



Cisco ASR 9000 Series

Cisco Knowledge Network

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Internet for the Future

New Normals

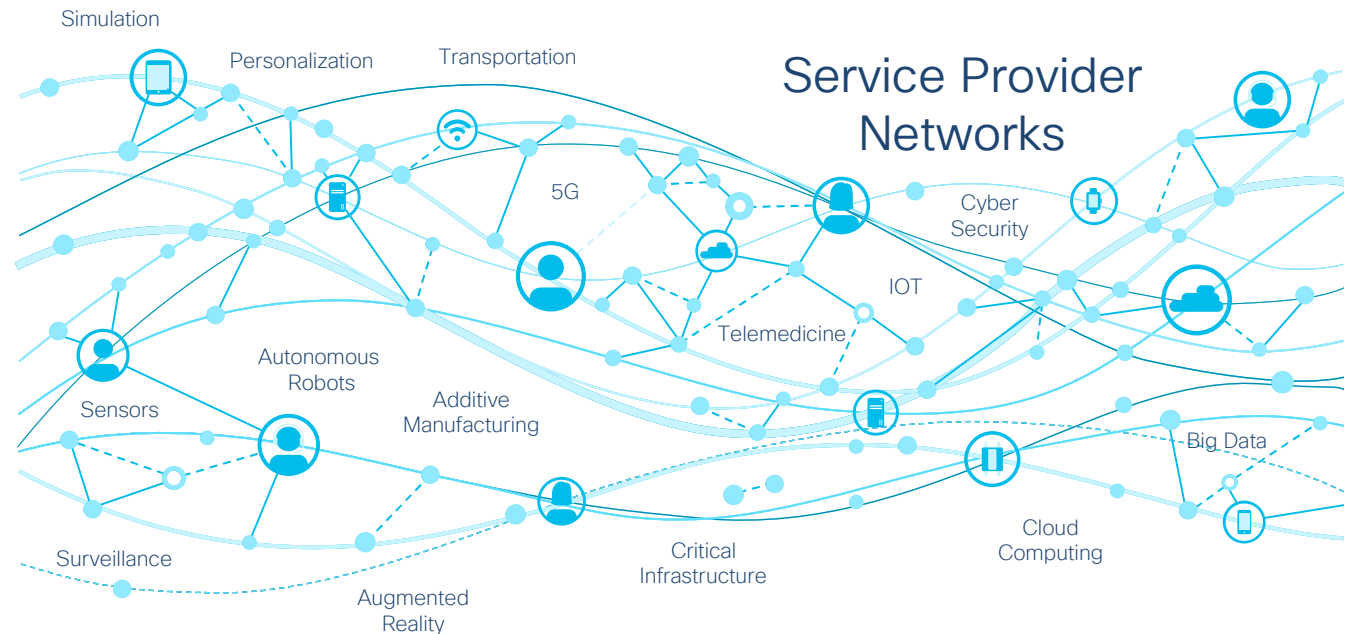
For the way we Work, Live, Play, and Learn

New Participants

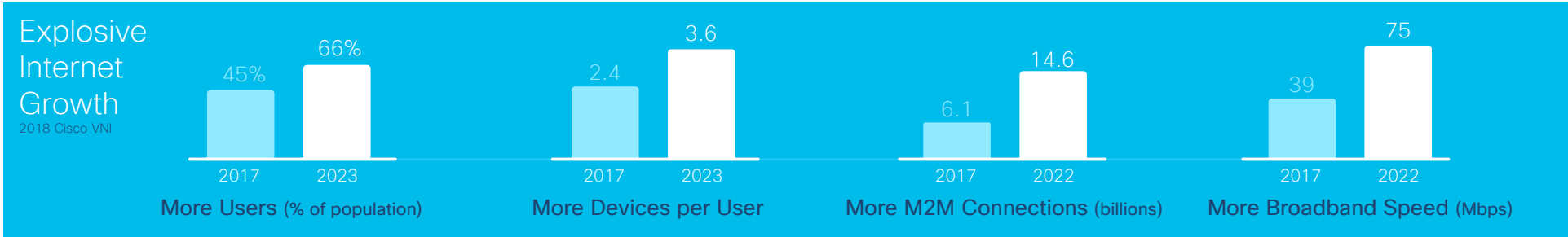
Many remain unconnected and emerging IoT

New Potentials

The foundation of economies, governments, and societies



Market Dynamics



SPs Want More for Less



Reduce Costs (CapEx, OpEx) and Latency. Increase Capacity.



