

Telecom &
openEdge

OCP openEDGE Enclosure

Mike Moore, Nokia Regional Product Manager



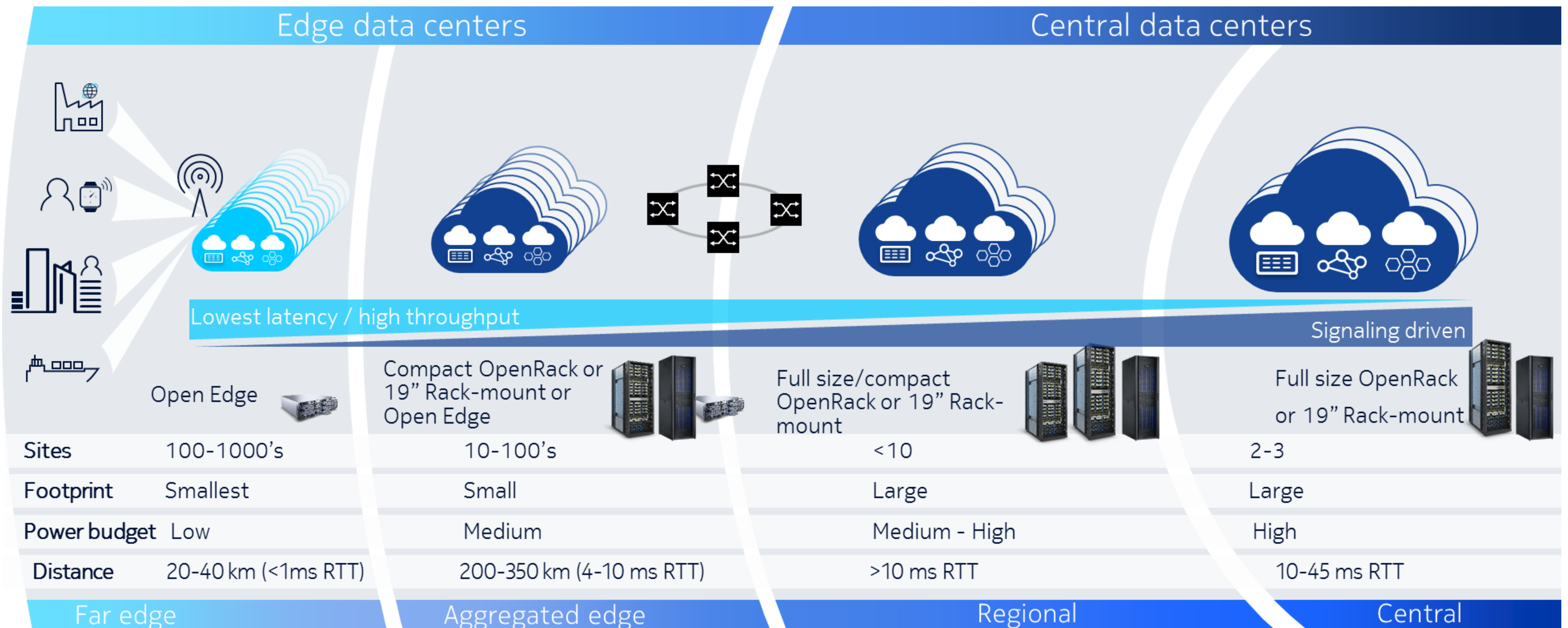
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Compute Project
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Managing the lowest latency/cost trade off with a layered architecture

