

OpenEdge ADLINK update May 14, 2019

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Development



Building Forward Together



It's all about those killer apps



High Throughput



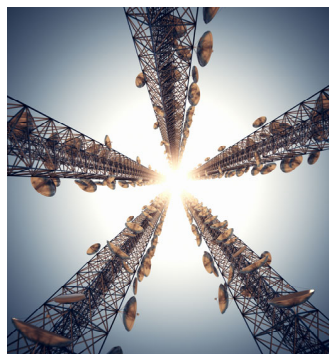
DPI
Backhaul
OLT/xPON
Switching
Policy

Privacy & Security



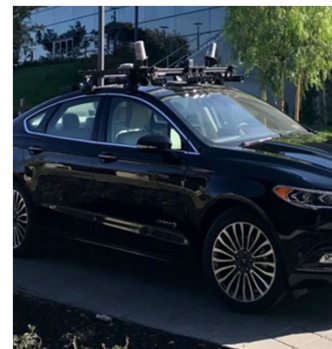
DDOS
NGGW
IPSec
DLP
IDS/IPS

Spectral Efficiency



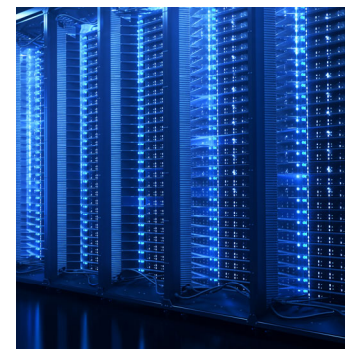
Slicing
Mesh
DAS
Micro/Macro Cells
MIMO

Low Latency Services



Autonomous
AR/VR
Recovery
Self Healing
Speech Rec.