Create New Revenue. Improve Experiences and Time to Service



Increase Trust and Security

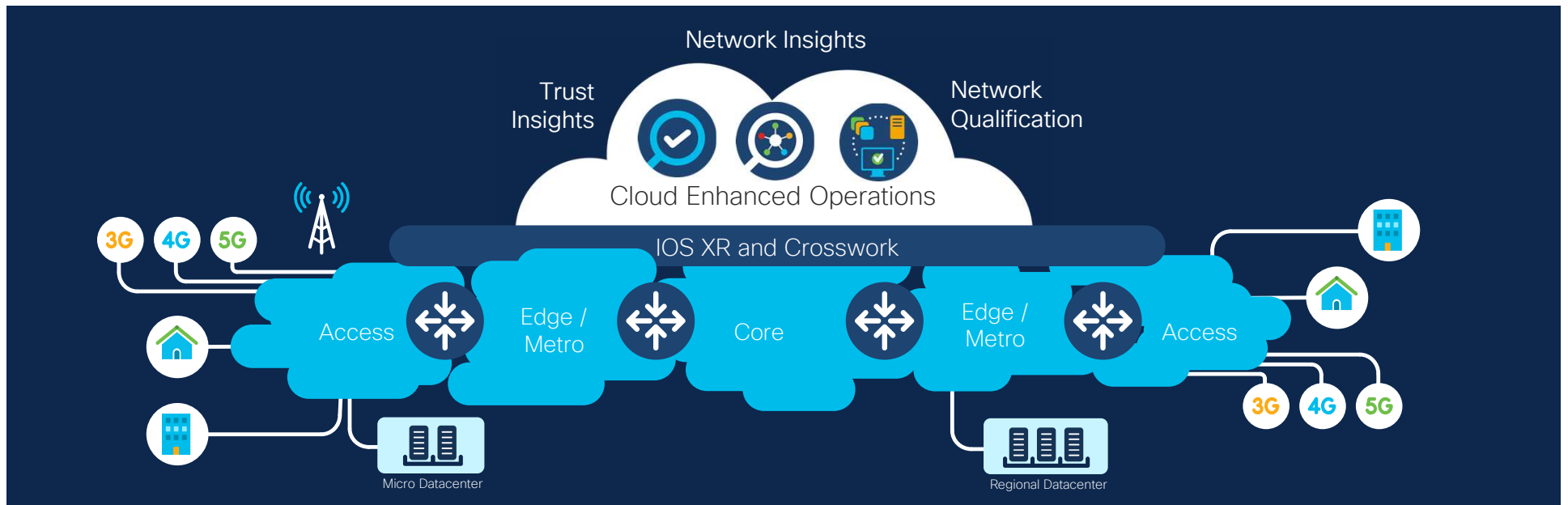


HOWEVER, BUDGETS REMAIN FLAT

New Architectures for a New Internet

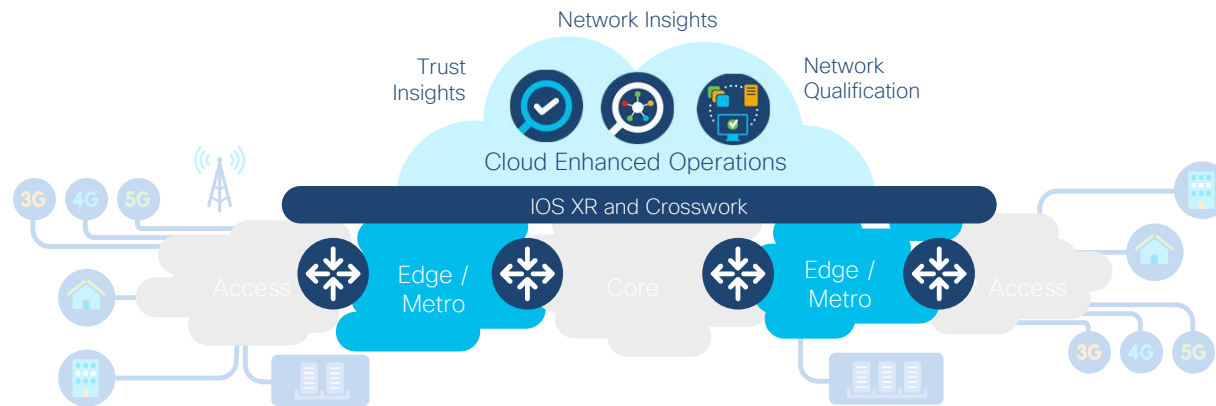
Converged, Cloud Enhanced, Distributed Edge

68% Better OPEX Utilization | 81% Faster Time-to-Service | 59% Improved Capital Efficiency



← Converged SDN | Compute & Storage | Automation →

Requirements for Edge Infrastructure



Edge Network Requirements



Feature rich with forward & backwards compatibility



TCO optimized



Automation ready



Trustworthy & secure



Performance at Scale



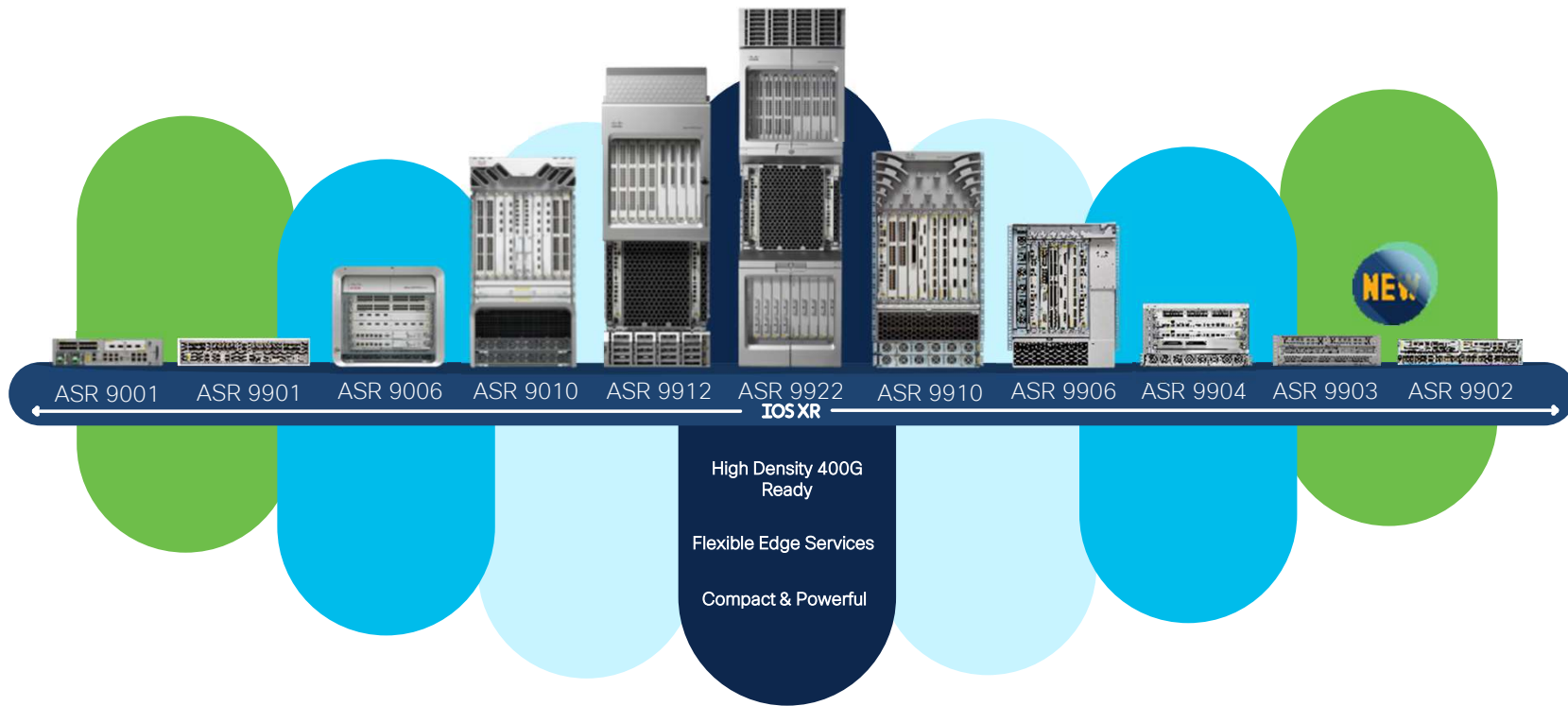
Fixed and modular scale for all applications & scenarios