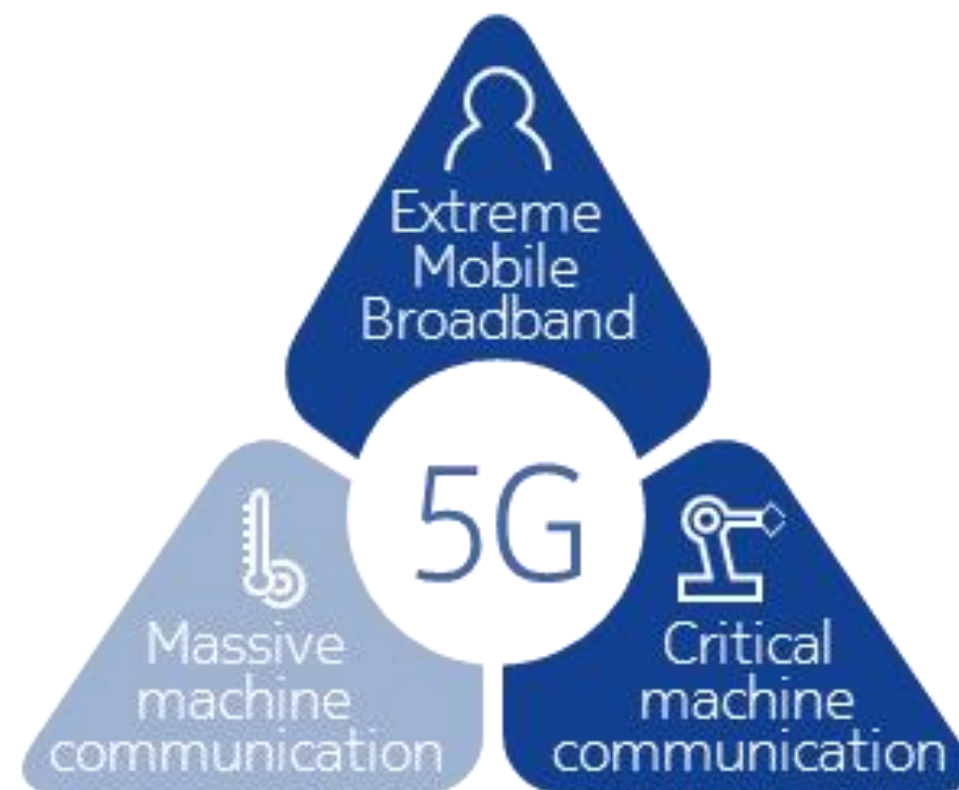
Datacenter portfolio for all deployments from Far Edge to HyperScale



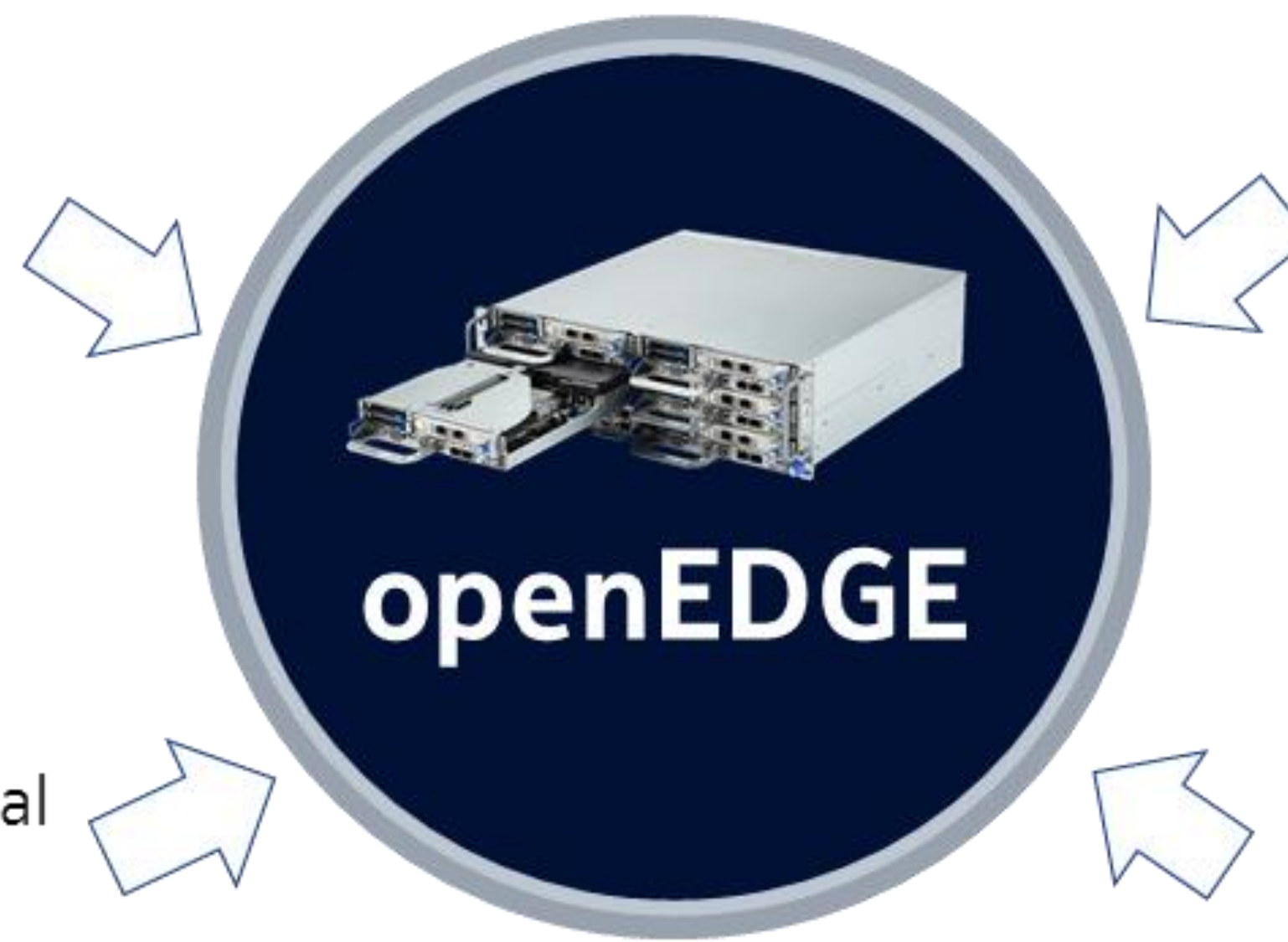
Network enhancement use cases at the edge

