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Intel Accelerates the Data Center and Telecom Network Transformation with New Reference Architectures

Reference Designs Built to Improve the Flexibility and Economics of Networks

NEWS HIGHLIGHTS

- Using standard x86 servers and programmable switches to deploy and manage virtualized networking infrastructure with software-defined networking will radically lower costs and enable datacenter and telecom networks to deploy new services.
- Intel announces several hardware and software tools aimed to boost data center networking efficiency and performance, including Intel® Open Network Platform Switch and Intel® Open Network Platform Server reference designs and Intel® Data Plane Development Kit Accelerated Open vSwitch.
- Several ISVs, OEMs and service providers including Big Switch Network*, HP*, NEC*, NTT Data*, Quanta*, Super Micro, VMware* and Vyatta* (a Brocade company) are building innovative solutions based on new Intel reference architectures.

SANTA CLARA, Calif.--(BUSINESS WIRE)-- Three strategic reference architectures that will enable the IT and telecom industries to accelerate hardware and software development for software-defined networking (SDN) and network function virtualization (NFV) were announced today by Intel Corporation at the Open Networking Summit conference.

These reference architectures, aimed for the telecommunications, cloud data center and enterprise data center infrastructure market segments, combine open standards for SDN and NFV with industry-leading Intel hardware and software to enable networks to be more agile and intelligent so they can adapt to changing market dynamics. Integrating SDN and NFV on standard x86 platforms allows lowering the acquisition and management costs as well as enabling new innovative services never before possible in networking infrastructure.

“SDN and NFV are critical elements of Intel’s vision to transform the expensive, complex networks of today to a virtualized, programmable, standards-based architecture running commercial off-the-shelf hardware,” said Rose Schooler, vice president of Intel Architecture Group and general manager of Intel’s Communications and Storage Infrastructure Group. “The reference designs announced today enable a new phase in the evolution of the network and represent Intel’s commitment to driving an open environment that fosters business agility and smart economics.”

Data centers and network infrastructure providers are under constant pressure to support new, revenue-generating services in the public and private cloud, yet the costs of building the infrastructure are often too high to do so. The reference designs and development kits

are an important part of Intel's strategy to enable the industry to move toward open, standards-based technologies such as SDN and NFV. In doing so, telecommunications and cloud service providers will be better able to reduce capital and operating expenses while also delivering new services for revenue growth.

SDN and NFV are complementary networking technologies poised to transform how networks are designed, deployed and managed across data center and telecom infrastructure environments. By separating control and data planes, SDN allows the network to be programmed and managed externally at much larger and more dynamic scale for better traffic control across the entire datacenter. NFV allows service providers to virtualize and manage networking functions such as firewall, VPN or intrusion detection service as virtual applications running on a high-volume x86-based server.

Many ISVs, OEMs and service providers are building innovative solutions on top of Intel's switch reference architecture, including ATT Foundry*, Big Switch Network*, Chunghwa Telecom*, HP*, NEC*, NTT Data*, Quanta*, Super Micro and VMware*.

"By decoupling the network from underlying hardware and enabling a new network architecture based on industry-standard x86 technology, network virtualization can transform the operational model of networking to help customers dramatically lower operational and capital expenses," said Allwyn Sequeira, vice president, Networking and Security, VMware. "VMware and Intel have built a strong relationship driving server virtualization on x86 platforms, and we are pleased to be working together to continue this transformation through network virtualization to enable the software-defined data center."

"We share Intel's vision of enabling the network transformation with SDN and NFV across the telecom industry," – said Atsuo Kawamura, General Manager Telecom Carrier Business Unit, 1st Carrier Services Division, NEC Corporation. "We are excited to work with Intel to design with the Intel DPDK Accelerated Open vSwitch into our virtual Evolved Packet Core to deliver industry leading packet throughput and performance on Intel architecture."

The Intel® Open Network Platform Switch Reference Design

Codenamed "Seacliff Trail," the Intel® Open Network Platform (ONP) Switch Reference Design is based on scalable Intel processors, Intel® Ethernet Switch 6700 series and Intel® Communications Chipset 89xx series, and is available now. The ONP Switch Reference Design will include Wind River Open Network Software (ONS), an open and fully customizable network switching software stack using Wind River Linux. Wind River ONS allows for key networking capabilities such as advanced tunneling as well as modular, open control plane and management interface supporting SDN standards such as OpenFlow and Open vSwitch. Common, open programming interfaces allow for automated network management, and coordination between the server switching elements and network switches enabling more cost-effective, secure, efficient and extensible services.

The Intel® Data Plane Development Kit (Intel® DPDK) Accelerated Open vSwitch

Network architectures have traditionally been optimized for large packet throughput to meet the needs of enterprise end-point applications. Intel is executing a project aimed at improving small packet throughput and workload performance that can be achieved on the Open vSwitch using the Intel DPDK. Intel is specifically re-creating the kernel forwarding

module (data plane) to take advantage of the Intel® DPDK library. The Intel® DPDK Accelerated Open vSwitch is planned to initially be released with the Intel® ONP Server Reference Design in the third quarter of this year.

The Intel® Open Network Platform Server Reference Design

This server reference platform, codenamed “Sunrise Trail,” is based on the Intel® Xeon® processor, Intel 82599 Ethernet Controller and Intel Communications Chipset 89xx series. The ONP Server Reference Design enables virtual appliance workloads on standard Intel architecture servers using SDN and NFV open standards for datacenter and telecom. Wind River Open Network Software includes an Intel DPDK Accelerated Open vSwitch, fast packet acceleration and deep packet inspection capabilities, as well as support for open SDN standards such as OpenFlow, Open vSwitch and OpenStack. The project is in development now: the first alpha series is slated to be available in the second half of this year.

About Intel

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