ASR 9000 Portfolio Introduction

Enabling Bandwidth & Embedded Intelligence

Cisco ASR 9000 Series

Hardware Portfolio

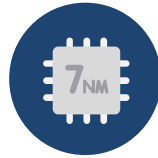


Your Network's Edge

5th Generation Technology

Refined

- ...with cutting edge 7nm silicon
 - With 75% power savings
- ...with industry best service edge performance at scale



IOS XR

Retuned

- ...to be one OS across entire network
- ...Efficient memory use, download & bootstrap time
- ...to be automation ready with open APIs, native, Yang, and Open Config Models

Reloaded

- ...with 400 GbE port support
- ...with Coherent optics for next level of IP-Optical convergence
 - ...with enhanced port flexibility (1G,10G,25G,40G,100G and 400G)

400GE

Reinforced

- .. to measure trust at all stages (In HW, SW, at bootstrap, at runtime..)
- ..with best-in-class TAM root of trust & Integration to Trust insights - Get audited, visualize security

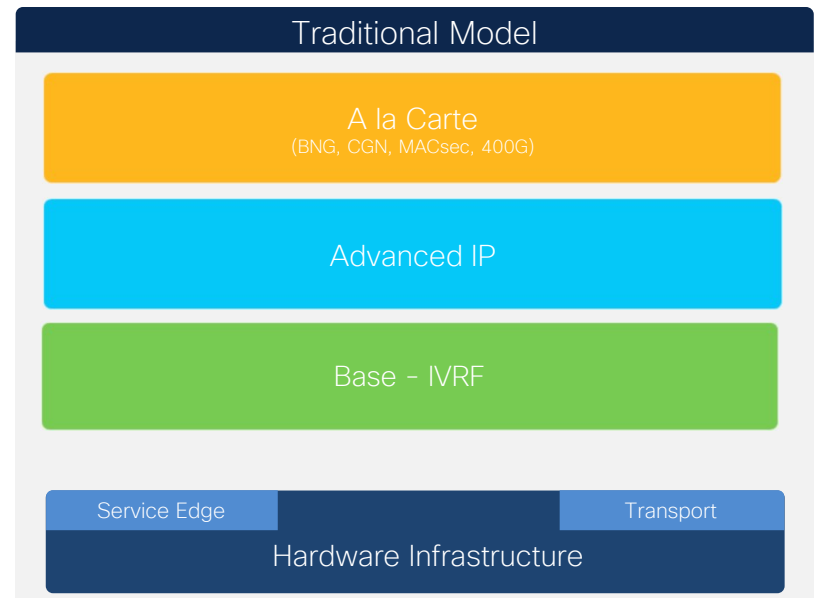
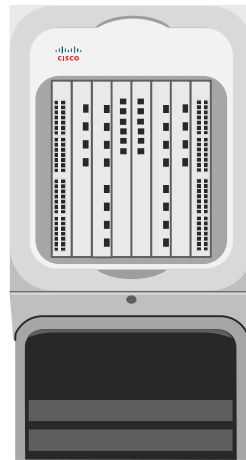
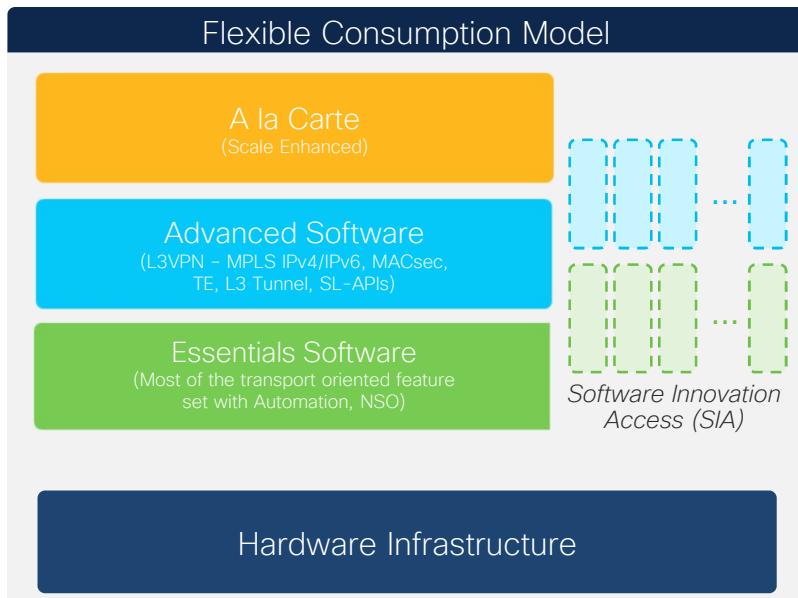
Security



Edge ready. Available today.