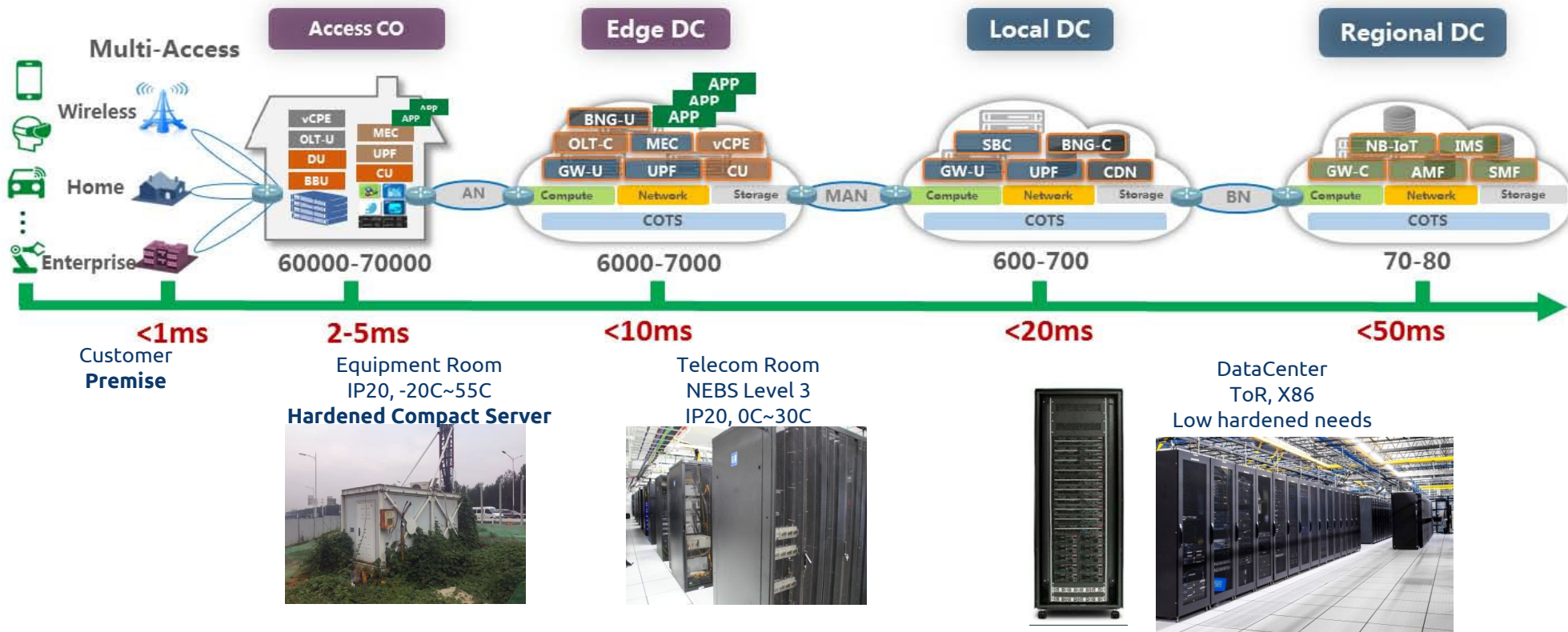
Exponential Data Growth



IIoT
Smart City
Energy
Media/Video
OTT

And most of all -> Increase Service Revenues while decreasing CAP/OPEX

Edge AI / DL at the Edge



Edge-Focused Solutions



IoT Low Power Elements IOT, Auto, Edge, Customer Premise

Edge Virtualization, Visualization AI/DL and support of Low Latency Apps

Compact

Small form-factor for easier installation and maintenance

483 mm (19")
210 mm (8.3")
210 mm (8.3")
146 mm (5.84")

Fanless

Fanless construction significantly extends MTBF to 190,000 hours and minimizes Maintenance costs.

Fanless, painless

Rugged

Matrix products operate in a -20°C to 70°C (-4°F to 158°F) wide temperature range and withstand up to 100 G shock and 5 Grms vibration, making them ideal for deployment in harsh environments.

-20°C
70°C

Note: Extending the operating temperature is optional and requires use of an industrial solid-state drive storage device.

Application-specific

By integrating ADLINK DAQ, DIO, motion and vision technologies, the Matrix line provides specific onboard I/O functions.

System Options

Core sleds

Common Sleds

OCCERA Reusable Mix/Match Sleds & Systems



OCCERA Compute Nodes

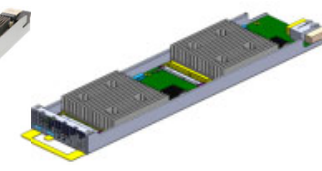
- Broadwell, Skylake, Purley (Skylake + FPGA)
- 1/2 and 1/4 width sleds for needed core density
- Flexibility: mix and match E3 and E5
- Integrated NFVi Software and Platform S/W



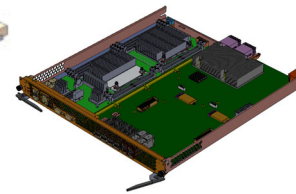
MCN-2600
Broadwell



MCN-2610T
Purley

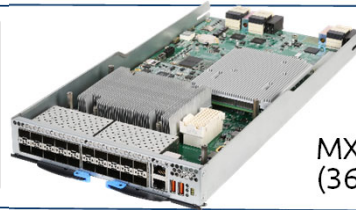


MCN-1500
(Greenlow GT4e)

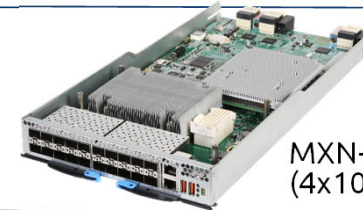


OCCERA Switching Nodes

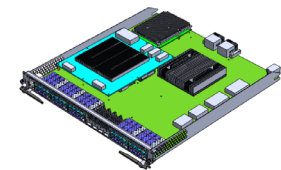
- Intel Red Rock Canyon & Broadcom TH
- Extension trays for flexible I/O configs
- System Management and wide range of SW



MXN-3610
(36x10G)



MXN-4100
(4x100G)



I/O Nodes

- Optional Network Interface Modules
- Optical, copper, w and w/o bypass
- 1/4 width size to support large I/O options



CSA-Z5C4F



CSA-ZBX10



CSA-Z5C2F



CSA-Z5C8F+



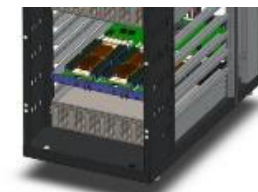
CSA-Z4X01

OCCERA Systems

- 19" - 2U 4U and OCP-Telecom versions
- Data Center versions
- AC/DC power, NEBS ready, customizable
- Multiple options based on required solution



