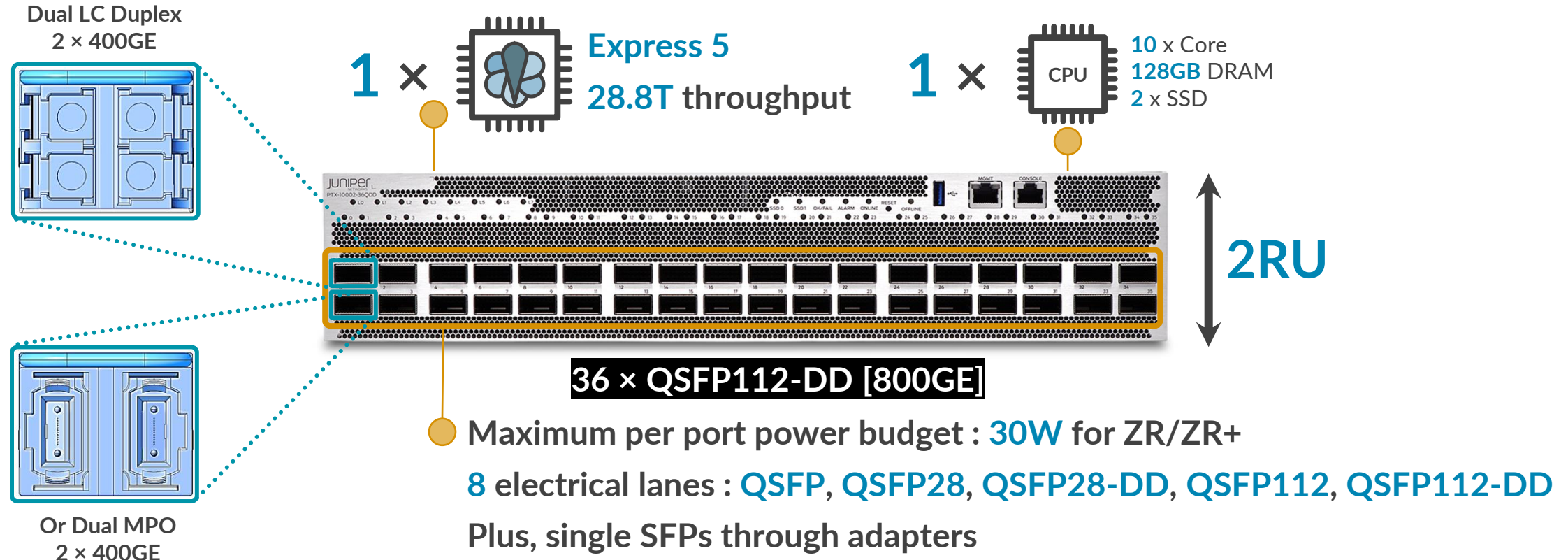


Most IXs in the world



800GE is here!