Commercial Offers

ASR 9000 5th Generation



LICENSE PORTABILITY



PAYG



LICENSE POOLING



EASE OF USE



PERPETUAL

ASR 9000 5th Generation Line Cards

Cisco ASR 9000 Series

Reloaded with 5th Generation Silicon and support for 400GbE



4 Tbps

3.2 Tbps

2 Tbps

0.8 Tbps

0.4 Tbps

Line Cards

Compact Chassis

3.6 Tbps



ASR 9903



2T PEC



0.8T PEC

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- 5th Generation silicon
- Service Edge scale in compact and modular form-factor
- Support for 10, 25, 40, 100 & 400G ports
- Flexible interface options
- Compact high-performance routers
 - ASR 9903: 3.6 Tbps in 3RU
 - ASR 9902: 0.8 Tbps in 2RU
- 0.4 Watts/Gbps

0.8 Tbps



ASR 9902

5th Generation Line Card

A99-10X400GE-X-SE/TR Line Card

10x 400G/200G/100G multi-rate port



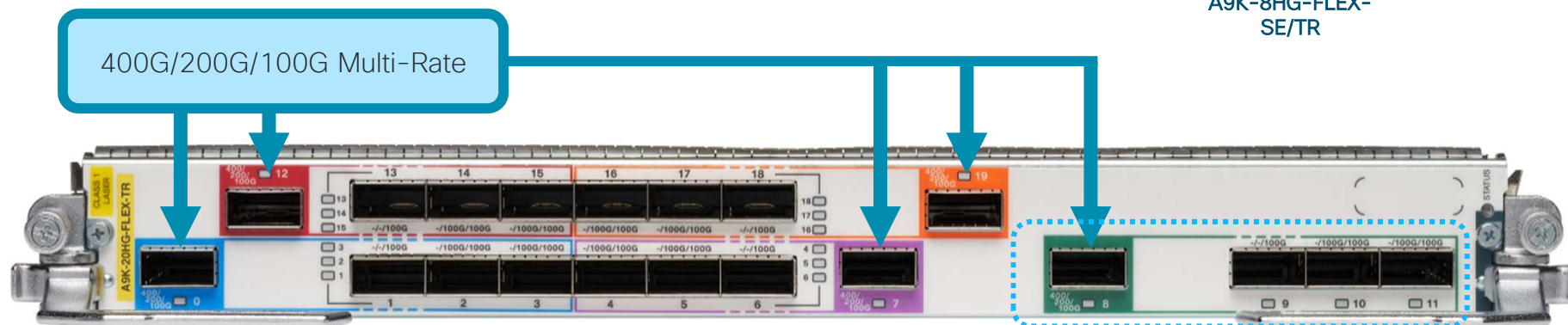
- 10 x 400G QSFP-DD ports
- Supporting 400G and 2x100G QSFP-DD, 100G QSFP28 and 40G QSFP+
- Support of breakout options:
4x25G, 4x10G, 4x100G

- Compatible with ASR 9922, 9912, 9910, 9906 & 9904 chassis
- Full 4.0T Line-rate performance
- MACsec Support
- Efficient IPv6 Forwarding

5th Generation Multi-Rate Line Cards



A9K-8HG-FLEX-SE/TR



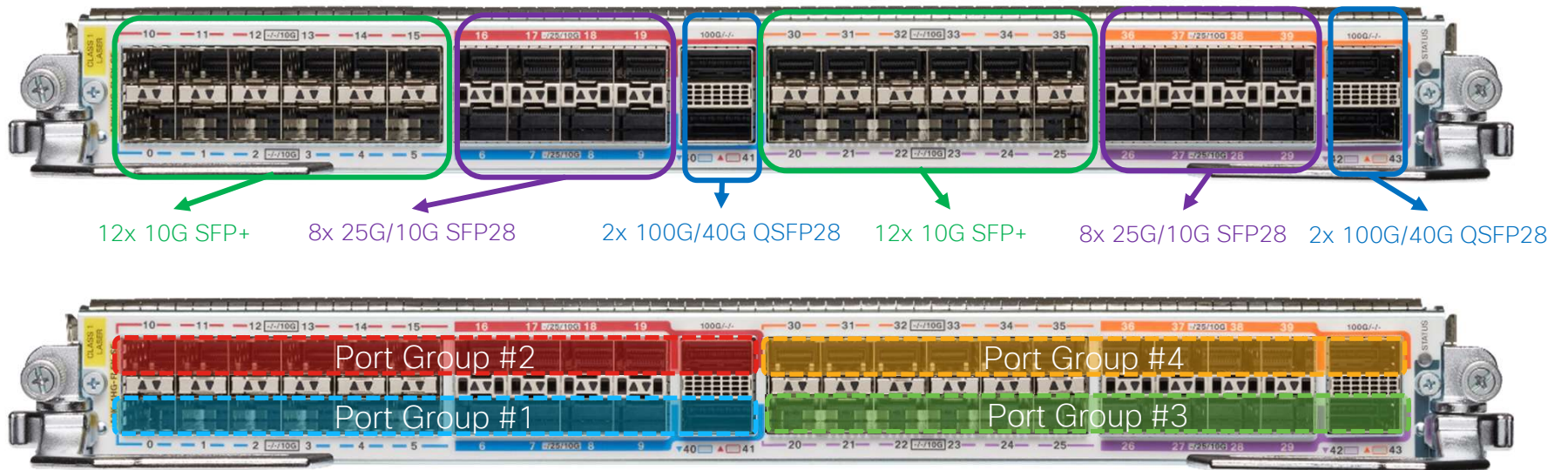
A9K-20HG-FLEX-SE/TR

400G/200G/100G Multi-Rate

- 5 x 400G QSFP-DD ports
- 15 x 100G QSFP28 ports
- 400G/200G/100G/40G/25G/10G support
- Each port group can be independently configured as:
 - 1x400G -or-
 - 1x200G + 2x100G -or-
 - 4x100G
- Each 100G can break out into 4x25G or 4x10G

