



ribbon

TECH FORUM 23



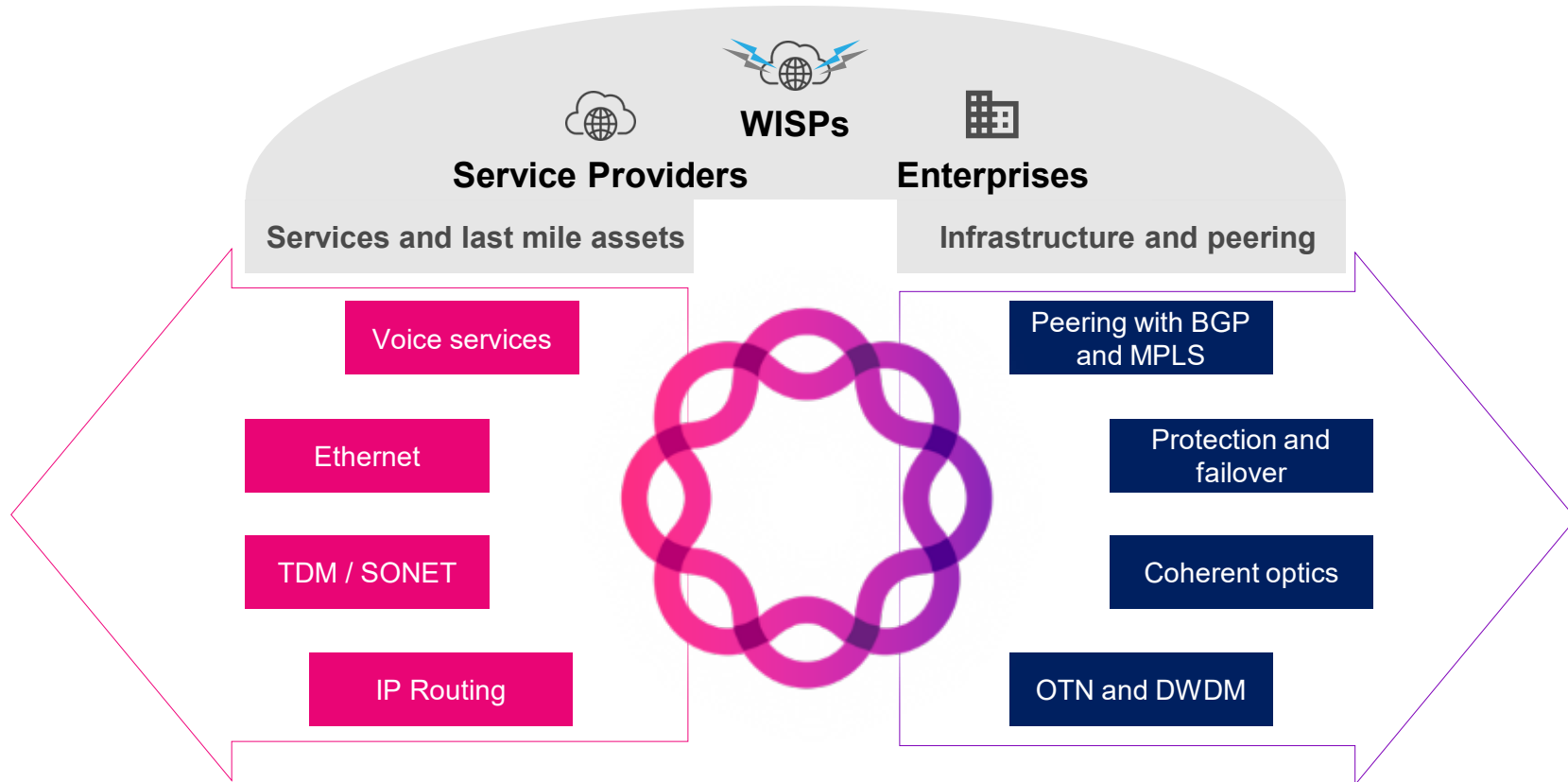
# Monetizing your IP Metro Network

Network Infrastructure economy

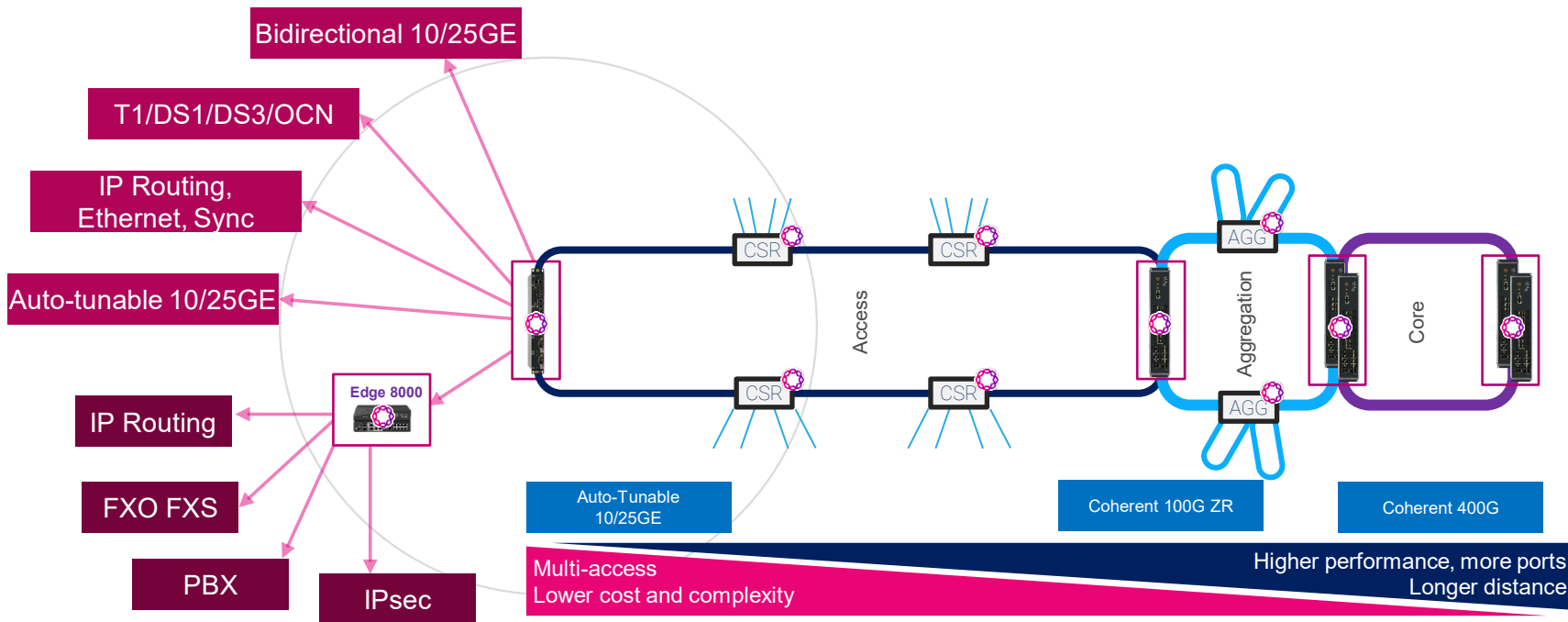
**Ivan Bykov**

Sr. Solution Architect, Americas Region

# Ribbon Covers the Multi-access Edge



# Comprehensive Technological Capabilities on the Edge



The logo for Ribbon Tech Forum 23. The word "ribbon" is written in a lowercase, rounded, pink neon-style font. Below it, the words "TECH FORUM 23" are written in a white, uppercase, sans-serif font inside a white rectangular box with rounded corners.

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The main title of the presentation, "Enterprise and business services sites savings", is centered on the slide in a large, white, bold, sans-serif font. The background is a dark blue gradient with a faint grid pattern and scattered red and white particles, resembling a night sky or a digital interface. The entire slide is framed by a glowing blue border with white stars in each corner.

