

DEPLOYING INTEL® XEON® SCALABLE PROCESSORS ON A GLOBAL CLOUD PLATFORM

How phoenixNAP leverages **new Intel architecture with VMware and Supermicro technology** to create global cutting edge cloud and datacenter solutions.

A White Paper by **phoenixNAP**



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The Launch of the Intel® Xeon® Scalable Processor Family in June 2017 marks a new era for the data center and cloud industry. Optimized for fast and secure data processing, the new generation of Intel Xeon technology has introduced significantly improved levels of efficiency for both traditional data centers and cloud deployments, taking the concept of “scalability” to an entirely new level. The key enhancements include accelerated encryption-decryption, performance increases, higher availability and enriched management options for the virtualization of network functions (NFV).

Fusing these new Intel technology features with superior enterprise-grade Supermicro hardware and the VMware virtualization platform, phoenixNAP has significantly improved its solutions supporting heavy workloads, sophisticated data storage and global scalability. This results directly in improved orchestration, resilience and security, and enables businesses to fully leverage cloud and hybrid deployments demanding high levels of compliance and performance in scalable environments.

With data centers in multiple strategic locations worldwide, phoenixNAP makes it possible for companies to utilize the powerful features of Intel's Xeon Scalable Processor Family with truly global deployments.

TECHNOLOGIES AT A GLANCE

Some of the most innovative solutions that came with the release of the Intel Xeon Scalable Processor Family include AVX-512, Intel® Quick Assist Technology, integrated Intel® Omni-Path, Intel® Volume Management Device and Intel® Resource Director Technology.

Allowing phoenixNAP to optimize its workload performance, these features bring a new level of performance and orchestration for its customers.

Participating in Intel's early ship program for Intel Xeon Scalable Processors and leveraging new Supermicro platform features, phoenixNAP enables its customers to take advantages of cutting-edge technologies as soon as they enter the markets. The X11 generation of Supermicro systems deployed at phoenixNAP include the BigTwin™, a high-performing multi-node system in a 2U 4-node dual-processor platform, and the Simply Double SuperStorage system that supports twice the number of 2.5" drive bays than industry standard 2U systems.

In addition to this, phoenixNAP deployed the Intel Xeon Scalable Processor-specific features such as Intel Trusted Execution Technology (Intel TXT) and Trusted Platform Module (TPM) with VMware vCloud Suite and ESX 6.5u1 to gain additional security and performance benefits.

These deployments resulted in a series of progressive gains in terms of security and performance, setting the stage for a wider application and adoption of the new generation technology.

PHOENIXNAP & SUPERMICRO

Relying on Supermicro's partnership and hardware, phoenixNAP effectively provides high-performance solutions across a multitude of data center facilities, enabling global access to its cutting-edge Private and Hybrid-Cloud, Bare Metal, colocation and Hardware-as-a-Service (HaaS) offerings. This architecture is designed to support global deployments of the Intel Xeon Scalable Processor Family, bringing significant performance, resilience and scalability improvements to meet the demands of modern businesses.

The new X11 generation of Supermicro's Building Block Solutions and SuperServers optimized for the Intel Xeon Scalable platform helps phoenixNAP deliver superior solutions for cloud computing, web hosting, big data and high-performance applications. Some of the key benefits phoenixNAP has achieved include:

- **50-60% performance increase with X11 generation Supermicro server and storage solutions**
- **Improved manageability and flexibility with the Supermicro Rack Scale Design**
- **Reductions of server costs and floor space with the BigTwin and Simply Double**

Such massive improvements in speed, security and power help phoenixNAP provide advanced IT solutions to empower its clients to achieve their business goals more easily.

Combining the performance of Supermicro's hardware platform with the innovative capabilities of next generation Intel Xeon technology, phoenixNAP opens the door for innovation in the cloud industry.

PHOENIXNAP & VMWARE

The deployment of Intel's Xeon Scalable Processor Family in the VMware Hybrid Cloud environment has allowed phoenixNAP to deliver a new level of security services with its solutions.

The innovations of Intel Xeon, vCloud Suite and ESX 6.5u1 integrated together, enabled phoenixNAP to provide additional features such as data location, boundary control and geo-fencing, policy tagging, encryption, data analytics and enhanced compliance focus (i.e. HIPPA, PCI).

In addition to this, implementing multi-port 10GB Intel Ethernet Converged Network Adapters with VMware's NSX enabled phoenixNAP to move from a standard L2 VLAN to an L2/3 VXLAN setup and enhance the experience for customers of their VMware Enterprise Cloud (Virtual Private Data Center) offering. Intel Xeon Scalable Processor Family Processors with Intel's TXT inside move the root of trust from software to the bottom layer of hardware.

This allows millions of logically isolated subnets to be spun up/down or moved just like VM's, vastly reducing configuration and management time and increasing the responsiveness and flexibility of the network, bringing the following benefits to phoenixNAP:

Virtualization Performance Enhancements

- Intel's Quick Assist hardware acceleration and next generation Intel Optane technology, with its extremely high

throughput and low latency focused on reducing transaction costs of storage, delivers impressive per core efficiency gains over previous hardware generations.

- Intel VT-X reductions in performance overhead of virtualized environments and Intel Resource Director providing new levels of visibility and control over shared resources will provide significant performance gains per host.

- CPUs have Larger L2 cache for reduced interconnect and coherency activity.

Networking and Security Improvements

- Increased hardware accelerated encryption capabilities of Intel's Quick Assist will help our web scale customers improve their host efficiency.

- The Intel QAT should also help drive large gains in virtual networking and security appliance throughput.

- Through tight partner integrations with the Intel Cloud Integrity Toolkit V3, we hope to see large gains in trust and assurance for our most security and compliance conscious customers.

MARKETS, INFRASTRUCTURE AND APPLICATIONS

This innovative technology centering on security and performance allows phoenixNAP to deliver new levels of scalability, speed and compliance across its global private & hybrid cloud and bare metal platforms.

Given its built-in features and overall design, this architecture brings additional benefits to organizations with high security standards and operating IT environments with strong regulatory compliance.

Markets

- Financial
- Healthcare and life sciences
- Government
- Education
- Cloud



Infrastructure

- Network
- Storage
- Compute



Applications

- Security
- Video processing and delivery
- Big data and analytics
- Machine learning
- Packet processing



CONCLUSION

The architecture of Intel's Xeon Scalable Processor Family of products allow the implementation of advanced threat protection strategies, particularly through its integrations with industry leading hardware and virtualization solutions. The VMware NSX capabilities, as well as Supermicro's hardware platform help create a high performance and secure environment for storing critical enterprise data on a global scale.

Focusing on the highest performance and network security standards, the Intel Xeon Scalable Processor Family provides phoenixNAP and its clients with superior performance to help them gain competitive advantage. The release of this architecture introduces a diversity of opportunities for global companies requiring exceptional performance, reliability and security while leveraging scalable IT infrastructure.

It is an important innovation further progressing cloud services delivery and allowing more flexible and cost-effective global deployments of the industry's leading data center technologies.

ABOUT PHOENIXNAP

PhoenixNAP is a Global IT services organization offering cloud services, dedicated server hosting, colocation, and Infrastructure-as-a-Service (IaaS) technology solutions. Working with multinational corporations for almost a decade, phoenixNAP has maintained a reputation of a reliable provider through a highly-personalized approach that ensures all customer requirements are met. Whether it's flexible storage, disaster recovery, or enterprise-grade facilities, certified personnel supply IT solutions to fit every need. PhoenixNAP is a VMware® Premier Service Provider and Veeam® Platinum Partner.