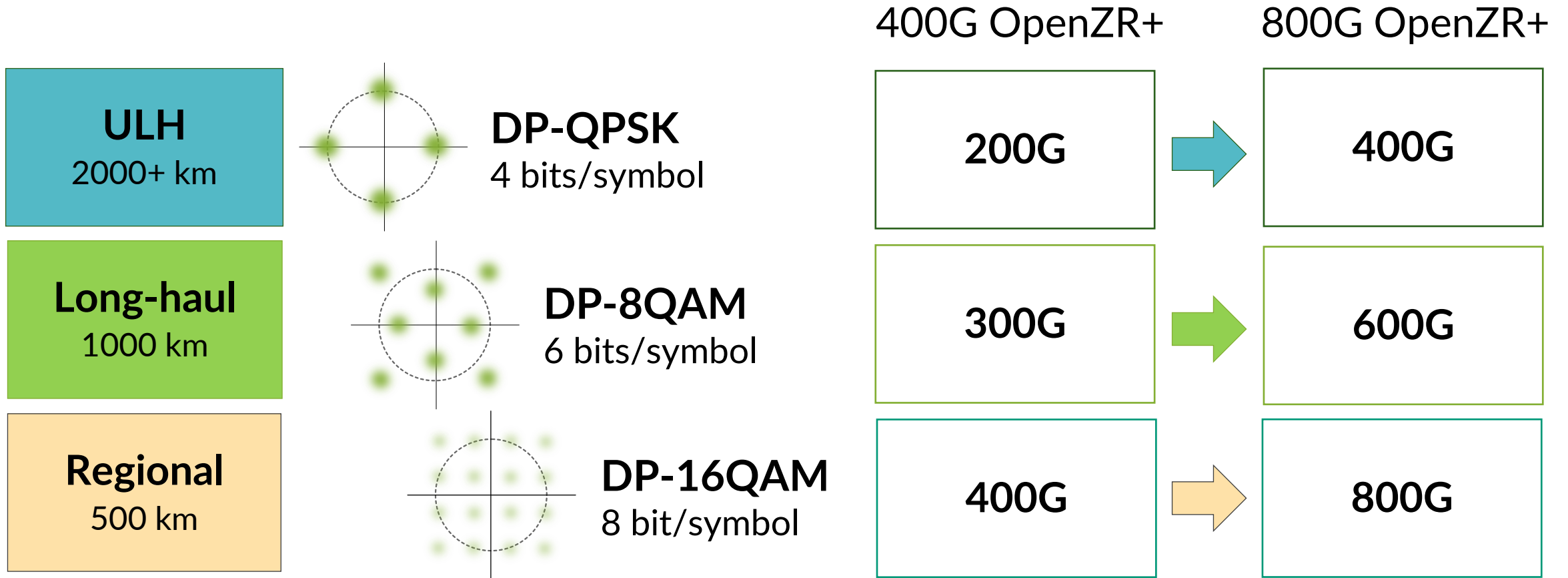
Introducing PTX10002-36QDD



 **MACSec on all ports**

OpenZR+: from ZR+ to ZR++

IP-Optical integration on 800G routing platforms



- 800G OpenZR+ will support coherent pluggable optics for 800G routing and switching platforms by doubling the symbol rate to ~120 Gbaud.



AI-Native Enterprise

Figure 1: Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure



Gartner

Juniper Networks is a Leader in 2024 Gartner® Magic Quadrant™ for Enterprise Wired and Wireless Infrastructure Furthest in Vision, Highest in Execution

Read the complimentary report:

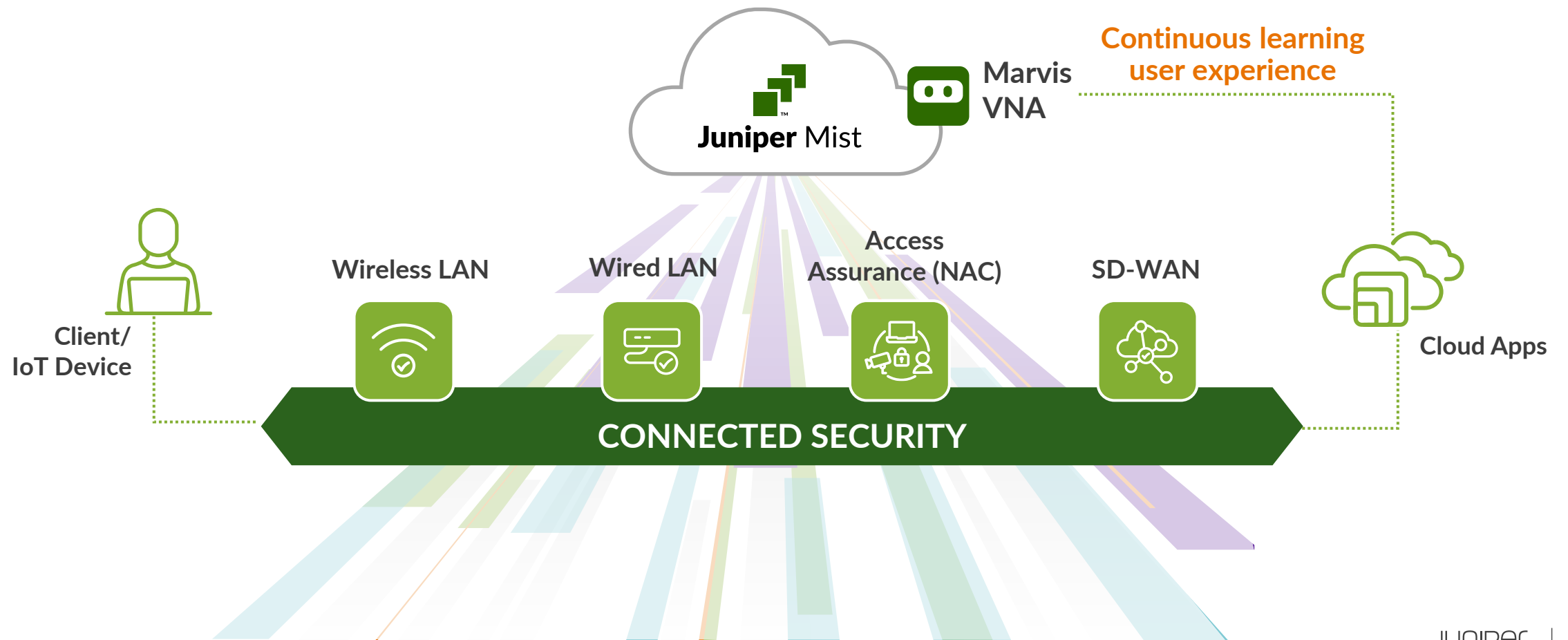


4 Times a Leader!

https://www.juniper.net/us/en/forms/2024/gartner-2024-mq-wired-wireless.html?utm_medium=outbound&utm_source=QR_Code&utm_campaign=GLBL_CB_2024_ANR_2024_Gartner_MQ_Wired_&_Wireless_LAN&utm_content=single-slide-ppt