**Enterprise and business services sites savings**

# Architecture for Network Transformation

- ..... VOIP SIP
- TDMoIP/CES
- ..... GCP
- ..... H.248



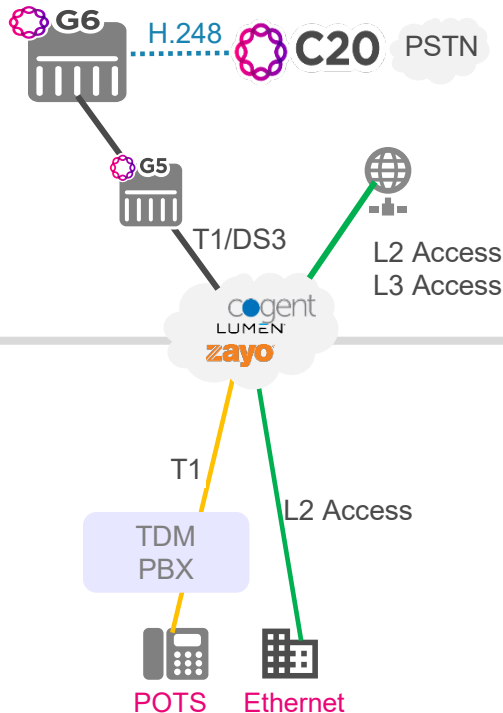
Service Provider CO

Enterprise or business  
Customer Premise



## TDMoIP/CES

TDM PBX

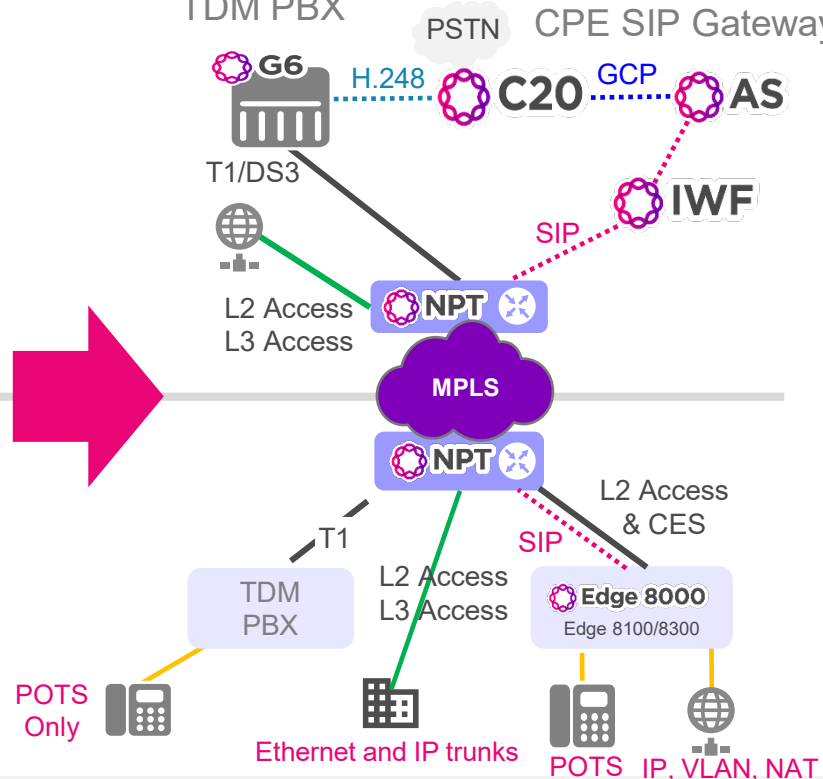


## TDMoIP/CES

TDM PBX

## SIP

CPE SIP Gateways



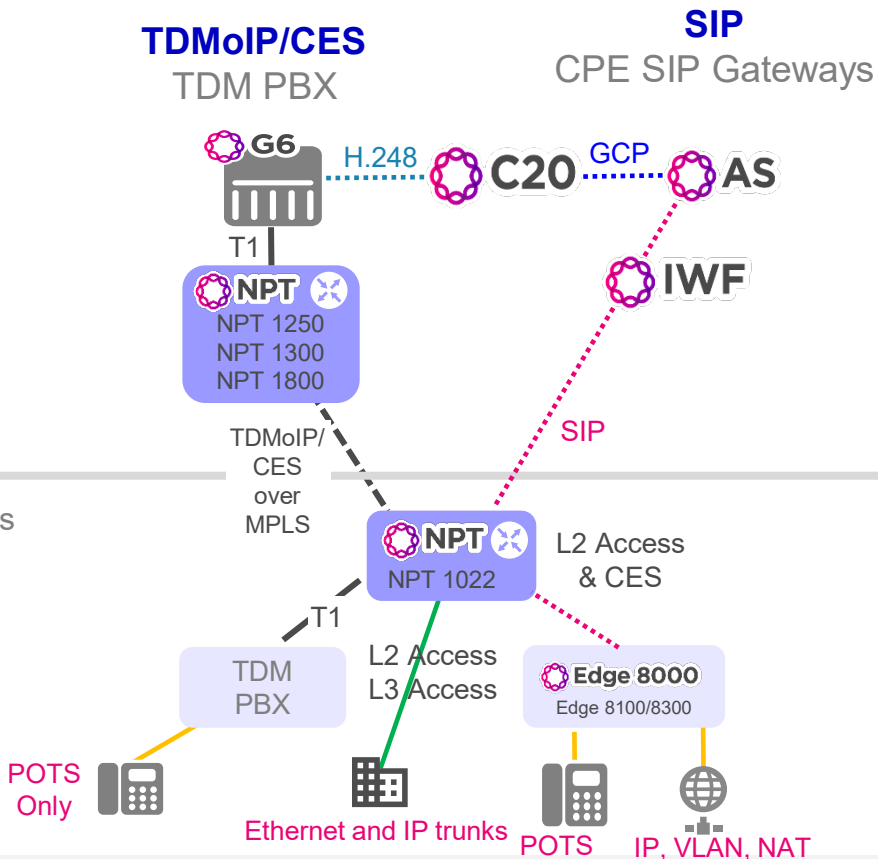
# Architecture for Network Transformation

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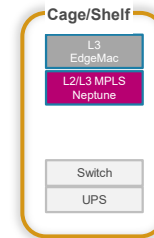
Service Provider CO

Enterprise or business  
Customer Premise



## Description

<b>G6</b>	Universal Gateway Trunks and Lines over DS1
<b>NPT</b>	IP/MPLS Transport Network Performs Routed CES Services
<b>Edge 8000</b>	Multi-tenant, data router with VNF support for 3 <sup>rd</sup> party aps
<b>C20</b>	Carrier-grade platform that delivers the proven call control platform