Starting points to incrementally realize the target over time

RAN Cloudification & Evolution to 5G



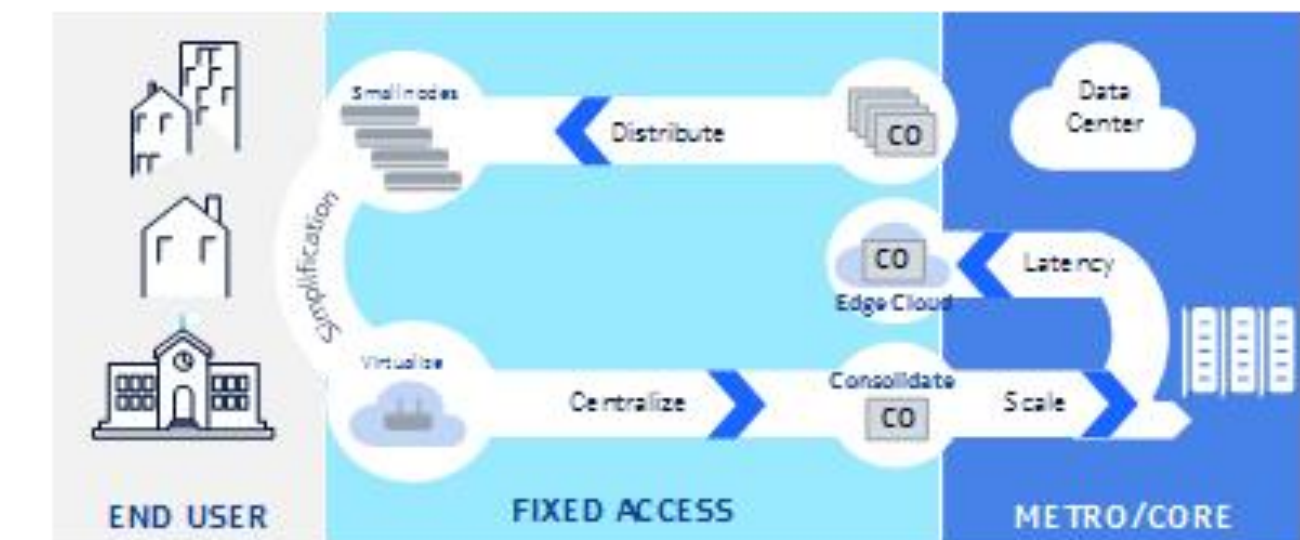
Latency, bandwidth, and security critical use cases (IoT, MEC)