- 5 Port Groups consisting of:
- 1x 400G/200G/100G QSFP-DD multi-rate port
 - 3x100G QSFP28 ports per group

5th Generation 400GE Flexible Multi-rate Cards



- Flexible multi-rate Interfaces: native 10G/25G/40G/100G
- Line Rate MACsec on all ports
- Four port groups of 100G. Each includes 6x10G, 4x10G/25G, 1x100G/40G physical ports
- Each port group of 100G independently configurable as 1x 100G/40G or 4x 25G or 10x 10G
- Total capacity: 4 x 100G/40G or 16 x 25G or 40 x 10G

New ASR 9000 Series Compact Chassis

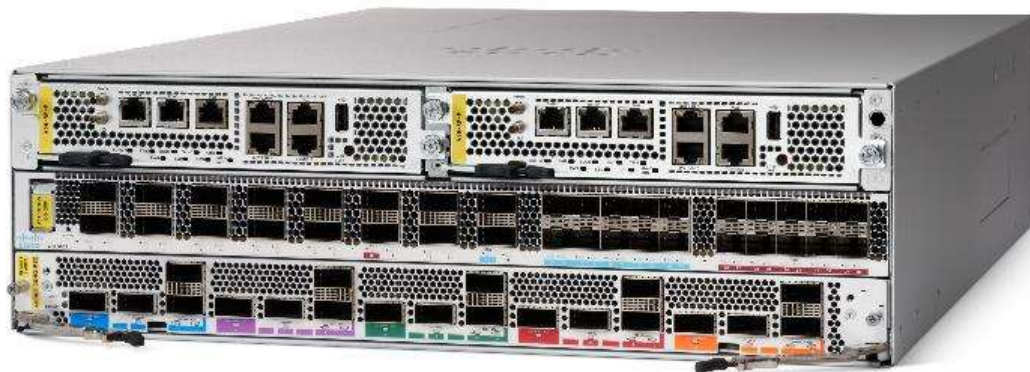
- ASR 9903