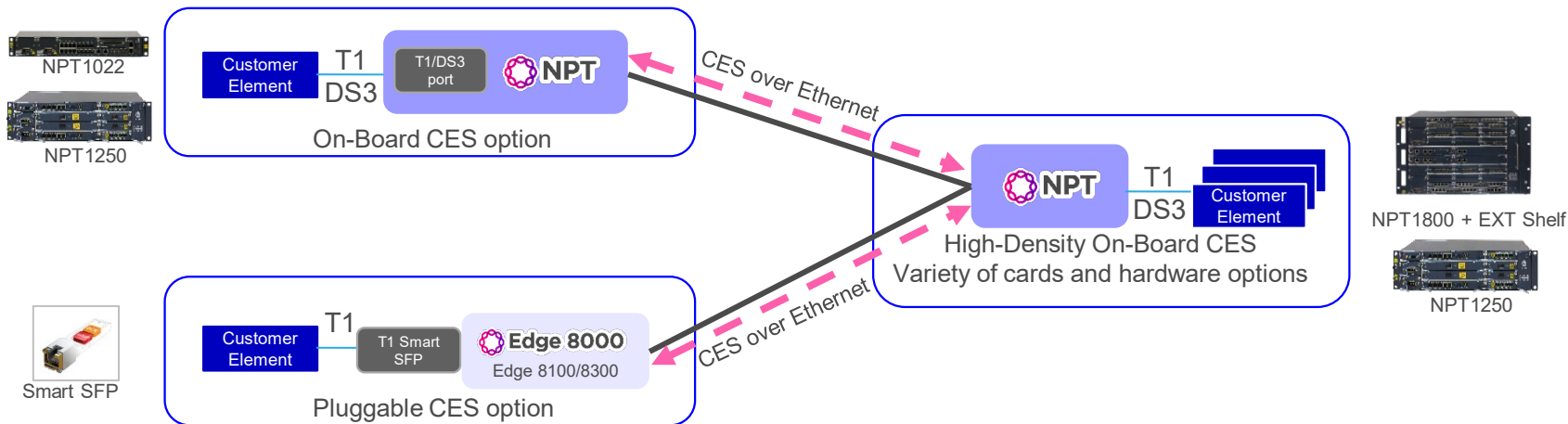


**Delivery**  
Eth 10/100/1000  
FX0/FXS/PRI – Voice  
  
T1/DS3/OC3/OC12  
10/100M/1G/10G/25G/100G  
  
Ethernet Switch Enterprise /AT&T  
Power Supply

# Multi-access Edge With CES Capabilities

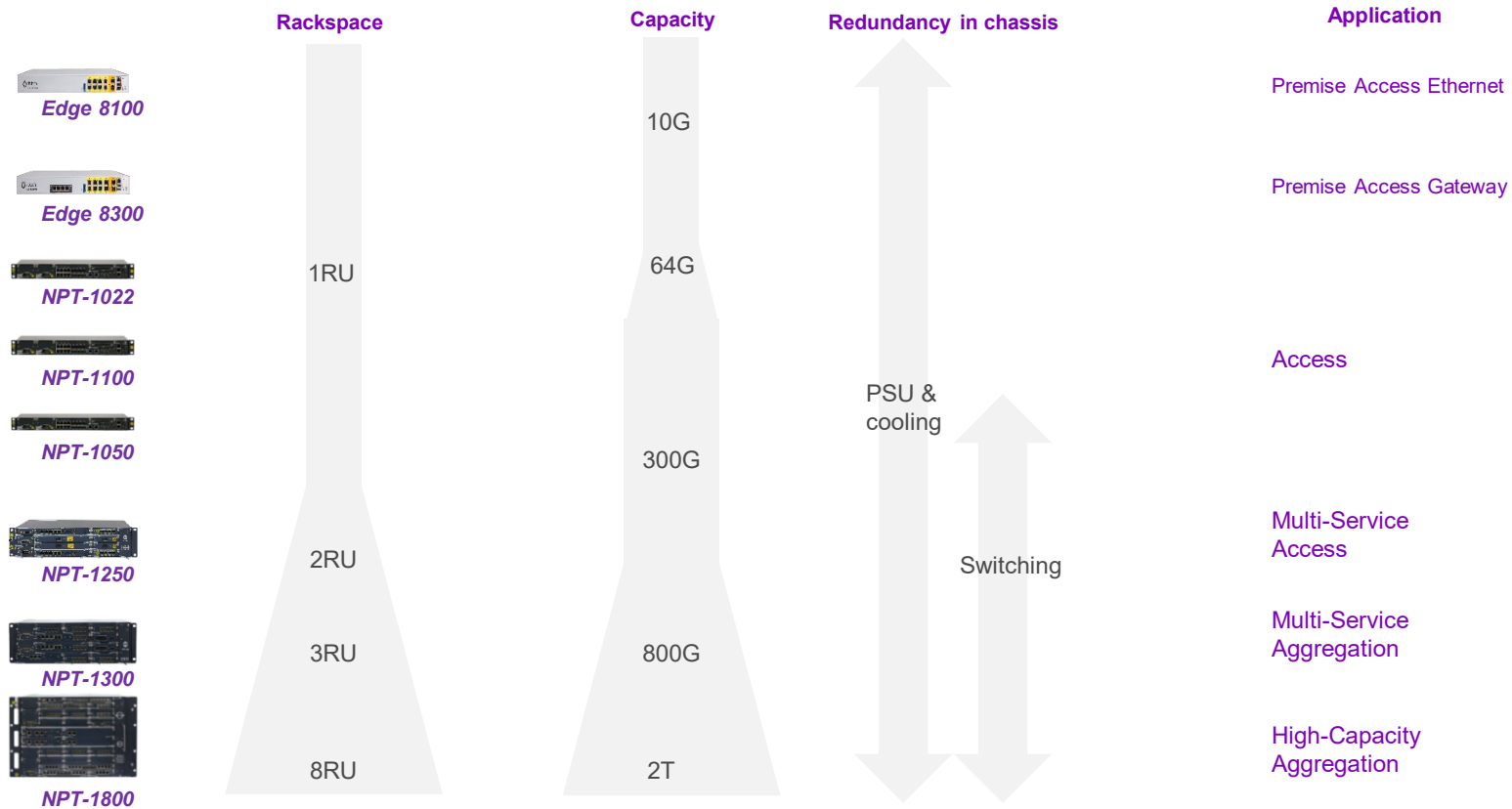
Customer Premise SEC options  
Locations TBD (e.g., Basement)

