

FAQ SHEET

Next Generation Central Office (NGCO)



Q What is the Next Generation Central Office (NGCO)?

A The Next Generation Central Office (NGCO) can be thought of as a local edge data center, with a smaller power and space footprint than a traditional centralized data center. It implements network functions in software instead of using dedicated appliances. The NGCO aims to support both wireless and fixed subscribers in the drive toward true fixed and mobile network convergence, as Communications Service Providers (CoSPs) strive to achieve greater consolidation across their networks. The NGCO expects to host the latency-sensitive edge services which will provide CoSPs the opportunity to generate new revenue and also new business models and partners.

Q Why put applications into the NGCO?

A The advantages of hosting applications at the edge, closer to the user, include lower latency and locality (e.g. fast storage), improved network resilience and can also help to lower load on the core network. The NGCO can also host innovative new services, creating opportunities for new revenue streams and new partnerships.

Q Which applications could benefit from being hosted at the edge?

A Many virtual network functions (VNFs) benefit from being hosted at the edge of the network. Some examples include:

- Virtualized content delivery networks (vCDNs)
- Virtualized enterprise premises equipment (vCPE)
- Virtualized mobile core
- Virtualized radio access networks (vRAN)
- Virtualized traffic analysis, optimization and security functions
- Virtual broadband network gateways (vBNG)

Q

What is driving the NGCO?

A

There are several trends that are leading to the NGCO. Network Functions Virtualization (NFV) and Software Defined Networking (SDN) enable resources to be allocated to functions more flexibly than using fixed devices. Fiber to the home and fiber to the curb (FTTH/FTTC) are replacing copper. Because fiber has a longer reach than copper, the same area can now be served more cost effectively with fewer central offices, so CoSPs have an opportunity to upgrade and consolidate as they rearchitect their network. This fiber-rich access network provides a high-bandwidth, low-latency environment which are the key attributes required for the next generation of edge services, cloud gaming, industrial internet of things (IIoT), augmented reality (AR) / virtual reality (VR) etc. As operators trial and bring these new services to market they are placing more strategic value on this part of the network. At the same time, both fixed and mobile networks are being disaggregated, with network functions being separated from the hardware that implements the packet forwarding in the data plane. The initiatives for Control and User Plane Separation (CUPS) and Central Office Re-architected as a Data Center (CORD) and the Broadband forum CloudCO initiative aim to adopt, specify and standardize cloud enabler technologies for edge compute distribution.

Q

What is Intel doing to support the NGCO?

A

Network Compute Division (NCD) works with our original equipment manufacturer (OEM) and telecommunications equipment manufacturer (TEM) partners to enable industry-standard servers modified for CO environments which are now being widely used to implement NFV. They provide the flexibility, scalability and code portability needed at the edge of the network. The Intel® Xeon® Scalable processor offers performance that makes it ideal for NGCO applications. Quanta Cloud Technology (QCT) provides NFV infrastructure, based on Intel® Xeon® Gold 6152 processors, that forms the basis for an optimized NGCO platform.

The Intel® Ethernet Network Adapter XXV710 supports Dynamic Device Personalization (DDP), which enables the network card to route packets to specific data plane virtual functions.

NCD also works with a large number of the VNF vendors to optimize their network functions on Intel® architecture (IA).

- **Affirmed Network:** Affirmed Networks vEPC benchmarks with 2nd Generation Intel Xeon Scalable processors
- **CertusNet:** CertusNet High Performance BNG based Intel Generic NIC

**Q**

How can functions be orchestrated in the NGCO?

A

Kubernetes can be used to orchestrate container-based VNFs, giving them access to hardware features such as single root input/output virtualization, multus data path extensions, (SR-IOV) and CPU pinning. These features accelerate input/output performance, and avoid context switching in the CPU to speed up processing. Intel continuously works with collaborators and the open source community to enable these platform optimizations toward enabling cloud like automation at the network edge.



Where can I learn more?

Visit our website for video, audio and written content exploring the NGCO and implementation strategies.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No product or component can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

Your costs and results may vary.

Intel, the Intel logo, and other Intel Marks are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

Other names and brands may be claimed as the property of others.
© Intel Corporation

0220/FP/CAT/PDF

342205-001EN