- ASR 9902



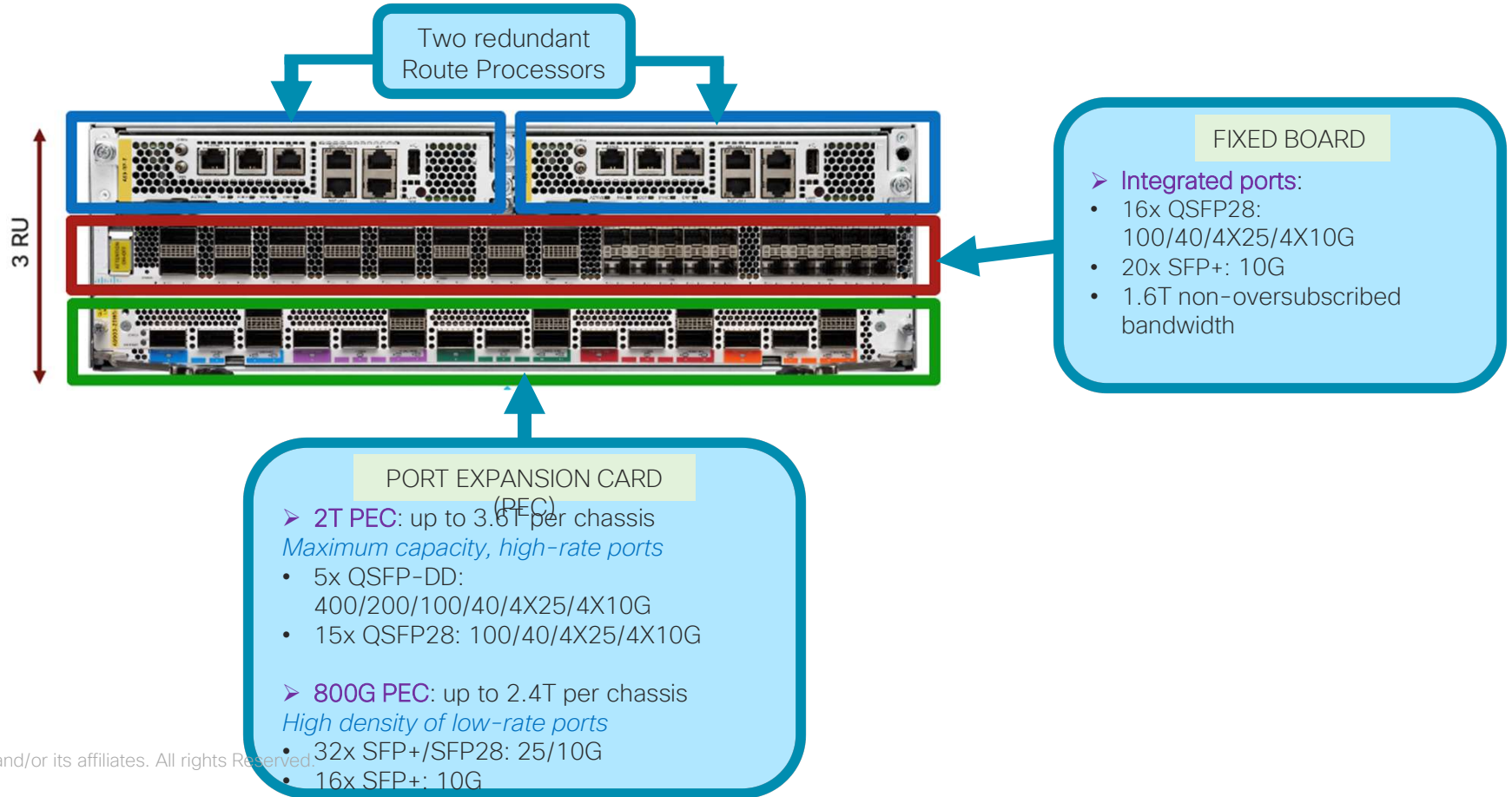
ASR 9903 Compact Router

ASR 9903 Chassis View

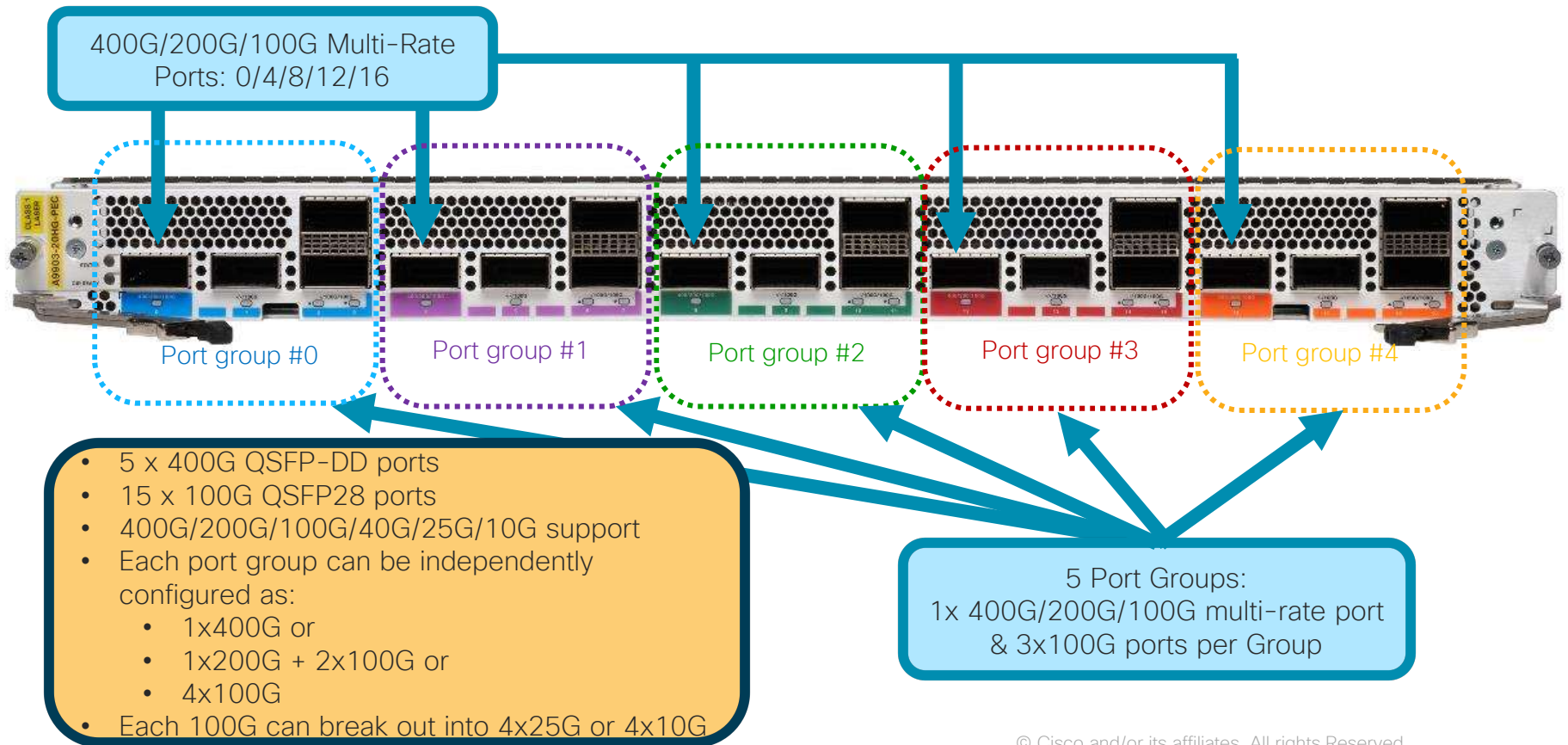
Height 5.25 in (133.4 mm)
Width 17.50 in (444.5 mm)
Depth 23.62 in (600 mm)



ASR 9903 Details

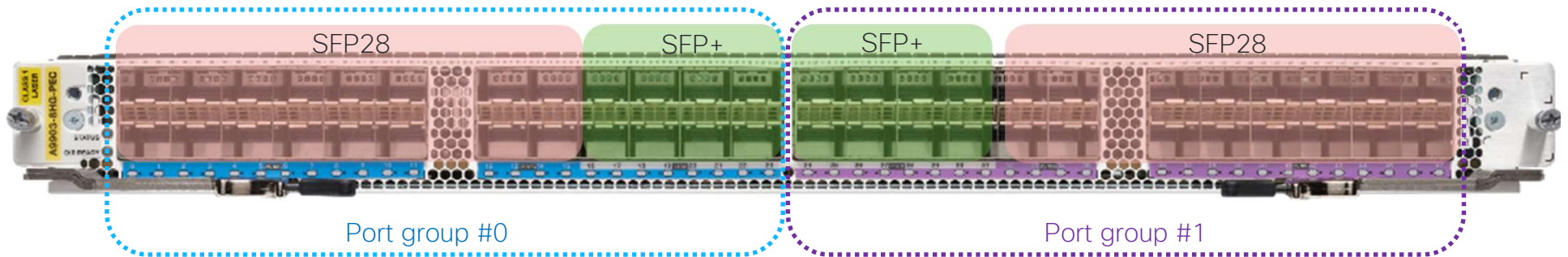


ASR 9903 – 2T Port Expansion Card



ASR 9903 800G Port Expansion Card

Port layout



- 32 x 25G SFP28 ports and 16 x 10G SFP+ ports
- 25G ports are dual-rate: 25G (with SFP28)/10G (with SFP+)
- Port Group #0 & #1 can be independently configured as:
 - 16 x 25G
 - 24 x 10G

