Lenovo Intel® Select Solutions for NFVi

Lenovo NFVi based on 2nd Gen Intel® Xeon® Scalable Processors

Reduce time to value with validated and optimized NFV solutions

Lenovo with Intel® Select Solutions for NFVi

Lenovo and Intel are collaborating on solutions to simplify the selection and deployment of hardware and software needed for today's network workloads and to accelerate Communications Service Providers' (CoSPs) migration to Network Functions Virtualization (NFV).

To help CoSPs accelerate NFV deployments, Lenovo upgraded its validated configurations of Lenovo ThinkSystem SR650 and SR630 Servers with 2nd generation Intel® Xeon® Scalable Processors as part of the second version of Intel® Select Solutions for NFVi. Based on Intel® Xeon® Scalable processors and Intel® QuickAssist Technology (Intel® QAT) these solutions are specially optimized for packet processing, encryption and compression-based NFV workloads. These solutions include Lenovo Ethernet switches to support the data network and management network. The physical infrastructure management is provided by Lenovo XClarity Administrator.

Benefits

The high-performance CPUs, balanced I/O, and on-board acceleration with Intel® QuickAssist Technology, combined with optimizations through DPDK, allow exceptional throughput and latency. Intel QAT is cost and power-efficient hardware built with crypto acceleration and compression capabilities that can free up CPU cycles for NFV workloads. This advancement is well suited for Software Defined Networking (SDN) and Network Functions Virtualization (NFV) implementations. Intel QAT is ideal for CoSPs:

- 4G LTE and 5G encryption algorithm offload for mobile gateways
- VPN traffic acceleration, support for IPsec and SSL acceleration
- Compression/decompression

Intel QAT and Data Plane Development Kit (DPDK) are core technology components of the Intel Select Solutions for NFVi reference design. Intel requires compliant platforms to implement DPDK software and provide sufficient connectivity to the Intel QAT engines for common compute-intensive NFV applications.

Qualified NFVi Configuration

Lenovo qualified the infrastructure shown below to be compliant with the Base configuration reference design of second version of Intel Select Solutions for NFVi.

Table 1: Lenovo supported configuration for Intel Select Solutions for NFVi certification (Base)

Item	Lenovo ThinkSystem SR630 (Controller)	Qty	Lenovo ThinkSystem SR650 (Cloud)	Qty
Processor	Intel® Xeon® Gold 5218 16C 2.3GHz processor	2	Intel® Xeon® Gold 6252 24C 2.1GHz processor	2
Memory	ThinkSystem 32GB TruDDR4 2666MHz RDIMM	12	ThinkSystem 32GB TruDDR4 2666MHz RDIMM	12
Storage (NVMe)	ThinkSystem U.2 Intel P4500 2TB Entry NVMe SSD	2	ThinkSystem U.2 Intel P4500 2TB Entry NVMe SSD	2
Storage (boot)	ThinkSystem 2.5" Intel S4500 480GB Entry SATA SSD	2	ThinkSystem 2.5" Intel S4500 480GB Entry SATA SSD	2
NIC (integrated)	ThinkSystem 10Gb 4-port Base-T LOM (uses Intel X722)	1	ThinkSystem 10Gb 4-port Base-T LOM (uses Intel X722)	1
NIC	Intel XXV710-DA2 PCIe 2-Port SFP28 25GbE Adapter	2	Intel XXV710-DA2 PCIe 2-Port SFP28 25GbE Adapter	2
Intel QAT			Intel QuickAssist Adapter 8970 (PCIe) Add in Card (AIC)	1
Additional hardware/software components available pre-integrated for a rack level Lenovo NFVI solution				
1GbE switch	Lenovo ThinkSystem NE0152T RackSwitch			
10GbE switch	Lenovo ThinkSystem NE1072T RackSwitch			
10/25GbE switch	Lenovo ThinkSystem NE2572 RackSwitch			
100GbE switch	Lenovo ThinkSystem NE10032 RackSwitch			
OpenStack	Red Hat OpenStack Platform Release 13			
Systems Mgt	Lenovo XClarity Administrator software			

Lenovo and Intel collaborate to simplify the selection and deployment of NFVi hardware and software for Communications Service Providers (CoSPs).

Lenovo with Intel® Select Solutions for NFVi

As part of Lenovo's collaboration with Intel, Lenovo has released its Intel Select Solutions for Platform (OSP) Release 13. In alignment with customers' expectations for NFVi, Lenovo has completed validation of its latest ThinkSystem SR630 and SR650 server configurations based on 2nd Generation Intel Xeon Scalable Processors. Verification steps included:

- Pre-defined, VNF-optimized solutions designed to minimize challenges
- RFC based performance benchmarking
- Verified security performance

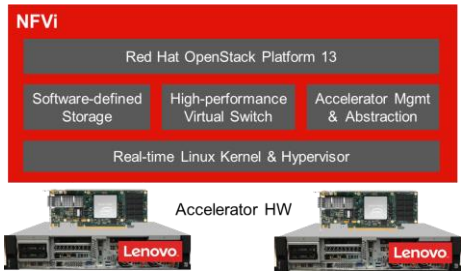

Figure 1: Lenovo NFVi with Intel Select Solutions for NFVi, Red Hat OSP 13

Figure 1 shows Lenovo's NFVi System based on Intel Select Solutions for NFVi on Red Hat OSP 13. Hardware is running with 2nd Generation Intel Xeon Scalable processors and Intel QATwith optimization for packet processing, encryption and compression-based NFV workloads. For details visit: https://intel.ly/33aat0H. Platform optionally includes Lenovo Ethernet switches to support the data and management networks. The physical infrastructure management is provided by Lenovo XClarity Administrator.

Summary

For this latest release, the 2nd Generation Intel Xeon Scalable Processors provide improved performance at a comparable price as the previous generation. For example, 2nd Generation Intel® Xeon® Gold 6252 has 24 cores vs previous generation Intel® Xeon® Gold 6152's 22 cores. Most importantly for Lenovo customers, the latest enhancements will be available immediately when customers are ready for the newest CPU technologies.

Why Lenovo for Communication SPs

Lenovo infrastructure is built on a global manufacturing, services and support footprint, and is ranked #1 globally in both server reliability and customer support. Our CoSP and partner validated solutions are built on open standards and interfaces to preclude vendor lock-in. Lenovo XClarity Administrator simplifies Physical Infrastructure Management (PIM). Lenovo Open Cloud (LOC) offers automation and management of cloud networks across infrastructures.

For More Information

To learn more about Lenovo CoSP solutions and validated partner configurations, contact your Lenovo Business Partner or visit: lenovo.com/cosp

Highlights of Lenovo Optimized and Pre-Tested Solutions

- Simplified evaluation. VNF validation and the transition to virtualized infrastructure are two areas where Communications Service Providers (CoSPs) spend more time and money to find optimal solutions. Intel® Select Solutions for NFVi through Lenovo are tightly specified to eliminate guesswork and accelerate decisions.
- Fast and easy deployment. With predefined settings and rigorous system-wide tuning, Intel Select Solutions on Lenovo infrastructure are designed to increase efficiency in carriers testing process, speed time to service delivery, and increase confidence in performance.
- Workload-optimized performance. Lenovo configurations meet or exceed Intel Select Solutions design goals to deliver a guaranteed performance threshold for the workload and are built on the latest Intel architecture.

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