CSA-7210/7400



OCP

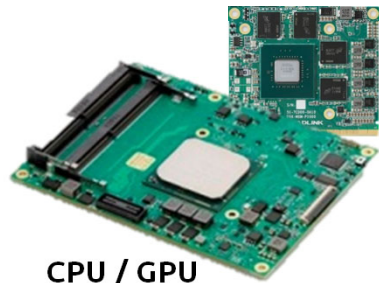


CSA-7600

OCP OpenEdge Platform



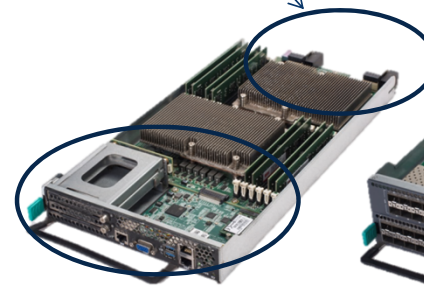
- OpenEdge 3U platform Sleds
 - Intel "RRC" FM10840 (960Mpps)
 - Up to 360G for network interface
 - Compute Node - MCN Modules
 - Common CPU (Dual Xeon with
 - ComE (Xeon D or E3) with onboard NVIDIA MXM modules
 - Xilinx FPGA for vOLT / SEBA / PoL w/ ComE for SDN
- Modify existing CPU/Switch sleds to interface the OpenEdge Sled profile (Rear PCIe and power connections)
- Modify front i/o card for OpenEdge Sled / add fans
- Need chassis and sled for lab work and testing
- Alignment with other OpenEdge Eco-system partners



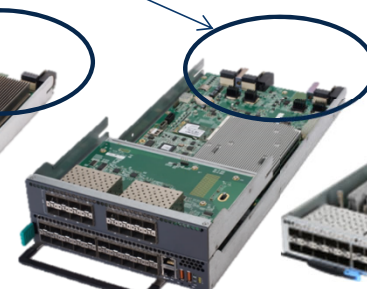
CPU / GPU



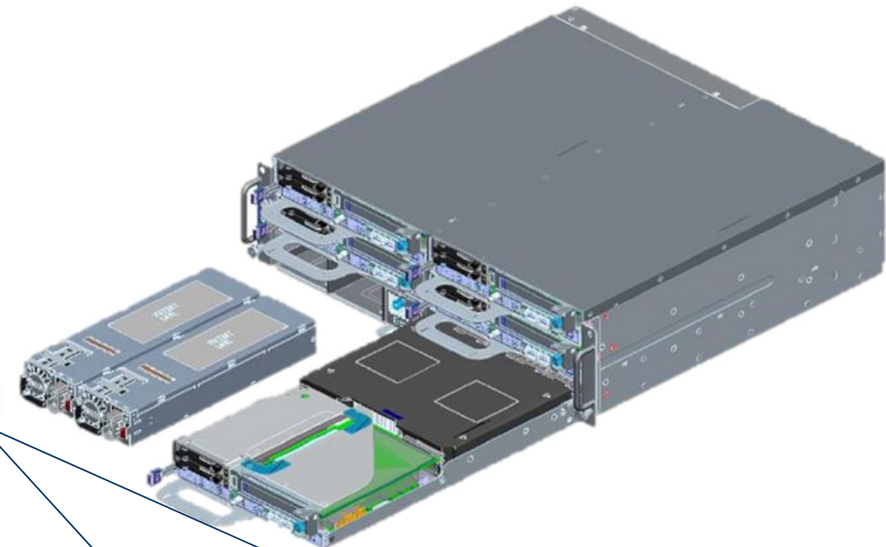
FPGA Module



Compute Nodes



Switch Nodes



2U Mountable containers for Edge

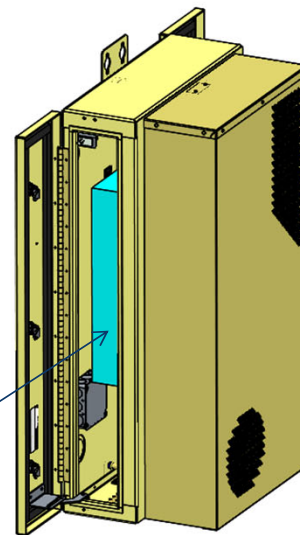
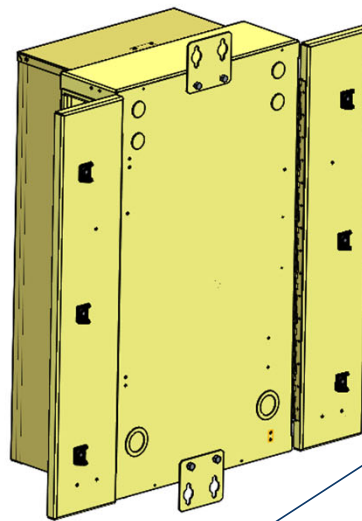
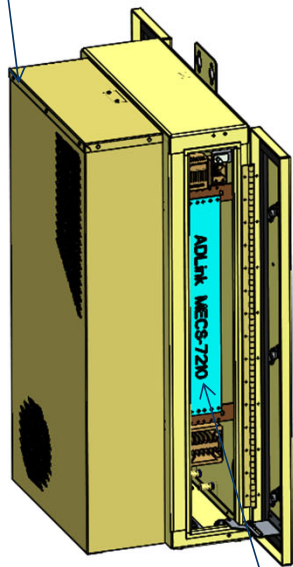