Service Provider Complex CO



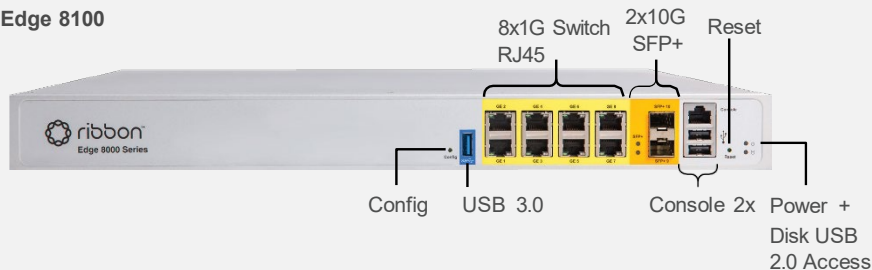


# Ribbon Routers for Multi-Service Networking

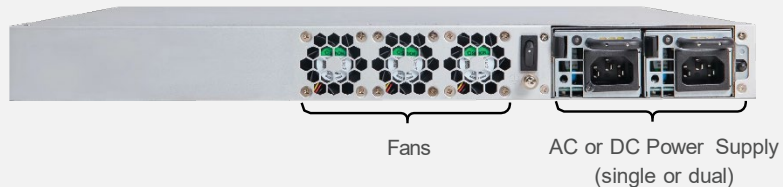


# Two Edge 8000 Options – Edge 8100 & Edge 8300

Edge 8100



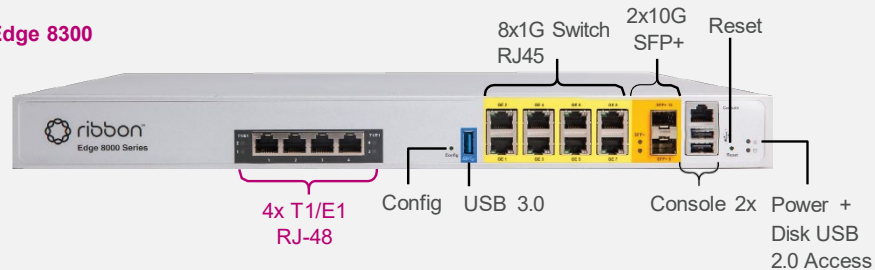
Edge 8100



**Physical**

- 1U high
- CPU: C3758, 8-core, Onboard Atom® C3000

Edge 8300



Edge 8300



**Regulatory**

- IEC/UL, US, IC, EU



## Edge 8300 - the “Glue” to Integrate Legacy Communications



- Legacy PBX/ contact center integration
- Analog/Digital trunks
- Analog stations
- SIP phone/device support
- Redundant SIP Trunks for failover
- E911 & ELIN Support

# Last Mile Transformation

- Leased line Cost saving
- Better service visibility, monitoring, manageability and automation
- Preserve legacy revenue and existing contracts while evolving infrastructure
- Migration wire circuits to fiber
- Operational simplification Ethernet and IP with MPLS

**Over 90% savings**  
**Footprint, cooling and power by replacing TDM equipment**

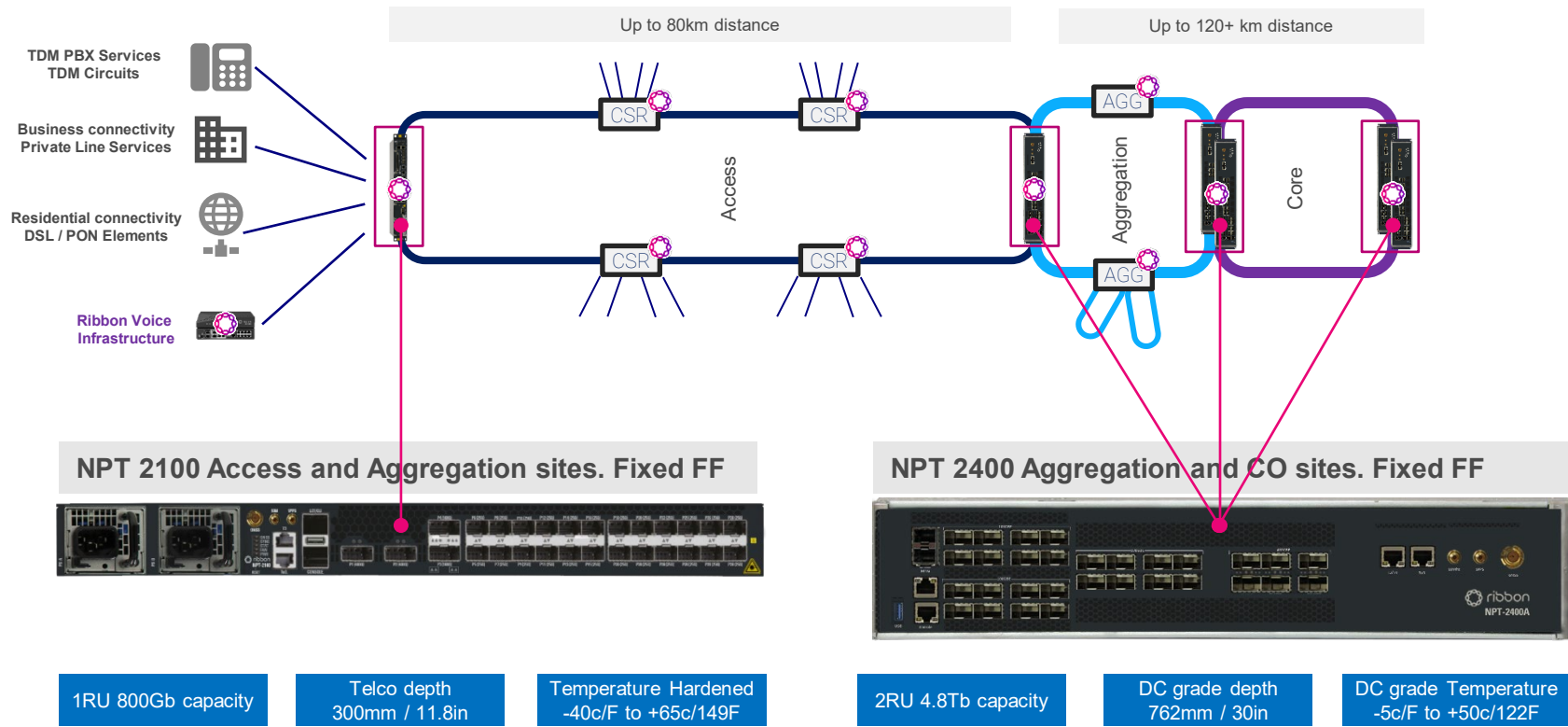
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# NETWORK INFRASTRUCTURE MONETIZATION

