



Mellanox Propels NVMe/TCP and RoCE Fabrics to New Heights

ConnectX SmartNICs and BlueField I/O Processing Units (IPUs) are First 200Gb/s Adapters to Support NVMe-oF over TCP and RoCE as well as IPsec and TLS Security Acceleration

Mellanox Technologies, Ltd. (NASDAQ: MLNX), a leading supplier of high-performance, end-to-end smart interconnect solutions for data center servers and storage systems, today announced acceleration of NVMe/TCP at speeds up to 200Gb/s. The entire portfolio of shipping ConnectX adapters supports NVMe-oF over both TCP and RoCE, and the newly-introduced ConnectX-6 Dx and BlueField-2 products also secure NVMe-oF connections over IPsec and TLS using hardware-accelerated encryption and decryption. These Mellanox solutions empower cloud, telco and enterprise data centers to deploy highly-efficient, NVMe flash storage platforms using both TCP/IP and RoCE.

The growing demands for web-scale, dynamic storage have led hyperscale cloud titans to adopt networked NVMe storage technologies to support their need for composable infrastructure with incredible velocity and agility. Providing fully automated, on-demand and simple access to storage resources, composable storage architectures replace the traditional, siloed infrastructure model and benefit data centers of all sizes. Central to this approach is the provisioning of disaggregated, scale-out NVMe storage media that utilizes a high-throughput, low latency network interconnect for accelerating compute access to software-defined storage.

Mellanox, the leader in high-performance networking, offers a complete portfolio comprising ConnectX SmartNICs and BlueField IPUs. The innovative portfolio delivers cutting-edge NVMe-oF capabilities over both TCP and RDMA transports, enabling superior performance, higher return on investment, and lower total cost-of-ownership than other network adapters. The now-shipping ConnectX-6 Dx and upcoming BlueField-2 IPU support hardware cryptographic acceleration of IPsec and TLS for both RoCE and TCP, making them the world's fastest and most secure NVMe-oF SmartNICs.

The new NVMe/TCP storage acceleration enables customers to deploy NVMe storage today in existing TCP/IP network environments, allowing businesses to enjoy a smooth transition path from legacy storage solutions to modern storage platforms. Recent benchmarks demonstrate ConnectX adapters deliver up to full-line rate performance using the NVMe/TCP protocol. In addition, ConnectX and BlueField deliver NVMe-oF hardware accelerators for storage target and initiator functions over RoCE networks, providing unparalleled performance and CPU efficiency. ConnectX SmartNICs and BlueField IPUs are ideal for any NVMe-oF storage solution, allowing businesses to select their network of choice, achieve massive scale, eliminate any vendor lock-in, and secure data-in-motion as well as data-at-rest.

"As NVMe storage gains momentum in the industry, Mellanox Ethernet SmartNICs accelerate NVMe access across any network, demonstrating technology leadership in the space," said Dror Goldenberg, senior vice president, software architecture, at Mellanox Technologies. "Our NVMe/TCP and NVMe-oF RoCE acceleration technologies enable our customers to benefit from the economical and operational advantages of composable and disaggregated storage architecture, in a flexible and future-proof design."

"We use Mellanox ConnectX NICs to deliver excellent performance from the Pavilion Hyperparallel Flash Array, over either TCP or RoCE, or both simultaneously," said VR Satish, CTO of Pavilion Data. "We've shown that NVMe over TCP offers much better performance than iSCSI, and NVMe over Fabrics using RoCE delivers even faster performance, with average NVMe-oF latencies from 40-50% lower than using NVMe over TCP."

"Excelero is proud to support RoCE and TCP networking with our NVMesh and NVEdge Software stacks," said Yaniv Romem, CTO & Co-Founder at Excelero. "Our distributed NVMe flash solution supports amazingly fast and efficient storage performance on nearly any network fabric. But for the best possible NVMe-oF throughput and latency, we recommend Mellanox ConnectX adapters with Mellanox Spectrum switches."

Mellanox ConnectX SmartNICs have been widely adopted by and are available in the market through various compute and storage OEM vendors globally. Moreover, ConnectX SmartNICs are supported by enterprise-class operating-system providers and virtualization software stacks, including VMware ESXi, Microsoft Windows Server, Red Hat Enterprise Linux systems, and more. Compared to competing solutions, ConnectX provides improved power and a cost-efficient ASIC solution with a broad set of innovative hardware accelerators and software-defined capabilities.

Supporting Resources:

- Learn more about [Mellanox ConnectX SmartNICs](#)
- Learn more about [Mellanox BlueField IPUs](#)

- Learn more about [Mellanox Storage Solutions](#)

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