Small Cell Deployments – Pole Mount



Dimensions: W x H x D
23.5 x 36.5 x 7" inch (off the pole)

Heat Exchanger



Server Rear

ADLINK MECS-7210

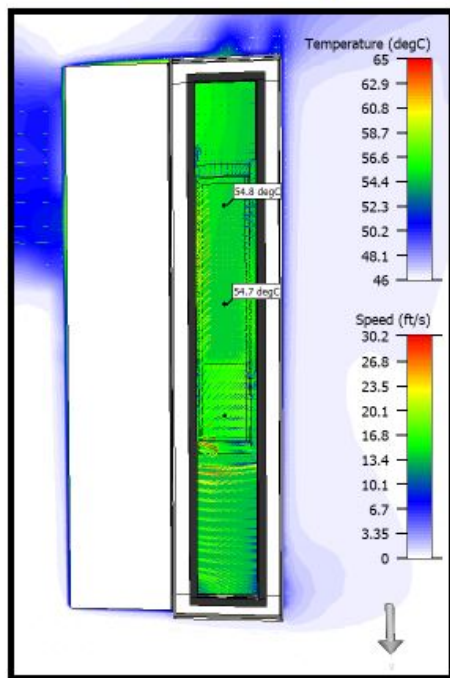
- Low Profile Pole Mount Enclosure
- Optional Integrated Power
 - Power and battery or power only
 - Optional Battery Compartment
- Heater for Cold Operation = 250W (32CFM)
- Ambient Temperature & Solar Load: High Temp.
 - Operation = 46°C (115°F) w/ 0.5mph Wind
 - Cold Temp. Start = -40°C (-40°F) w/ 0.5mph Wind
 - Solar applied to three walls for High Temp. per Telcordia GR-487.
- Variable Speed Heat Exchanger: Maximum Capacity:
 - 1,880W (55W/°F)
 - Maximum Airflow: 530CFM
- Service Provider Approved

Thermals with CPU/GPU in pole mount



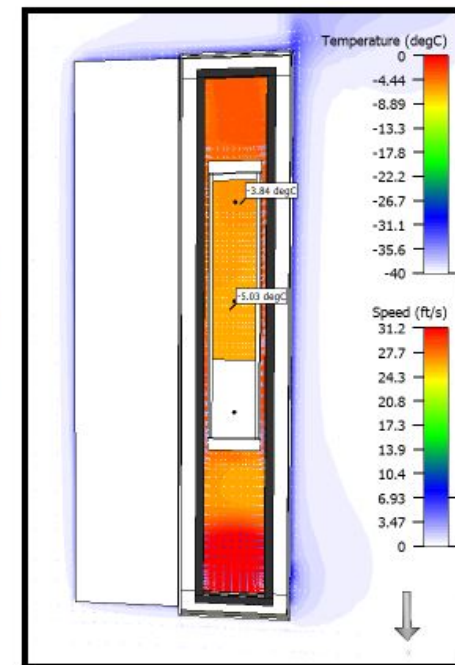
Thermal Results at 46°C (115°F) Ambient

Temperature Slice
at the ADLINK
MECS-7210 Server
Intake



Thermal Results at -40°C (-40°F) Ambient

Temperature Slice
at the ADLINK
MECS-7210 Server
Intake



Reduction in size / Meeting same environmental characteristics

- **Reduce the overall depth of the enclosure, supporting a 2U edge server**
- **Market feedback Requirements**
 - Reduction of the heat exchanger on the pole mounted enclosure
 - Replacement of CPU / GPU cooling with liquid cooling appliance
 - Introduction of a smaller radiator/heat exchanger into the chassis
- **Driven by key edge use cases (Low Latency 5G small cell deployments)**
 - Less visible
 - Self Contained and secure
 - Self healing and remote management
- **Provide a design prototype for OpenEdge**
 - Introduce a spec that enhances current design to include the option for liquid cooling
 - Gain agreement from specific silicon manufactures to participate with trials
 - Build out an eco-system of liquid cooling partners for introduction

