CASWELL Complete Your Networld
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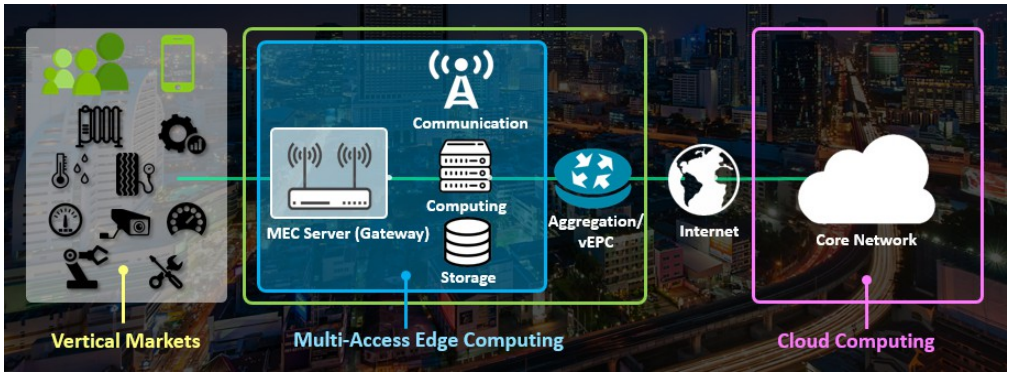
Multi-Access Edge Computing with CASwell CAR-3080

High-end rackmount network server to handle today's networking workloads and tomorrow's demands with 5G



Multi-access edge computing (MEC) brings more processing power to the network edge while at the same time implementing edge computing in wireless networks. But why do we need that much processing power, network bandwidth and low latency, customization and upgradability at the edge of our networks? And how can service providers and operators benefit from giving these features to end users who are used to paying less and less for wireless communication?

The Challenges

Small cell networks like local hotspots—for example, in airports, train stations, shopping malls or hotels—are providing free Wi-Fi to their customers and guests, who are getting more and more used to fast internet access with low response times. Video chats, Augmented Reality (AR) apps or games and in the future even mobile Virtual Reality (VR) can benefit a lot from providing on-edge optimization. And the processing power enables analytics of user behaviour to support targeted and specific advertisements.

A hotspot supported by MEC during a sport or music event can provide caching of often-used content or videos for faster delivery and even saves data traffic to the core network.

Cloud-gaming is gaining popularity and requires both high processing power and low latency server-side because the games are basically running on the server while the user only has the video of his game. That user still needs fast response time and won't be satisfied with slow game reactions. A MEC device could provide specific games for the local community—supported by publishers and/or providers—but needs to be able to handle multiple virtual machines.

Other scenarios for MEC are hospitals, smart cities and Industry 4.0 sites like intelligent factories based on IoT devices and robots that require real-time processing while still needing to be connected to the cloud or the headquarter.

All these requirements will increase with the introduction of 5G networking as users and enterprises will be getting more accustomed to even faster internet speeds.

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The Solution: CASwell CAR-3080

The CASwell CAR-3080 rackmount appliance, a verified Intel® Select Solution for uCPE, was developed for multi-access edge computing with its multiple network connections while also offering high-speed Ethernet —a common requirement nowadays and even more in the future. As an Intel® Select Solution for uCPE, the CASwell CAR-3080 brings the powerful performance of Intel® Xeon® D processors to the network edge as part of a workload-optimized hardware and software stack that offers verified performance. The platform includes PCI Express 3.0 (PCIe 3.0) for easy upgrading and Intel® QuickAssist Technology (Intel® QAT) to accelerate encrypted data traffic, reduce overall data size and lower storage demands. All of this in a compact 1U device that easily fits into any rackmount cabinet.

The CASwell CAR-3080 verified as an Intel Select Solution for uCPE is based on the Intel Xeon processor D-2166NT with 12 CPU cores, 32 GByte main memory, 480 GByte SSD and 2x 10-Gbit Intel® Ethernet Controller X722. This configuration can be upgraded to Intel Xeon processor D-2183IT or Intel Xeon processor D-2173IT with 14 or 16 CPU cores and up to 128 GByte DDR4-2400 main memory.

A processor like the Intel Xeon processor D-2166NT comes with integrated Intel QuickAssist Technology (Intel QAT). Intel QAT accelerates encrypted data traffic in a secure network, reduces overall data size and lowers storage demands by speeding real-time compression while at the same time relieving the CPU of some of the processing workloads. An optional Trusted Platform Module (TPM) for encryption, authentication and digital rights management is also available for the CAR-3080, and the whole system can be monitored by the Intelligent Platform Management Interface (IPMI 2.0).

The CASwell CAR-3080 rackmount appliance can be equipped with ultra-fast networking connections of up to 40 Gbit/s and also offers almost infinite Ethernet configurations with a maximum of 40 ports in this flat, low-rise 1U design. This setup is made possible by the unique design and combination of CASwell's Network Interface Plug-ins (NIP) modules and Network Interface Cards (NIC) with Intel® Ethernet Controller X722, all connected via high-speed PCIe 3.0.