Virtualized & distributed IP Edge



Fixed Access Network Transformation



Public/Private Cloud and open ecosystem for innovation moving to Edge



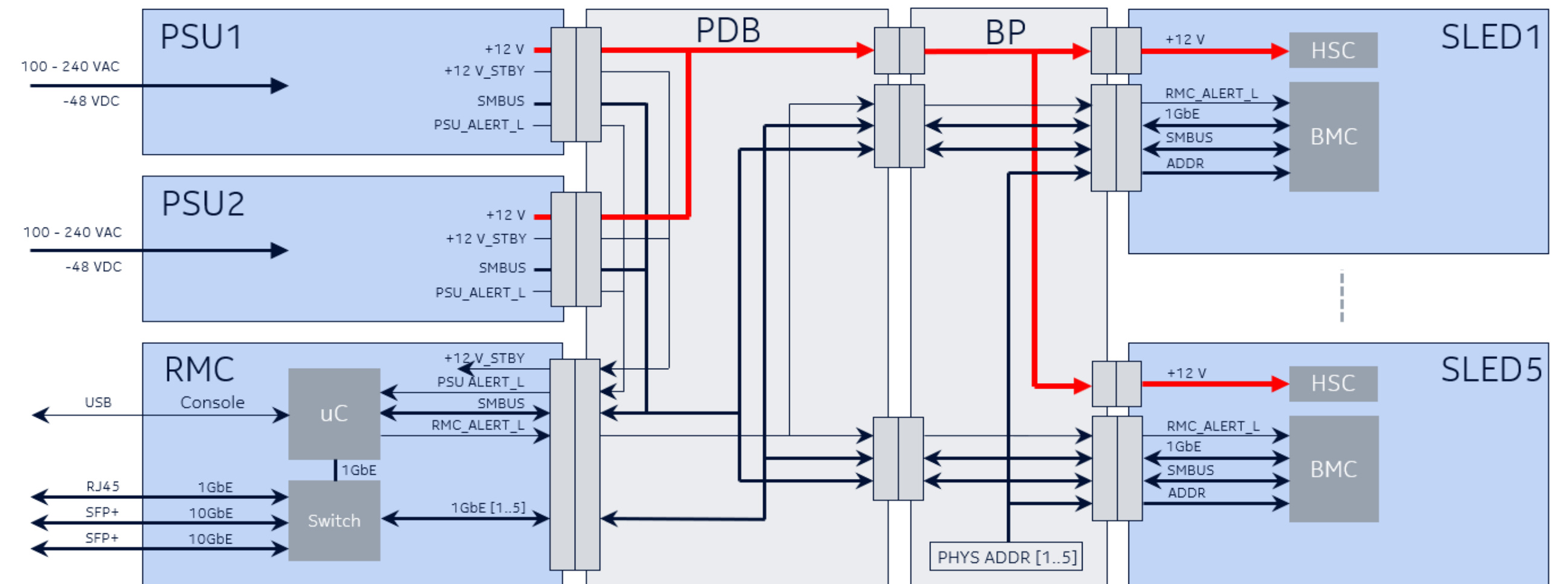
Open edge chassis overview

Key specifications

- 3U, 19" mountable (EIA-310 compatible)
- 130.6 x 440 x 430 mm (H x W x D)
- 12 kg / 26 lbs (Chassis with two PSUs and RMC)
- 1U and 2U, half width sleds are supported
 - Support for high end accelerators
- Redundant, centralized power supply
 - 2000 W max power feed capacity, 80+ Platinum
 - AC (100..127/ 200..240 VAC) and DC (-48 VDC) options
- Sled power feed capacity
 - 400 W (1U sled)
 - 700 W (2U sled)
- Environmental
 - Full NEBS compliancy, seismic zone 4
 - [GR-63-Core, GR-1089-Core]
 - Extended operating temperature range
 - -5C..+45C [ETSI EN300 019-1-3 Class 3.2]
 - short term : -5C to +55C [GR-63-CORE]



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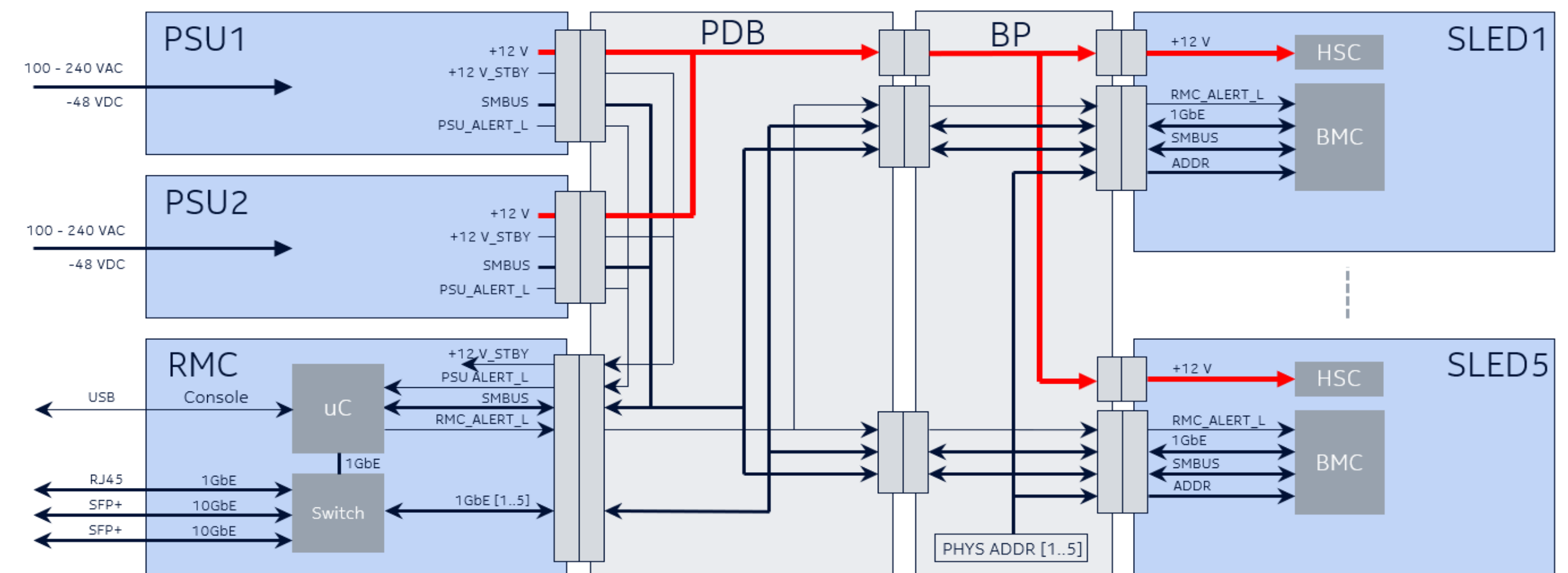
Open edge chassis overview