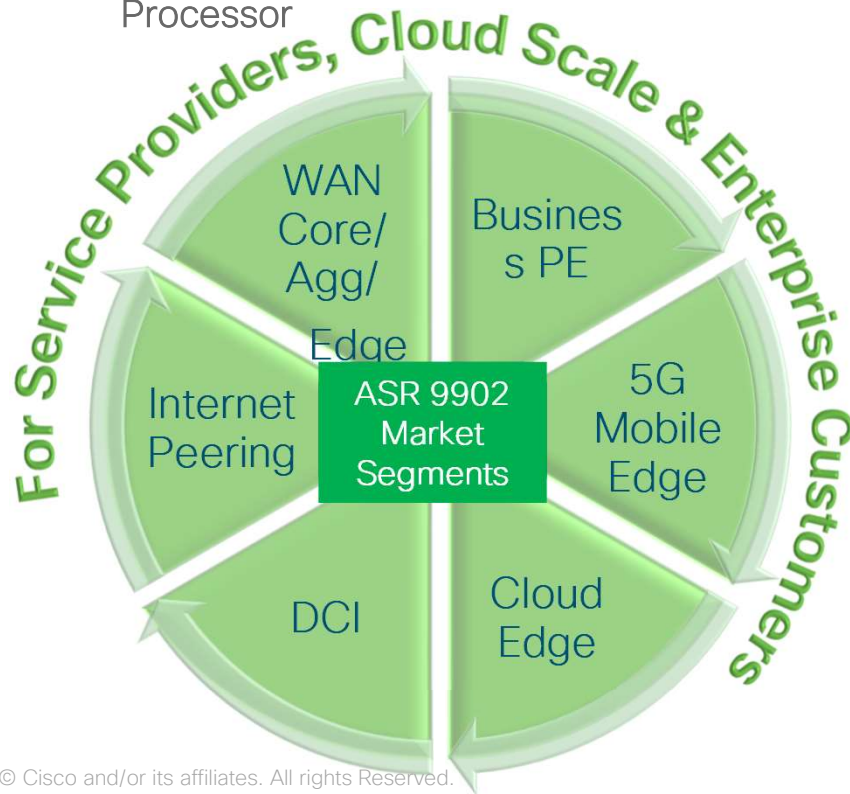
ASR 9902
Compact Router



ASR 9902 Overview



High-scale, high-performance platform based on ASR 9000 5th Generation Network Processor

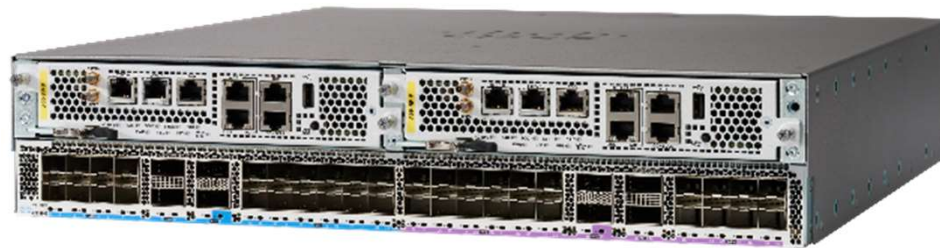


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Highlights

- Compact: 2RU high, 482mm deep
- High Capacity: Full-duplex non-oversubscribed 800G Bandwidth
- Redundancy: Dual RP, 1+1 Power Supply, 2+1 Fan
- Service Flexibility:
 - Native 10G/25G/40G/100G Flexible Rates
 - Industry-leading XR Feature set & Multi-service scales
- Front-to-Back Airflow
- 10G OTN & 100G ZR+ QSFP-DD Support
- Class-C Timing & Line-rate MACsec
- Efficient Power Consumption

