Mellanox Propels JD Cloud to New Levels of Performance and Efficiency

E-Commerce Giant's Cloud Computing Platform Leverages ConnectX 25G Ethernet NIC Advanced Offloads to Support More Customers in their Data Center

Mellanox® Technologies, Ltd. (NASDAQ: MLNX), a leading supplier of high-performance, end-to-end interconnect solutions for data center servers and storage systems, today announced that JD Cloud, a full-service cloud computing platform and integrated cloud service provider from China's E-commerce giant JD.com (NASDAQ: JD), has adopted Mellanox ConnectX adapters with advanced offloads to improve performance, efficiency, security and reduce cost of their data center. JD Cloud worked closely with Mellanox and the Linux kernel community to develop pioneering new capabilities based on Accelerated Switching and Packet Processing (ASAP2) technology supported by the ConnectX series of Ethernet network adapters. By leveraging ConnectX adapters with ASAP2, JD.com was able to develop cloud native applications, network function virtualization, and distributed security with unmatched performance and efficiency.

ASAP2 significantly boosts the efficiency of Software-Defined Networking (SDN), Network Function Virtualization (NFV), and cloud deployments. The solution combines the performance and efficiency of Mellanox networking hardware accelerators with the flexibility of server based virtual switching to deliver software-defined networks that perform with the highest total infrastructure efficiency, deployment flexibility and operational simplicity. JD Cloud and Mellanox co-designed the most advanced connection tracking feature of the ASAP2 acceleration technology, and will open-source the code to Linux community. This is a fundamental technology that accelerates stateful software defined applications such as firewalls, load-balancers, and intrusion detection and prevention systems. The deployment of this advanced ASAP2 technology allows JD.com to serve more customers, more efficiently, and more cost-effectively than previously possible.

"Stateful connection tracking in hardware is quite challenging. JD Cloud and Mellanox worked closely to co-design and implement this feature based on Mellanox's ASAP2 technology. Now we achieve excellent network performance and deliver a better user experience to our customers," said Gang He, corporate vice president of JD Group and head of JD Cloud product development. "By offloading network packet processing, ASAP2 technology frees up the CPU, so that it no longer needs to handle every data packet. Instead, almost all CPU cycles become available to run applications. The net result is that our customers see better and more predictable performance for their applications workloads, while simultaneously achieving better security, scalability, efficiency, and cost savings."

"Total infrastructure efficiency, operational simplicity and deployment flexibility were the guiding principles for designing ASAP2," said Amir Prescher, senior vice president of business development and end user sales, Mellanox Technologies. "Working with the JD Cloud development team, we were able to unlock the potential of our networking technology, and improve both performance and efficiency of the JD cloud data center. The result is that JD Cloud is able deliver a better customer experience while simultaneously reducing costs."

"This deployment of hardware accelerated virtual switching in the cloud confirms the needs as expressed in our recent Efficient Data Center survey," said Scott Raynovich, founder and chief analyst, Futuriom. "IT managers and cloud architects cited overcoming virtualization performance penalties as their biggest challenge. Using advanced NICs such as those from Mellanox that offload the CPU and accelerate virtualization and security processing is the key to achieving penalty-free performance."

The new generation of SDN, NFV and cloud-native computing technologies are pushing the limits of application instances that can be packed efficiently, securely and quickly on virtualized and containerized server infrastructure. In addition, the co-existence of multiple microservices, applications, and tenants - necessitates a more efficient underlying network fabric. Hypervisor based virtual switching and routing software has enabled agility and flexibility, however has suffered from poor performance, poor scalability, and high CPU overhead within the server. These problems get worse as cloud infrastructures migrate from 10 Gb/s networking connectivity to 25 and 100 Gb/s, required for increasingly data and I/O intensive applications.

The Mellanox ASAP2 solution addresses these challenges head-on, by offloading virtual switch data path operations to the ConnectX NICs and BlueField SmartNICs. Both of these product families have pipelined, programmable hardware accelerators to perform intelligent flow processing and connection tracking at scale. With Mellanox connection tracking security technology, protecting the host from attacks is done at wire speed. Furthermore to simplify deployment, the acceleration is transparent - and the virtual switch control plane, SDN controller interface, and cloud management platforms, all remain unchanged. ASAP2 optimizes network application performance by streamlining I/O operations, in the most cost-effective manner possible with minimal CPU impact. This enables customers to maximize resources to run application workloads, instead of network I/O processing.

Demonstrations at RSA 2019 Conference, San Francisco, CA March 4-7, 2019 Visit Mellanox at booth 4528 to learn about the benefits of Mellanox 10/25/40/50/100/200 Gb/s networking solutions with ASAP2 to secure your data centers.

Supporting Resources:

- Learn more about ASAP2
- Learn more about Futuriom Survey: Untold Secrets of the Efficient Data Center

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

About JD Cloud
JD Cloud is JD.com's full-service cloud computing platform and integrated cloud service provider. It houses the world's leading technologies and a wealth of cloud computing solutions. JD Cloud offers full stack services ranging from IaaS and PaaS to SaaS. It also provides a full spectrum services from IDC and cloud computing services to integrated offerings and services spanning several industries. JD Cloud covers Public Cloud, Private Cloud, Hybrid Cloud and Dedicated Cloud. It delivers a comprehensive range of cloud computing services including infrastructure building, strategic consulting, and business platforms development and operation.

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