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TECHNOLOGIES

Mellanox Introduces Ethernet Cloud Fabric Technology Based on the World's Most Advanced 100/200/400GbE Open Ethernet Switches

Designed for Unmatched Scale and Programmability, Spectrum®-2 Open Ethernet Switches Enable Industry's Most Efficient Cloud, Hyperscale, and Enterprise Data Centers

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SUNNYVALE, Calif. & YOKNEAM, Israel--(BUSINESS WIRE)--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 introduced breakthrough Ethernet Cloud Fabric (ECF) technology based on Spectrum-2, the world's most advanced 100/200/400 Gb/s Ethernet switches. ECF technology provides the ideal platform to quickly build and simply deploy state of the art public and private cloud data centers with improved efficiency and manageability. ECF combines three critical capabilities:

- Industry-leading packet forwarding data plane
- Agile, flexible and fully programmable data pipeline
- Fully integrated, Open and Actionable telemetry to provide instant insights

ECF fully incorporates Ethernet Storage Fabric (ESF) technology that seamlessly allows the network to serve as the ideal scale-out data plane for computing, storage, artificial intelligence, and communications traffic. ECF technology fully embraces Open Ethernet platforms that disaggregate hardware and software, and Spectrum-2 based switches are available with network operating systems including Mellanox Onyx, Cumulus Linux, SONiC, and Linux SwitchDev.

Spectrum-2 switches with ECF enables data center architects to achieve the highest levels of performance, flexibility and advanced visualization capabilities to improve operational efficiency.

Industry-leading Packet Forwarding Data Plane

- 8.33 Billion Packets per second – Fastest in its class
- 42MB Monolithic and fully shared packet buffer to provide high bandwidth and low-latency cut-through performance
- Robust RoCE Datapath to enable hardware accelerated data movement for Ethernet Storage Fabric and Machine Learning applications
- Half a million flexible forwarding entries to support large Layer-2 and Layer-3 networks
- Up to 2 Million routes with external memory to address Internet Peering use cases
- 128-way ECMP with support for flowlet based Adaptive Routing
- Hardware-based Network Address Translation
- 500K+ Access Control List entries for micro-segmentation and cloud scale whitelist policies
- 500K+ VXLAN Tunnels, 10K+ VXLAN VTEPs to provide caveat-free Network Virtualization

Agile, flexible and fully programmable data pipeline

- Comprehensive support for VXLAN overlays including single pass VXLAN routing and bridging
- Centralized VXLAN routing for brown field environments

- Support for other overlay protocols including EVPN, VXLAN-GPE, MPLS-over-GRE/UDP, NSH, NVGRE, MPLS/IPv6 based Segment routing and more
- Future-proofing with programmable pipeline that can support new, custom and emerging protocols
- Uncompromising performance with hardware optimized stages that accelerate traditional as well as virtualized network functions
- Advanced modular data plane and integrated container support enables extensibility and flexibility to add customized and application specific capabilities

Fully Integrated, Open and Actionable Telemetry

- 10X reduction in mean time to resolution by providing a rich set of contextual and actionable Layer 1-4 "What Just Happened" telemetry insights
- Hardware based packet buffer tracking and data summarization using histograms
- More than 500K flow tracking counters
- Open and Extensible platform to facilitate integration and customization with 3rd party and open source visualization tools
- Support for traditional visibility tools including sFlow, Streaming and In-band telemetry

Spectrum-2 extends the capabilities of the first generation of Spectrum based Ethernet switches, which are deployed in thousands of data centers around the world. Spectrum enables IT managers to achieve leading performance and efficiency for 10GbE infrastructures and higher, and to effectively and economically migrate from 10 to 25, 50, and 100 Gb/s speeds. Spectrum capabilities are highlighted in a Tolly test report which demonstrates superior performance versus competitor products. Spectrum-2 maintains the same API as Spectrum: Open SDK/SAI API or Linux upstream driver (Switchdev) and supports a range of network operating systems.

"The Spectrum-2 switch ASIC operates at speeds up to 400 Gigabit Ethernet, but goes beyond just raw performance by delivering the most advanced features of any switch in its class without compromising operation ability and simplicity," said Amir Prescher, senior vice president of end user sales and business development at Mellanox Technologies, "Spectrum-2 enables a new era of Ethernet Cloud Fabrics designed to increase business continuity by delivering the most advanced visibility capabilities to detect and eliminate data center outages. This state-of-the-art visibility technology is combined with fair and predictable performance unmatched in the industry, which guarantees consistent application level performance, which in turn drives predictable business results for our customers. Spectrum-2 is at the heart a new family of SN3000 switches that come in leaf, spine, and super-spine form factors."

"Hewlett Packard Enterprise M-series Ethernet switches allow our customers to support more apps, more users and more locations with higher performance and lower latency while reducing cost, space and power," said Marty Lans, General Manager, Storage Connectivity & HPE Complete at Hewlett Packard Enterprise. "The demand for bandwidth is constantly increasing as companies adopt HCI and NVMe-OF. Spectrum-2 gives them a high-performance Ethernet storage fabric with the industry's highest throughput and comprehensive visibility."

"Mellanox is a long-term trusted partner of Cumulus, and we're excited to partner with them once again to enable customers with Linux-based environments to build an agile, high performance and highly-automated infrastructure," said Josh Leslie, CEO of Cumulus Networks. "Spectrum-2 will be able to run a massive spine complete with features – twice as fast as before – and will enable twice as many breakouts. As the best, most deployed, and most strategic software stack, Cumulus Linux and the second generation of Spectrum will be an important piece on the chessboard in the quest for data center dominance."

"Data Center customers are looking to significantly increase the Ethernet switch bandwidth in their networks while simultaneously raising the requirements for overlay-based network agility and fully-integrated visibility," said Sameh Boujelbene, Senior Director at Dell'Oro Group. "25 GbE and 100 GbE adoption continues to accelerate outside of the large Cloud Service Providers. We predict 25 and 100 GbE combined sales to rise 50% over the next two years. Spectrum-2 addresses this transition."

The Mellanox SN3000 family of Ethernet switches are built on the Spectrum-2 switch ASIC to provide 1GbE through 400GbE Ethernet connectivity, and enable a rich set of enhanced capabilities. These advanced features along with increased flexibility and port density enables a variety of switch platforms optimized for cloud, Hyperscale, Enterprise data center, big data, artificial intelligence, financial, storage workloads and more.

Spectrum-2's innovative design and flexible data path allows IT managers to fully optimize their network for business specific workloads to maximize their data center return on investment. Additionally, Spectrum-2 delivers unmatched power efficiency when compared to alternative offerings, improving data center total cost of ownership.

Availability: The Spectrum-2 based SN3000 family of switch systems with ECF technology will be available in Q3.

Supporting Resources:

- Learn more about: Spectrum-2 ASIC
- Explore: Open Ethernet Switches
- Follow Mellanox on: Twitter, Facebook, LinkedIn, and YouTube

- Join the Mellanox Community

About Mellanox

Mellanox Technologies (NASDAQ: MLNX) 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. More information is available at: http://www.mellanox.com

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