OCP openEdge Workshop @ Flex

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Network enhancements 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)

Fixed Access Network Transformation

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

Virtualized & distributed IP Edge

openEDGE

BNG  vEPC  5GCN  VAS
# openEDGE Ecosystem Status

## openEDGE Product Evolution

<table>
<thead>
<tr>
<th>2-3Q18</th>
<th>4Q18</th>
<th>1Q19</th>
<th>2Q19</th>
<th>3-4Q19</th>
<th>1Q20</th>
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<tbody>
<tr>
<td>April openEDGE was announced at NFV World Congress</td>
<td>Working Demo shown at Amsterdam Summit</td>
<td>First Commercial Contract</td>
<td>Wiwynn announces intent to product openEDGE Chassis and Server Blades</td>
<td>ARM-based sled under development</td>
<td>MiTAC plans to adopt openEDGE</td>
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<td>Planning began for openEDGE contribution to OCP and sub-committee formation</td>
<td>Draft Specifications Released</td>
<td>F2F Design Workshop held in Mountain View</td>
<td>V1.2 of the Chassis Specification granted as “OCP Accepted”</td>
<td>Battery Backup Unit under development</td>
<td>F2F Design Workshop Milpitas @ Flex</td>
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Open edge chassis overview

Key specifications:
- 3U, 19" mountable (EIA-310 compatible)
- 130.6 x 440 x 430 mm (H x W x D)
- 1U and 2U, half width sleds are supported
- Redundant, centralized power supply
- 2000 W max power feed capacity, 80+ Platinum options
- AC (100-127/200-240 VAC) and DC (48 VDC)
- Sled power feed capacity 400 W (1U sled), 700 W (2U sled), 12 VDC
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
- **Power distribution board and chassis backplane** provide connectivity between RMC, sleds and PDUs
Key environmental and regulatory compliance

Operating conditions
- Operating temperature range: -5°C to +45°C [ETSI EN300 019-1-3 Class 3.2]
- Short term operating temperature: -5°C to +55°C [GR-63-CORE]
- Operating humidity: 5% to 95%

EMC
- EN300386 (v1.6.1)
- FCC CFR47 15 (class A), CISPR 22/32 (class A)
- CISPR 24
- TEC/EMI/TEL-001/01/FEB-09 and TEC/IR/SWN-2MB/07/MAR-10
- GR-1089-CORE, and more

Safety
- IEC 62368-1:2014
- GR-1089-CORE (electrical safety, grounding and bonding)

Seismic tolerance
- GR-63-CORE (Zone 4)

Acoustic noise
- GR-63-CORE (equipment room criteria)

Fire resistance
- GR-63-CORE (shelf level criteria)
AirFrame open edge server – 1U sled
Intel Xeon® SP next gen

Dimensions, weight
- 41 x 215 x 427mm (H x W x D)
- 3.4 kg / 7.5 lbs.

**) Server node with typical commodity

Processor (single socket)
- Intel® Xeon® SP, up to 24 cores, 2.4GHz

Chipset
- Intel® C621/C627

Thermal
- Max. CPU TDP support: 205W
- Four redundant dual rotor fans per node, air flow front to rear/rear to front

Memory
- DIMM slots: 6 typical (8 max)
- DIMM type: 16GB / 32GB / 64GB - DDR4 RDIMM 2933 MHz

Management
- Redfish, IPMI v2.0
- Compliant, on board BMC
- Access through RMC unit

Storage
- 2x 2.5" Hot-plug bays for NVMe and SATA devices
- 2x internal M.2 2280 or 22110 devices

Security
- TPM 1.2 / 2.0

Expansion Slots
- 1x PCIe Gen3 x16 OCP mezzanine card
- 1x PCIe Gen3 x16 FHHL PCIe card
AirFrame open edge server – 2U sled
Intel Xeon® SP next gen

Dimensions, weight
- 83 x 215 x 427mm (H x W x D)
- 4.7 kg / 10.4 lbs.**

**) Server node with typical commodity

Processor (single socket)
- Intel® Xeon® SP, up to 24 cores, 2.4GHz

Chipset
- Intel® C621/C627

Thermal
- Max CPU TDP support: 250W
- Two redundant dual rotor fans per node; airflow from rear/rear to front

Memory
- DIMM slots: 6 typical (8 max)
- DIMM type: 16GB / 32GB / 64GB - DDR4 RDIMM 2933 MHz

Management
- Redfish, IPMI v2.0
- Compliant, on board BMC
- Access through RMC unit

Storage
- 2x 2.5” Hot-plug bays for 15 mm SATA / NVMe drives
- 2x 2.5” Hot-plug bays for 7 / 9.5 mm SATA / NVMe drives
- 2x internal M.2 2280 or 22110 devices

Security
- TPM 1.2/2.0

Expansion Slots
- 1x PCIe Gen3 x16 OCP mezzanine slot
- 1-2x PCIe Gen3 x8/x16 FHHL slot
- 1x PCIe Gen3 x16 FHFL double wide slot

Open
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Open
Compute Project
Possible Far Edge Use Cases
Reuse existing BBU/Cellsite Cabinet Options

Intersection Case Configuration

Block Case Configuration

FCOB Flexi Outdoor cabinet

Dual/Street Cabinet Solution
Nokia AirFrame New Contributions (applying for Accepted)

Chassis management controller (RMC)
Call to Action

Looking for equipment manufactures to adopt the openEDGE formfactor and involvement of consumers to continue to enhance and evolve this formfactor.

Where to buy:
- [https://www.opencompute.org/products](https://www.opencompute.org/products)

Project Wiki with latest specification:
- [https://www.opencompute.org/wiki/Telcos/openEDGE](https://www.opencompute.org/wiki/Telcos/openEDGE)

Mailing list: [OCP-Open-Edge@OCP-All.groups.io](mailto:OCP-Open-Edge@OCP-All.groups.io)
Thank you and Welcome
Any Questions?