# Elements For Evolution To 100G And 400G



# Elements For Evolution To 100G And 400G

**800Gb 7th gen Broadcom Q2a**

Power consumption: 400 W

**On-board GNSS**

Device may act as a T-GM for 5G Synchron

**24x25/10/1GE SFP28 ports**

Multi-rate ports for the clients connectivity

**SFP28 Pluggables**



**QSFP28 Pluggables**



**QSFP-DD Pluggables options**

Gray optics 400G ZR up to 50mi

Coherent 400/200/100 ZR+ up to 298mi



**2x100GE QSFP28 ports**

Infrastructure and high-rate 100GE or 4x25/10Gb

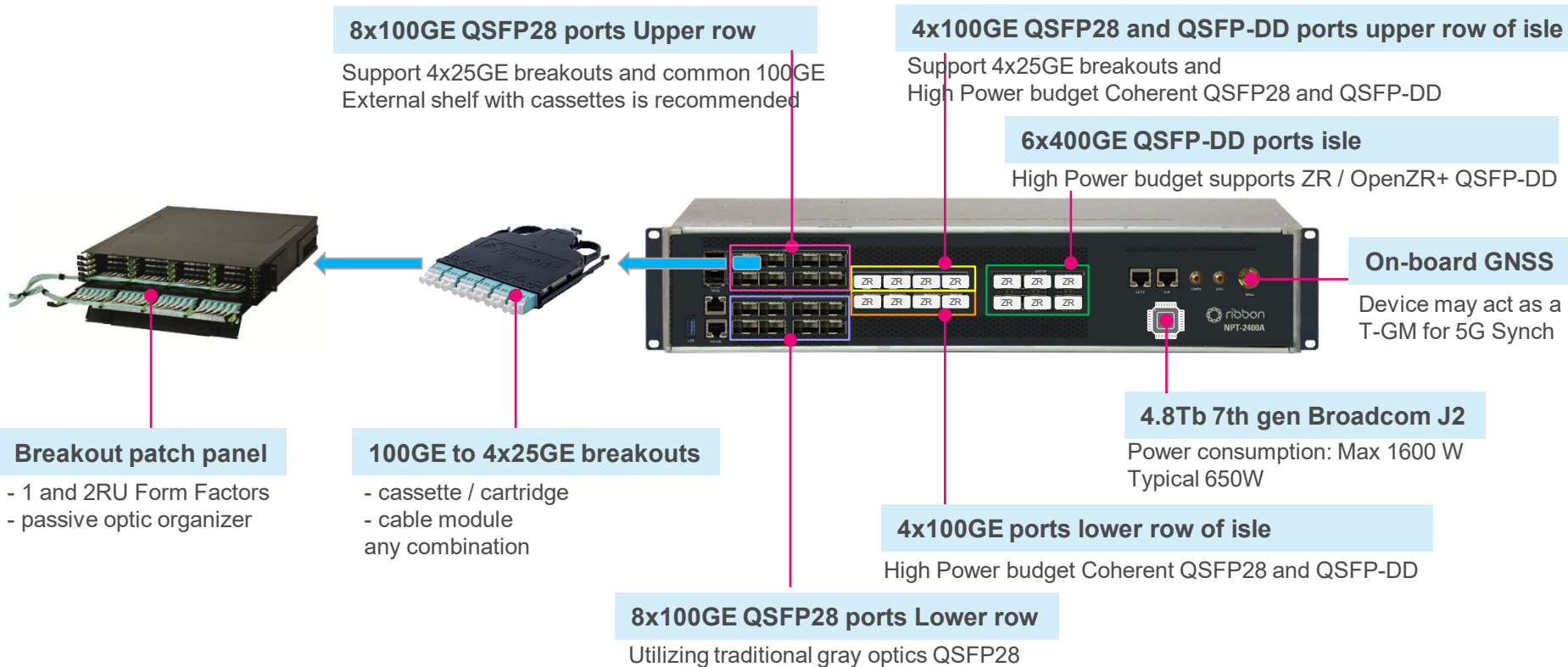


100GE Gray / Coherent

**2x400/200/100GE QSFP-DD ports**

Infrastructure and high-rate 400GE ZR/ Opent ZR+ coherent

# Elements For Evolution To 100G And 400G





# NPT XDR-2000 Series Routers for 400G Networking



**NPT-2100**



**NPT-2300**

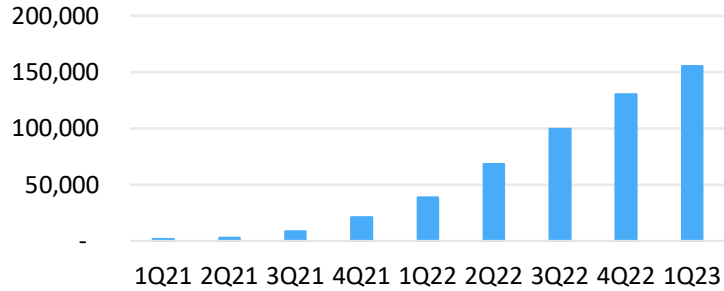


**NPT-2400**

<i>Height</i>	<i>Depth</i>	<i>Capacity</i>	<i>NPU</i>	<i>FIB</i>	<i>VPNs L3/L2</i>	<i>LSPs LDP/SR</i>	<i>Ports / Slots</i>	