Key specifications

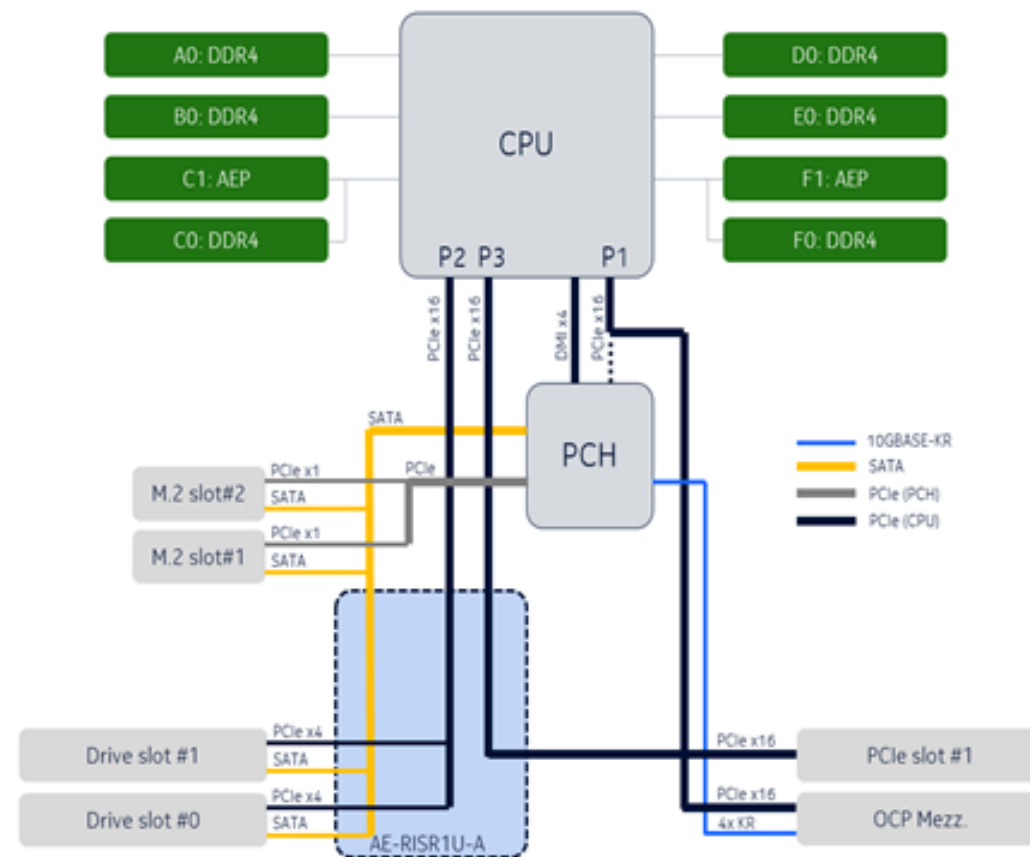
- Cooling: Fan units are part of sled solution
 - Air flow direction configurable: front-to-rear/rear-to-front
- Chassis management controller (RMC)
 - PSU management (control, sensors, ..)
 - Management Ethernet interface to sleds
 - 1 GE to all sleds via backplane
 - 1x 1 GE (RJ45) + 2x 10 GE (SFP+) front panel interface for external connectivity and chaining of multiple chassis
- All sleds managed through single interface in RMC unit
 - On board BMC (in server sleds)
- Power distribution board and chassis backplane provide connectivity between RMC, sleds and PDUs