Driven by experience

From managing boxes to managing the experience

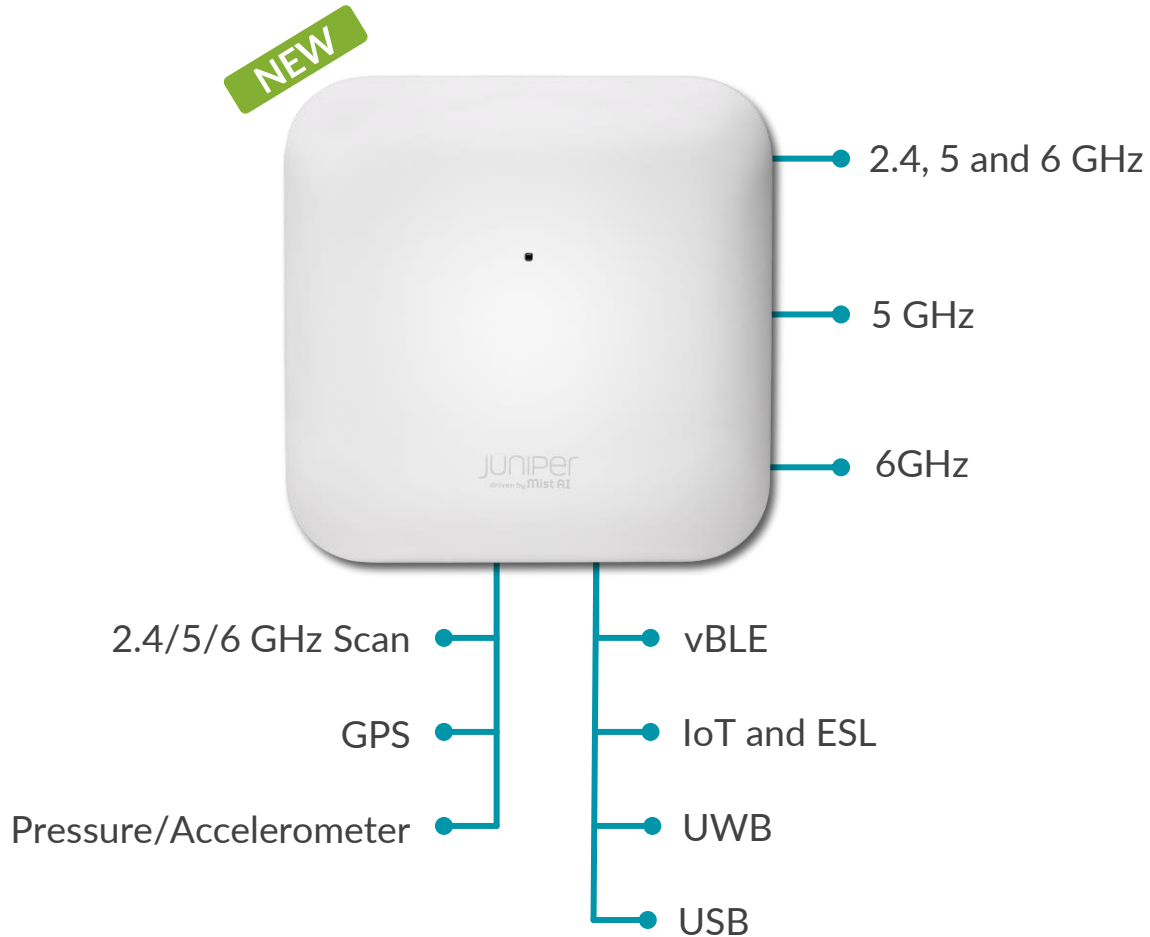


Wi-Fi 7 Innovations

- **2.4GHz + 5GHz + 6GHz**
- **320 MHz**
- **4096 QAM**
- **Multi-Link Operation**

Expanding Portfolio with AI for Wi-Fi 7

Juniper AP47, driven by Mist AI™



1

Quad-Radio – 3 data radios and a dedicated Scan radio

- 4x4:4SS Data and 2x2:2SS Scanning

2

Wi-Fi modes of operation

- Mode 1: 2.4 GHz + 5 GHz + 6 GHz
- Mode 2: 5 GHz + 5 GHz + 6 GHz
- Mode 3: 6 GHz + 6 GHz + 5 GHz

3

Location and IoT

- Patented Virtual Bluetooth LE 5.4 (1st 802.15.4 radio)
- Ultrawide Band (UWB) – For additional location use cases
- GPS/GNSS L1/L5

4

Dual 10G mGig Support (802.3bz)

- 2 x 10 GbE- 10G, 5G, 2.5G, 1G, 100M
- Full functionality on 802.3bt power
- Hitless PoE – Dual 802.3bt and link failover

5

3 x AP47 Models

- Integrated Omni, Integrated Directional, and External Antenna

6

AI for Wi-Fi 7

- Deliver better user experiences
- Simplify IT operations and optimize performance



Thank you

JUNIPER
NETWORKS®

Driven by
Experience™