1RU	300mm	800G	Q2A	1M	1K/2K	15K	24x 10G/25G	2x 100G + 2x 400G
3RU	300mm	3T	J2C	5M	8K/16K	80K	7-Slot Chassis Red. Processor/ Fabric	All NPT-1300 Cards 1x 400G; 2x 100G Cards Packet-Switch Card: - 2x 100/200/400 QSFP-DD - 4x 100G QSFP28 - 8x 1/10/25 SFP28
2RU	762mm	4.8T	J2	5M	8K/16K	80K	24x 100G	6x 400G

# IPoDWDM with ZR / Open ZR+ Modules

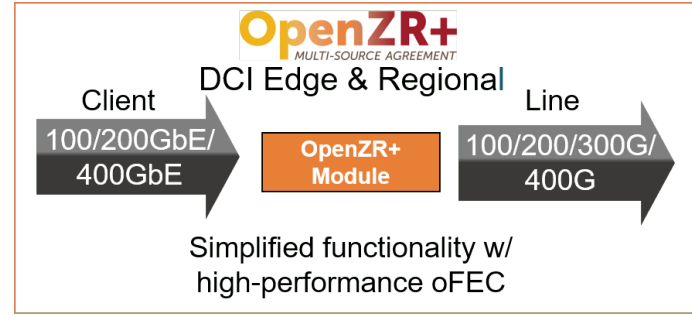
## Growing Global 400G ZR cumulative shipments



Source: Omdia

© 2023 Omdia

## OpenZR+ Multi-Source Agreement (MSA)



## 400G ZR use cases



FEC - CFEC	Power 15W	Speed 400Gb	-10dbm	OIF standard	Gray
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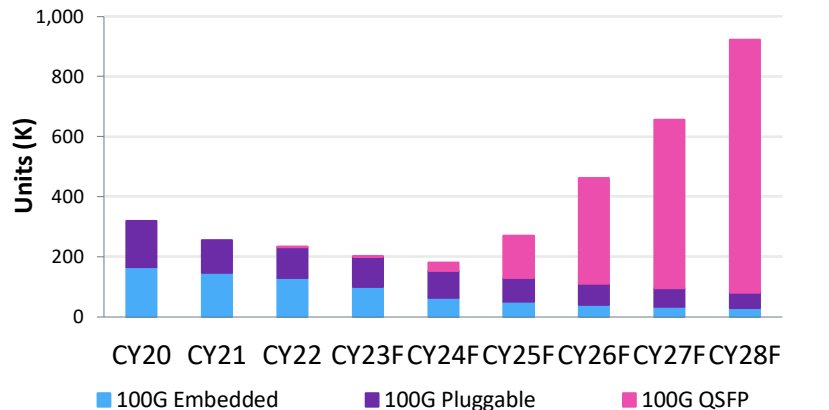
## 400G OpenZR use cases



FEC - oFEC	Power 25W	oFEC Coherent	Speed 100Gb / 200Gb/400Gb	OpenZR+ MSA standard	X5 higher price
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# 100G: Transition from filling the core to equipping the edge

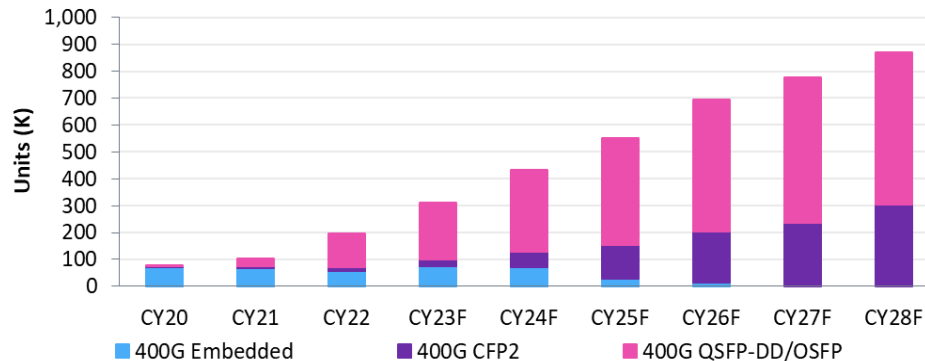
## Coherent Port Shipments by Modem Type