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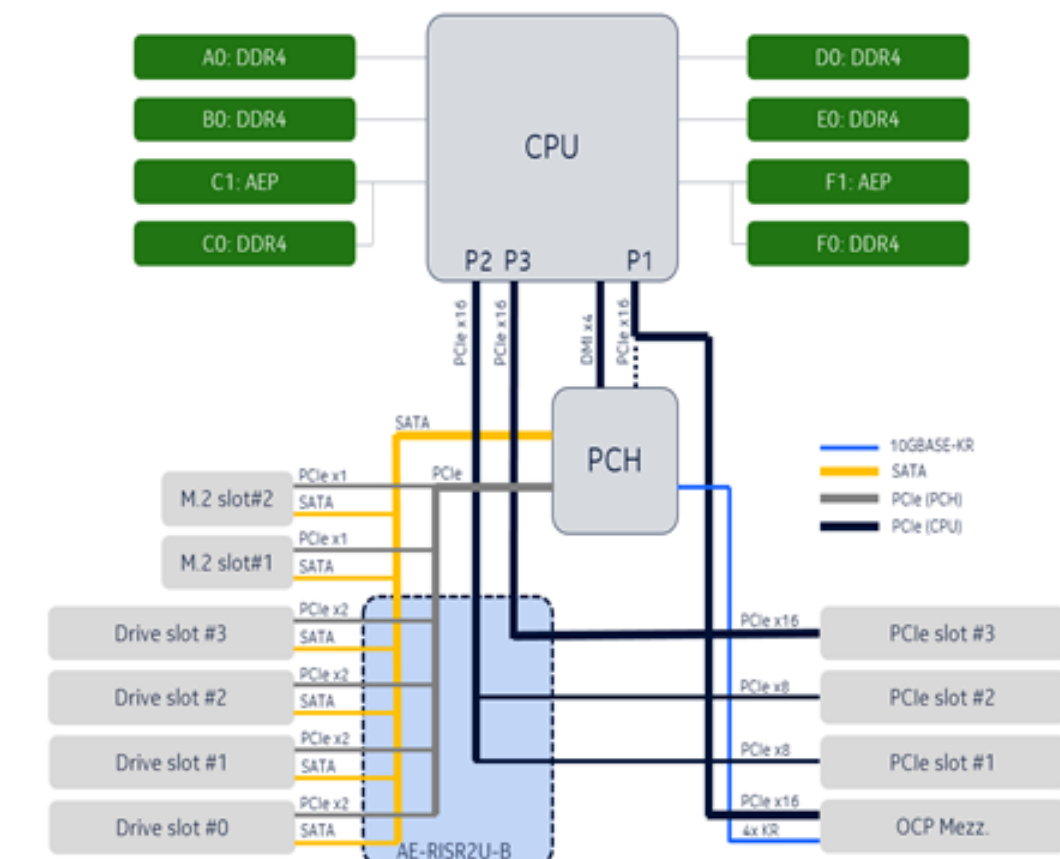
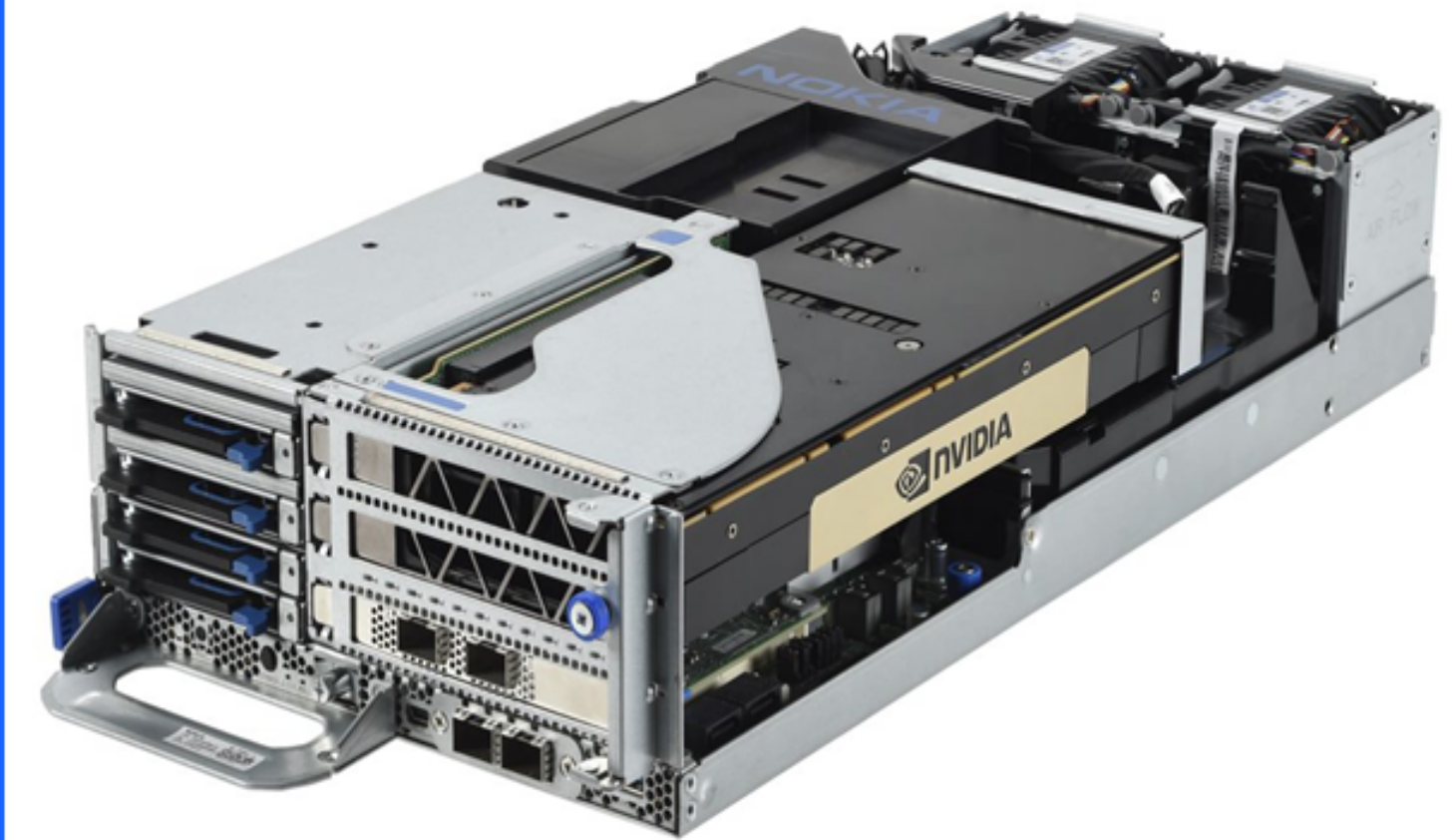


