



# Mellanox Introduces Breakthrough NVMe SNAP Technology to Simplify Composable Storage

## BlueField SmartNIC Virtualizes Storage for any Application or Operating System to Accelerate Cloud

Mellanox® Technologies, Ltd., a leading supplier of high-performance, end-to-end interconnect solutions for data center servers and storage systems, today announced NVMe SNAP (Software-defined, Network Accelerated Processing), a storage virtualization solution for public cloud, private cloud and enterprise computing. This new SNAP technology allows customers to compose remote server-attached NVMe Flash storage and access it as if it were local, to achieve all the efficiency and management benefits of remote storage, with the simplicity of local storage.

The Mellanox NVMe SNAP solution eliminates the inefficiency of local storage while addressing a growing need for compute and storage disaggregation and composability at cloud scale. NVMe SNAP enables faster adoption of NVMe over Fabrics (NVMe-oF) in different data center environments by enabling seamless integration into almost any server with any operating system or hypervisor, effectively enabling immediate deployment of NVMe-oF technology for any application.

The NVMe SNAP solution, delivered as part of the BlueField™ family of PCIe SmartNIC adapters, makes networked flash storage appear as local NVMe storage, effectively virtualizing the physical storage. Local NVMe SSDs are already supported by all major operating systems and hypervisors. NVMe SNAP makes use of these existing NVMe interfaces, to give customers the composability and flexibility of networked flash storage, combined with the advantages of local SSD performance, management, and software transparency. This NVMe SNAP technology is combined with BlueField's powerful multicore Arm processors and virtual switch and RDMA offload engines, to enable a broad range of accelerated storage, software defined networking, and application solutions. The Arm processors in combination with SNAP can be used to accelerate distributed file systems, compression, de-duplication, big data, artificial intelligence, load balancing, security and many other applications.

"We have a long history of delivering not just high-speed networking, but greater efficiency to servers, storage, and applications," said Dror Goldenberg, Vice President of Software Architecture, Mellanox Technologies. "Customers have relied on us to deliver higher bandwidth, efficient transport, software-defined networking, and packet processing acceleration. Now we can help them virtualize and accelerate storage as well, making cloud and enterprise computing faster, composable, more secure, and more efficient."

"As the largest online retailer and biggest Internet company by revenue in China, JD.com is a leader in building and operating cutting-edge data centers," said Gang He, corporate vice president of JD Group and head of JD Cloud product development. "The ability to provision remote networked storage as local storage using the Mellanox NVMe SNAP framework helps us design a composable infrastructure that is flexible and agile to meet our evolving storage needs."

"Customers rely on the revolutionary E8 Storage architecture for the most demanding workload, such as genomics, real-time analytics, and accelerating scale-out file systems like IBM Spectrum Scale," said Ziv Serlin, VP architecture and co-founder at E8 Storage. "They want the ability to access our high-performance and highly-available NVMe-oF arrays from many different types of servers and to keep as much of the servers' CPU power as possible available for those workloads. For those reasons, we look forward to leveraging Mellanox's NVMe SNAP to virtualize E8 all-flash arrays as local NVMe storage on many types of servers."

"NVMe SNAP lets more customers take advantage of Excelero's high-performance NVMesh storage solution and Remote Direct Drive Access (RDDA) functionality," said Yaniv Romem, CTO and co-founder of Excelero. "NVMesh is the ideal storage for 4K and 8K video production, databases, containers, and high-performance computing use cases, and NVMe SNAP allows a broader range of operating systems and hypervisors access NVMesh as if it were local storage. We are excited to work with Mellanox on integrating NVMesh with NVMe SNAP on BlueField SmartNICs to both simplify composable NVMe storage and make more client CPU cores available to run critical applications."

As more workloads move to public and private cloud infrastructure and servers increasingly use faster 25, 50 and 100 Gb/s network speeds, customers face increasing challenges to meet storage capacity, management, and performance requirements. While providing fast performance, it is hard to fully utilize, protect, and share local storage. Networked storage, based on NVMe over Fabrics, improves resource utilization, flexibility, and capacity planning, but requires specific support from operating systems, hypervisors, and applications. NVMe SNAP allows remote storage to appear as if it were direct-attached NVMe flash, in a way that is completely transparent to the OS and hypervisor. This allows all applications running on virtualized, containerized, or bare metal servers to enjoy the performance benefits of local storage with the manageability, data protection, and efficiency of networked storage.

"Customers want to achieve Total Infrastructure Efficiency across servers, storage, and networking, and the Mellanox NVMe SNAP solution offers them a way to achieve exactly that," said R. Scott Raynovich, chief analyst at market research firm Futurium. "Our recent survey of over 200 cloud and enterprise professionals revealed that their biggest concern around virtualization and containers is overcoming the performance penalties of virtualization. As they deploy SmartNICs as a way to make their data centers more efficient, the second-most popular use case for SmartNICs is to virtualize and share flash storage more efficiently. A SmartNIC like BlueField that can both virtualize flash storage and accelerate SDN has tremendous potential with cloud and large enterprise customers."

Mellanox is showcasing NVMe SNAP technology at the 2019 OCP Global Summit in San Jose, CA March 14-15. Visit Mellanox at booth A16 to learn about the benefits of Mellanox high throughput networking solutions and BlueField SmartNICs with NVMe SNAP to accelerate and virtualize storage.

#### **Additional Resources:**

- Learn More About SNAP on [Simplifying Composable Infrastructure with NVMe Hardware Virtualization](#)
- Read the [Futurium Secrets of the Datacenter Survey Report](#)
- Learn more about [Mellanox SmartNICs](#)
- Follow Mellanox on: [Twitter](#), [Facebook](#), [LinkedIn](#), and [YouTube](#)
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#### **About Mellanox**

Mellanox Technologies is a leading supplier of end-to-end Ethernet and InfiniBand smart interconnect solutions and services for servers and storage. Mellanox interconnect solutions increase data center efficiency by providing the highest throughput and lowest latency, delivering data faster to applications, unlocking system performance and improving data security. Mellanox offers a choice of fast interconnect products: adapters, switches, software and silicon that accelerate application performance and maximize business results for a wide range of markets including cloud and hyperscale, high performance computing, artificial intelligence, enterprise data centers, cyber security, storage, financial services and more.

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