Source: Omdia

© 2023 Omdia

## Coherent Port Shipments by Modem Type



Source: Omdia

© 2023 Omdia

100G Embedded will continue to ship until every common equipment slot is filled.  
400G ZR for cloud SPs a volume market now,

# Optical Breakout Accessories



**1RU Optical passive patch panel**

Fits up to 8 connection modules per RU



**Passive fiber connection modules**

Front side and backside MPO cable connection



**High-density 2RU Optical passive patch panel**

Fits up to 18 connection modules per RU, 36 in total



**High-density Passive fiber connection module**

Backside MPO cable connection



**Cost-effective break-out cable option**

MTP12 - 8x LC

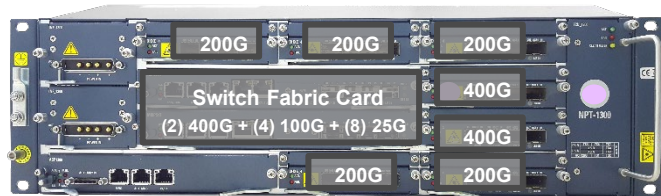
# NPT 1300 to 2300 Multi-Service Aggregation Extensibility

NPT-1300



Complete  
Investment  
Protection

NPT-2300



## 1. Extensibility with Investment Protection

- Upgrade SW-fabric from 800G → 2.4T
- Switch Fabric Card includes 400G, 100G, 25G ports
- Supports all existing NPT-1300 cards (Eth & CES)
- Increases slot capacities for 100G & 400G cards
- New cards (1x400G, 2x100G, 8x25G)
- Preserves all PSUs and Fans

## 2. Telco Cabinet Compliant Form-Factor

- Less than 300mm depth
- Optional baffle system for F-B airflow

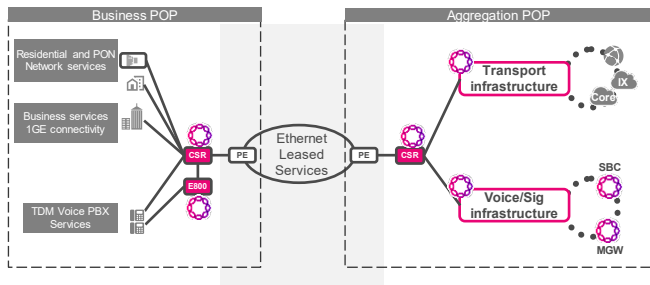
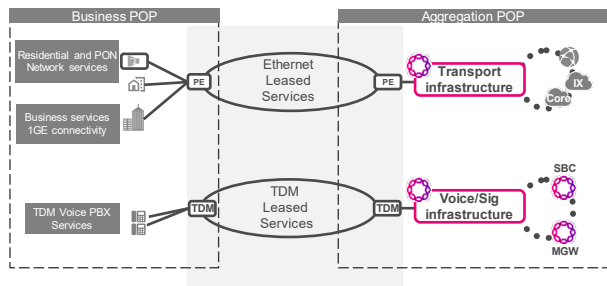
## 3. Supports DCO / IP over DWDM

- QSFP28/QSFP-DD ZR+
- 100G/200G CFP2 (OTU2C)

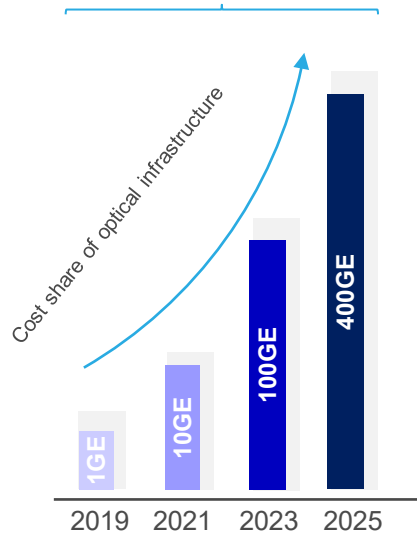
## 4. High-Capacity Multi-Service Aggregation

- J2C based fabric for high-capacity ethernet and FIB scale
- TDM cards for circuit emulation

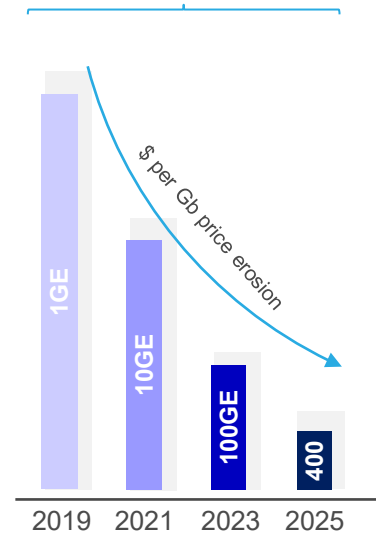
# Infrastructure economy savings and cost optimization



Sharing same fiber infra brings more value for services over time



Re-use infrastructure with better economics over time gives savings



# How To Monetize Your Network

## Demand

Leverage assets



## Scale

Accommodate more  
with less investments



## Funding

Make Every Dollar Count  
Extend Your ROI



*Savings In 3-Dimensions  
Bandwidth, Scale, ROI*

# Contact Information



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# THE RIGHT WAY



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