Solution Brief

NetScaler VPX™
Intel® Xeon® Scalable Processors
Intel® QuickAssist Technology (Intel® QAT)

High-Performance Application Delivery with NetScaler VPX™ and Intel® QuickAssist Technology (Intel® QAT)

Accelerate application delivery, increase deployment scalability, and reduce resource consumption in hybrid cloud environments.

NetScaler VPX with Intel QAT enabled delivers up to 10x higher Secure Sockets Layer (SSL) transactions per second (TPS) and 40 percent lower processor utilization.[1]

NetScaler VPX™ is a software-based application delivery controller (ADC) designed to deliver outstanding application performance in distributed environments. Optimized with Intel® Xeon® Scalable processors and Intel® QuickAssist Technology (Intel® QAT), which deliver high-performance cores and support high-capacity memory, NetScaler VPX accelerates Secure Sockets Layer (SSL) processing while also improving CPU utilization. These extra CPU cycles can be used to perform more tasks using the same number of cores or to consolidate servers running the same number of workloads.

NetScaler VPX is designed to deliver highly performant applications in distributed environments

NetScaler VPX can provide best-in-class performance with the right settings. And when you run NetScaler VPX on hardware built on Intel® architecture, you can achieve additional performance improvements by enabling Intel QAT. Intel QAT accelerates and offloads data encryption, compression, and decompression operations from the processor, and it processes those operations more efficiently than the CPU cores. Using NetScaler VPX with Intel QAT enabled can increase SSL performance by up to 10x compared to using it without Intel QAT enabled.[1]

Table 1. SSL throughput for NetScaler VPX with the Intel QAT accelerator enabled[1]

SSL cipher	NetScaler VPX with Intel QAT
TLS1-AES-128-CBC-SHA	Up to 10x higher transactions per second (TPS)
TLS1.2-ECDHE-RSA-AES256-GCM-SHA384	Up to 5x higher TPS

Offloading can also reduce CPU utilization: Intel QAT can reduce CPU utilization by up to 40 percent, freeing cores for other computing tasks.[1] You can use the extra cycles to support more concurrent VPN connections on NetScaler VPX or to run more workloads on the same number of cores. You can also use the higher performance per core to consolidate servers.

NetScaler VPX

NetScaler VPX runs optimally on Intel architecture with VMware ESXi and KVM hypervisors, helping you reduce your spend on hardware purchases, power consumption, and resource provisioning.

Best for:

- Using a virtual form factor for application delivery in hybrid cloud environments
- Load balancing across on-premises and public clouds
- Replacing hardware-based application delivery
- Architecting scalable multi-tenant infrastructures with fully isolated resources

Key benefits:

- Reduce hardware server costs
- Accelerate application performance[1]
- Achieve increased SSL performance without using hardware acceleration[2]

The NetScaler application delivery and security platform

NetScaler uses a single code base and a software-based architecture across all form factors, so no matter how you choose to deploy your applications—on-premises, in a public cloud, or across both—the features and behavior will be exactly the same. NetScaler provides feature parity, including configuration management, across its ADC form factors, which allows for portability of services when migrating deployments between environments. And NetScaler's single management plane, NetScaler Console, gives you one place for orchestrating and managing NetScaler ADCs, implementing security policies, and accessing analytics and observability capabilities to ensure consistent application delivery across hybrid and multicloud environments.

High-performance application delivery

Designed from inception to be software-focused and hardware-agnostic, NetScaler uses x86 commodity hardware to allow for cost-effective performance and scaling:

- NetScaler's proprietary one-pass architecture processes security and other ADC functions in a single pass for the lowest latency—in addition to the reduced costs that come with optimal CPU utilization.
- NetScaler enables dynamic scaling of internet traffic for hybrid and multicloud workloads to achieve clustering of up to 8 Tbps of L7 throughput for traffic destined for a single IP and port on up to 32 nodes.[3]
- NetScaler's superior proxy performance for Transport Layer Security (TLS) processing provides a low-latency advantage.