ASR 9902 Chassis View

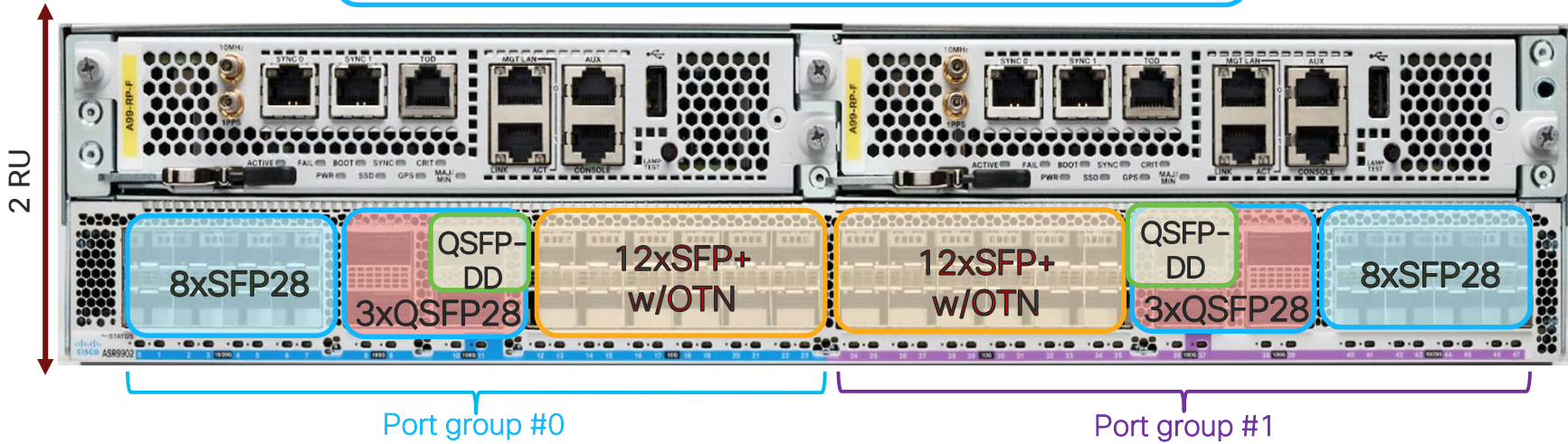


Height 3.45 in (87.63 mm)
Width 17.30 in (439.74 mm)
Depth 19 in (482.6 mm)

ASR 9902 Details



- | | |
|---|--|
| <p>Ethernet Ports (100G):</p> <ul style="list-style-type: none"> 6x100G QSFP28 2x100G QSFP-DD (ZR+) | <p>Ethernet Ports (25G/10G):</p> <ul style="list-style-type: none"> 16x10G/25G SFP28 24x10G SFP+ w/OTN |
|---|--|



PG-based Flexible Interface Rate Configurations				
Per Port Group	4x100G	2x100G+ 20x10G	2x100G+4x25G +10x10G	2x100G+ 8x25G
Total Per Box*	8x100G	4x100G+ 40x10G	4x100G+8x25G +20x10G	4x100G+ 16x25G

Flexible Interface Rates Mixture

Independent Port Group Rate Configuration

*Total varies when Port Groups with different rate configurations combined © Cisco and/or its affiliates. All rights Reserved.

Path to Better Resilience & Performance

The most powerful, resilient router in a 2RU compact form-factor



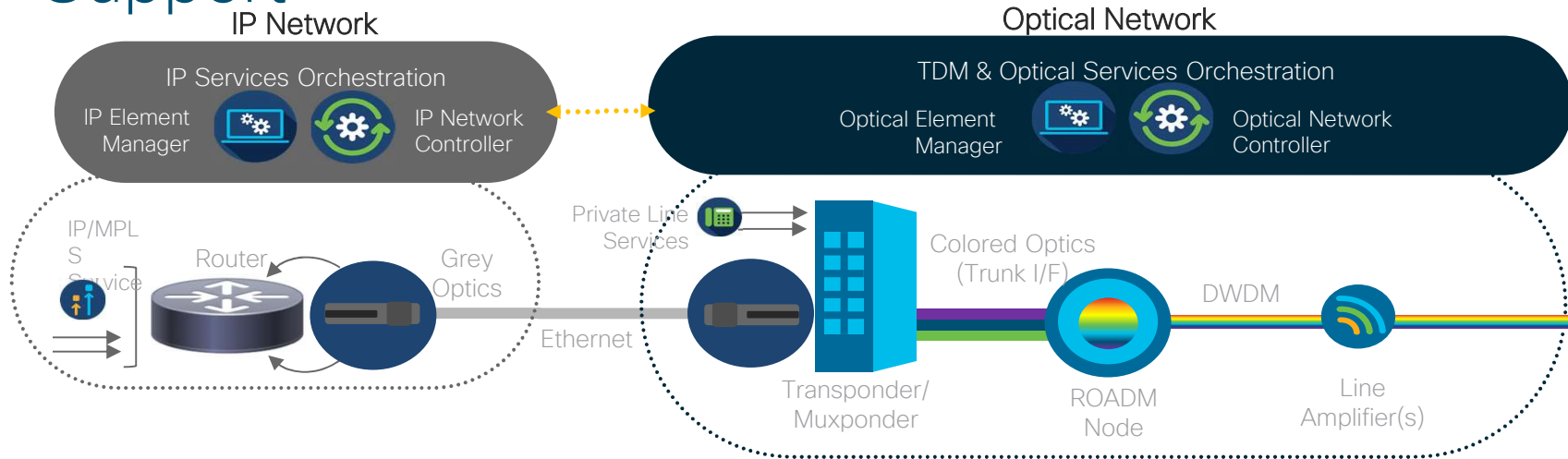
	ASR 9001	ASR 9901	ASR 9902	ASR 9903
RP redundancy	-	-	✓ Dual RP	✓ Dual RP
100G	-	2	8	up to 36
25G	-	-	up to 32	up to 144
10G	12	24	up to 56	up to 156
OTN	✓(12 native)	-	✓ (24 native)	✓ (w/ smart SFP)
MACsec	-	✓	✓	✓



ASR 9000

5th Generation ZR/ZR+ Optics

QSFP-DD ZR/ZR+ and ASR 9000 5th Generation Support



5th Gen Products	ZR Optic	ZR+ Optic
A99-10X400GE-X-SE/TR	✓	✓
A9K-20HG-FLEX-SE/TR	✓	✓
A9K-8HG-FLEX-SE/TR	✓	✓
ASR-9903 Fixed Board	N/A	N/A
A9903-20HG-PEC	✓	✓
ASR-9902	N/A	✓ (100G)

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ASR 9000 5th Generation

The World's largest networks are built with the ASR 9000.

400GE Reloaded. Increased capacity with 400GE.



Refined. Cutting edge 7nm silicon for performance & efficiency.



Reinforced. Route of Trust, Full Line Rate MACsec.

**IOS
XR**

Service Edge. Rich feature set and Superior multi service scales.