1U and 2U Server Sled Contributions



Key Specifications

- 1U/2U, half width
- Power consumption
 - 400W (1U)
 - 700W (2U)
- PCH options: Intel C621, C627 (with QAT)
- Memory: 6 x DDR4-2933 + 2 x Intel Optane
- Single riser for disks and add-in cards
- Extension slots
 - PCIe x16, FHHL, 75 W (1U)
 - 1 x PCIe x16, FHFL, dual-wide, 300 W max (2U)
 - OCP Mezzanine 2.0, PCIe x16
- Storage
 - 2 x hot-plug SSD, SATA/NVMe, 2.5 ", 7/9.5 mm
 - 2 x hot-plug SSD, SATA/NVMe, 2.5 ", 7/9.5/15 mm (2U)
 - 2 x M.2 SSD, SATA/NVMe, 2280/22110



OpenEdge builds compute at the network edge to meet real-time requirements



Compact Design



Outdoor & indoor



OpenEdge Sleds



PCIe Accelerator

Compute & Power efficiency:

High performance cloud computing platform supporting Telco VNFs

Intel Xeon SP Platinum CPU up to 28 cores, 400W per 1U sled and 700W per 2U sled.

Deployment Flexibility

Deployable at radio site (D-RAN) and at Far Edge (C-RAN)

Cooling optimization, Re-use of AirScale indoor/outdoor cabinets

Compute / Switching / Storage / Optical / etc

Opportunity to build the ecosystem with sled contributions to meet a variety of Far Edge Use Cases

Virtualized real-time with targeted Acceleration:

PCIe add-on cards with FPGA / DSP / GPU / etc based accelerators

Accelerators for AI/ML, video, security, IoT, etc

OpenEdge Platform is purpose built for Far Edge, differentiating with performance and innovation

openEDGE Ecosystem Status



TELCO

openEDGE product evolution

- April openEDGE was announced at NFV World Congress
- Planning began for openEDGE contribution to OCP and sub-committee formation
- Working Demo shown at Amsterdam Summit
- Draft Specifications Released
- Commercial Availability Achieved
- First Commercial Contract
- F2F Design Workshop held in Mountain View
- V1.2 of the Chassis Specification granted as "OCP Accepted"
- Continue to promote community involvement and adoption