Comprehensive security

NetScaler comes with built-in enterprise-grade security features so you can consolidate and simplify your infrastructure, mitigating the need to purchase multiple point solutions:

- Uniform protection for applications across environments with no compromise on performance
- Web application firewall (WAF) and volumetric bot protection at scale
- API endpoint protection for securing microservices applications

End-to-end observability

NetScaler observability goes beyond simple monitoring to not only alert you that something is wrong but to also tell you exactly where to find the issue—the client, the server, or the internet connection in between—so you can fix it faster:

- The most granular real-time insights for application and API traffic, application and API security, and network and infrastructure performance
- Integrations with popular data-visualization tools, including Splunk, Prometheus, Grafana, and more
- Intelligent visibility into the most valuable telemetry data—including metrics, events, logs, and traces—to significantly reduce your ingress and data storage costs

Intel QAT

Intel is a leading platform for a broad range of virtualization, containerization, and microservices software. Intel QAT accelerates application delivery and provides the following benefits:

- Improves server performance and power efficiency for compute-intensive workloads, including network packet processing, cryptography, AI, high-performance computing (HPC), databases, analytics, storage, and infrastructure
- Integrates hardware-accelerated SSL into Intel Xeon Scalable processor–based appliances across the network
- Accelerates cryptography and data decompression/compression while also reducing CPU cycles
- Decreases TCO via reductions in server footprint, CPU utilization, and power usage

The benefits of Intel Xeon Scalable processors

Intel Xeon Scalable processors use high-performance cores and high-capacity memory to help support your most intensive traffic loads and application requests. Intel Xeon Scalable processors can enhance application performance and security, and they can drive compute-intensive processing for other workloads, including AI inference, HPC, databases, storage, and analytics.

Intel Xeon Scalable processors for standards-based x86 architectures are:

- Widely used by enterprise organizations because of their compatibility with a broad range of hardware and software
- Supported by Intel's industry-leading silicon products, along with co-engineering, tech support, developer resources, and open source contributions
- Popular with DevOps because they can develop, deploy, tune, and provision applications using familiar and preferred tools
- Popular with infrastructure architects because the high-speed PCIe and UPI connectivity lets them easily add high-speed storage, networking, databases, and input/output (I/O) devices

Optimize application delivery across distributed environments

For application delivery in hybrid cloud environments, NetScaler VPX, optimized on Intel Xeon Scalable processors with Intel QAT, offers unparalleled application performance. Built on high-performance cores and designed to support high-capacity memory, Intel Xeon Scalable processors enable NetScaler VPX to efficiently manage your most intensive application workloads. Intel QAT accelerates cryptographic and data-compression performance, freeing up CPU cores for more tasks.

Learn more

- Explore the benefits of using NetScaler VPX for application delivery across distributed environments.
- Learn more about how Intel Xeon Scalable processors deliver outstanding performance for your most intensive applications.
- Learn more about how Intel QAT accelerators help optimize security processing tasks.

[1] Based on internal NetScaler testing conducted in December 2023 comparing TLS 1.2 SSL transactions per second (TPS) with a 10 GB NetScaler VPX VM running on a 3rd Gen Intel Xeon Scalable processor both without and with Intel QAT enablement. Source: NetScaler. For details on configuring NetScaler VPS with Intel QAT and the ESX and KVM hypervisors, see: NetScaler. "Configure a NetScaler VPX on ESX hypervisor to use Intel QAT for SSL acceleration in SR-IOV mode." February 2024. And: NetScaler. "Configure a NetScaler VPX on the KVM hypervisor to use Intel QAT for SSL acceleration in SR-IOV mode." February 2024.

[2] Based on internal NetScaler testing conducted in December 2023 comparing application delivery performance both without and with NetScaler VPX. Source: NetScaler. NetScaler VPX product page. Accessed February 2024.

[3] Updated L7 throughput results based on internal NetScaler testing conducted in December 2023 across form factors. Source: NetScaler. See the data sheet for additional product information: netscaler.com/content/dam/netscaler/documents/data-sheet/netscaler-data-sheet.pdf. Accessed February 2024.

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