The CASwell CAR-3080 by default comes with six Gigabit-Ethernet ports and two SFP+ ports for 10-Gbit-Ethernet but — as shown in the table below — can be enhanced almost endlessly with a standard NIC connected by PCIe x16 (can accommodate GPU or FPGA acceleration cards) and three patented NIPs that use PCIe x4/x8 for data transmission and packet acceleration. Each NIP and the NIC can offer up to eight Gigabit-Ethernet ports of their own but are also available in different configurations with 10-GbE, 25-GbE or

even 40-GbE ports. Optional bypass switches ensure that the network keeps running even during maintenance or in case of power outages. PoE options are also available when Power over Ethernet is needed besides delivering data — seemingly infinite possibilities of networking configurations!
Additional information about the networking options can be found in the table below.*

Conclusion

The CASwell CAR-3080 is an ideal solution suitable for most industry sectors and can be equipped according to almost every customer need and networking requirement. The variability of networking connections — both in number and speed options — in conjunction with the upgradability and the powerful Intel processing platform gives solution and service providers, network operators and enterprises another interesting and attractive option.

Learn more

More information about the CASwell CAR-3080 can be found here: https://www.cas-well.com/product-information/car-3080.html

Information about the Intel Selection Solutions is available here: http://www.intel.com/selectsolutions

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LAN Module	LAN Controller	Bypass	Interface	Ports
NIP-51040-005	Intel® 82580EB Gigabit Ethernet Controller	-	1x PCIe x4 Gen2	4x Gbit RJ45
NIP-51041-005	Intel® Ethernet Controller I350-AM4	-	1x PCIe x4 Gen2	4x Gbit RJ45
NIP-51243-005	Intel® Ethernet Controller I350-AM4	3.0, 2 Pairs	1x PCIe x4 Gen2	4x Gbit RJ45
NIP-52240-005	Intel® 82580EB Gigabit Ethernet Controller	2.0, 2 Pairs	1x PCIe x4 Gen2	4x Gbit SFP
NIP-52040-005	Intel® 82580EB Gigabit Ethernet Controller	-	1x PCIe x4 Gen2	4x Gbit SFP
NIP-83020-005	Intel® Ethernet Controller X710-AM2	-	1x PCIe x8 Gen3	8x Gbit RJ45
NIP-54121-005	Intel® Ethernet Controller X540-AT2	3.0, 1 Pair	1x PCIe x8 Gen2	2x 10 Gbit RJ45
NIP-55140-005	Intel® 82580EB Gigabit Ethernet Controller	2.0, 1 Pair	1x PCIe x4 Gen2	2x Gbit RJ45/2x Gbit SFP
NIP-83040-005	Intel® Ethernet Controller XL710-BM1	-	1x PCIe x8 Gen3	4x 10 GbE SFP+
NIP-52123-005	Intel® Ethernet Controller I350-AM2	3.0, 1 Pair	1x PCIe x4 Gen2	2x Gbit SFP (SX)
NIP-52243-005	Intel® Ethernet Controller I350-AM4	3.0, 2 Pairs	1x PCIe x8 Gen2	4x Gbit SFP (SX)
NIP-52244-005	Intel® Ethernet Controller I350-AM4	3.0, 2 Pairs	1x PCIe x4 Gen2	4x Gbit SFP (LX)
NIP-86120-005	Intel® Ethernet Controller XL710-BM2	3.2. 1 Pair	1x PCIe x8 Gen3	2x 40 GbE QSFP+
NIP-83120-005	Intel® Ethernet Controller X710-BM2	3.0. 1 Pair	1x PCIe x8 Gen3	2x 10 GbE SFP+ (SR)
NIP-83240-005	Intel® Ethernet Controller XL710-BM1	3.0. 2 Pairs	1x PCIe x8 Gen3	4x 10 GbE SFP+ (SR)
NIP-87020-005	Intel® Ethernet Controller XXV710-AM2	-	1x PCIe x8 Gen3	2x 25 GbE SFP28
NIP-51080-005	Intel® 82580EB Gigabit Ethernet Controller	-	2x PCIe x4 Gen2	8x Gbit RJ45
NIP-51082-005	Intel® Ethernet Controller I350-AM4	-	2x PCIe x4 Gen2	8x Gbit RJ45
NIP-52080-005	Intel® 82580EB Gigabit Ethernet Controller	-	2x PCIe x4 Gen2	8x Gbit SFP
NIP-52081-005	Intel® Ethernet Controller I350-AM4	-	1x PCIe x8 Gen2	8x Gbit SFP

LAN Module	LAN Controller	Bypass	Interface	Ports
NIP-51481-005	Intel® Ethernet Controller I350-AM4	3.2, 4 Pairs	1x PCIe x8 Gen2	8x Gbit RJ45
NIP-51482-005	Intel 82580EB Gigabit Ethernet Controller	3.2, 4 Pairs	2x PCIe x8 Gen2	8x Gbit RJ45
NIC-71040	Intel® Ethernet Controller I210	-	1x PCIe x4 Gen2	4x Gbit RJ45
NID-31040-B40 AF/AT Max. 120W	Intel® 82580EB Gigabit Ethernet Controller	-	1x PCIe x4 Gen2	4x Gbit RJ45