2Q18

3Q18

4Q18

1Q19

2Q19



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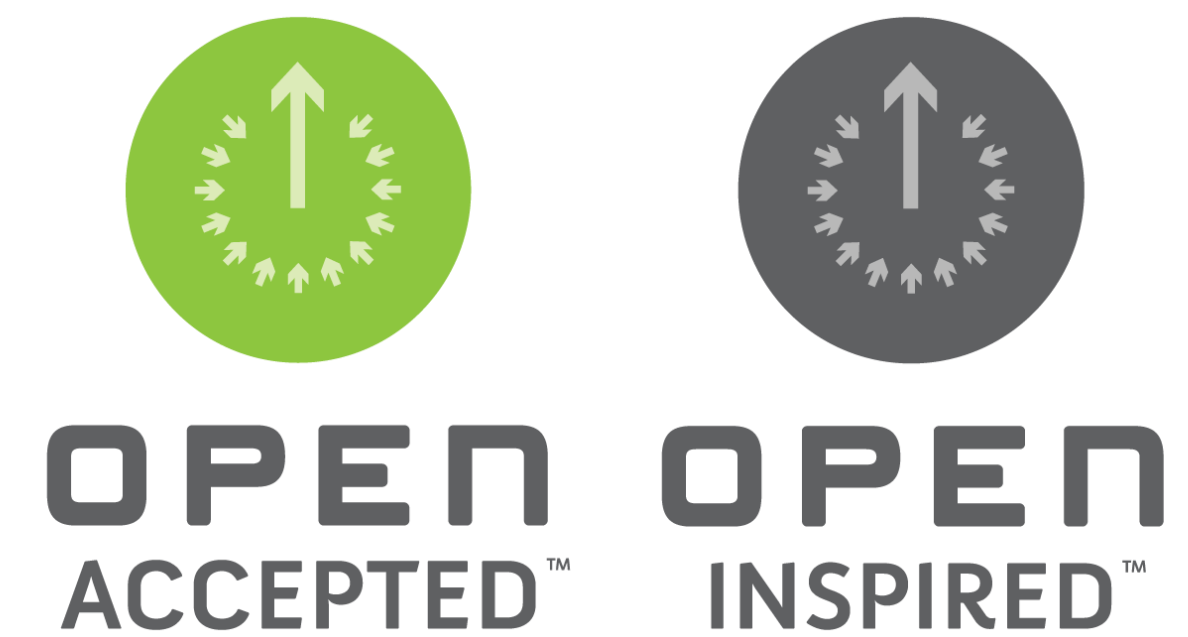


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openEDGE Sub-committee Status

The project will gather requirements and specifications for the Open Edge computing platforms from the adopters.

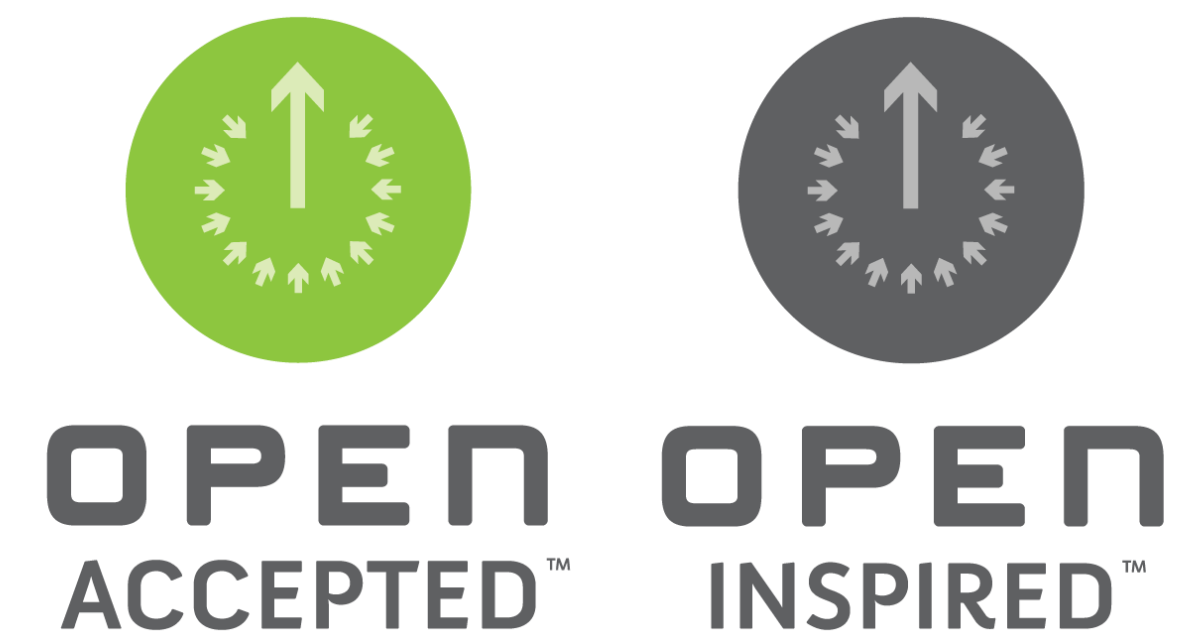
- This will include (but not exclusively)
 - dimensions
 - power budgets
 - cooling requirements
 - networking requirements
- Nokia has contributed openEDGE server chassis specification and design files
 - Draft of openEDGE Server Chassis Specification – OCP Accepted
 - Draft of openEDGE Server Specification – applying for OCP Inspired
 - <https://www.opencompute.org/wiki/Telcos/openEDGE>



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openEDGE ecosystem needs

- Functionality required for the Far Edge as new Applications drive processing requirements
- Further compression of devices to provide a compact solution
- Additional Sled Designs
 - Switch
 - Router
 - Optical
 - Storage
 - Accelerators
 - Battery Backup



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Thank You!