Improve Data Transfer Efficiency
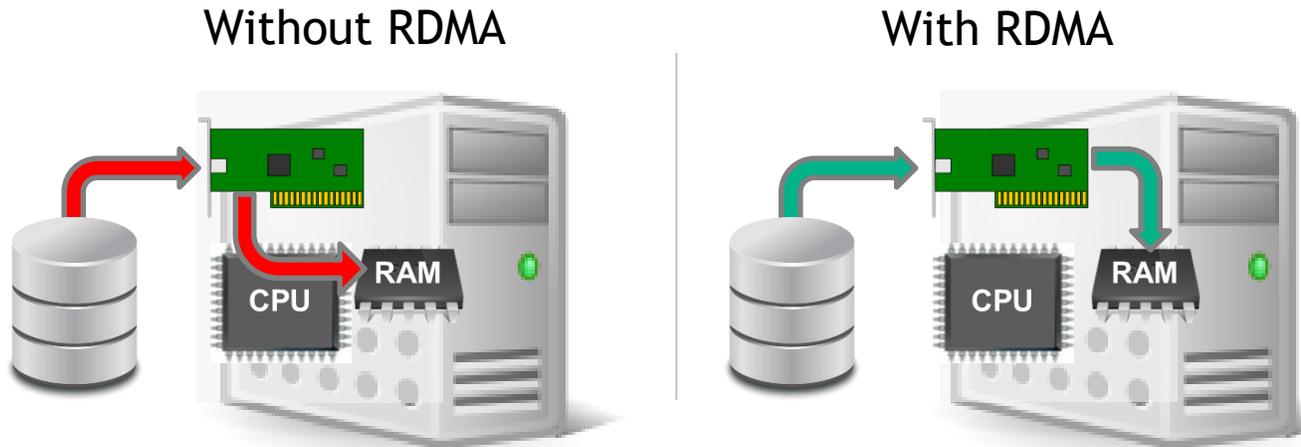
Remote Direct Memory Access (RDMA) increases the efficiency at which data is transfered by removing the CPU from I/O tasks, freeing up resources to accelerate application performance (Server-to-Server or Server-to-Storage)

Without RDMA

With RDMA

6X The Throughput	**<1usec Latency**	**<2% CPU Utilization**
Compared to iWARP	VM to VM Communication	Delivering I/O at 25Gbps

Performance

Higher Throughput & IOPS

Scalability

Reduce Overhead

Efficiency

Lower CPU Utilization

RDMA Over 25GbE Provides 23.5 Gb/s Total Throughput

Accelerate Your Server & Network Infrastructure With Mellanox 25Gb Ethernet and Boost Application Performance and Scalability!

RDMA
Technical Brief

Mellanox ®
TECHNOLOGIES
www.mellanox.com

Mellanox 25GbE Network Offering

ConnectX-4 Lx EN

10/25/40/50Gb Ethernet

SN Series Open Ethernet Switches
10/25/40/50/100Gb *Ethernet*

LinkX Cables and Transceivers
Copper and active optical cables and transceivers

Increases in data center traffic are driving requirements for increased server and networking bandwidth. Data centers also require an offering that can scale effectively well into the future, something that 10GbE falls short on providing. 25Gb Ethernet arrives just in time to solve the concerns that 10GbE infrastructures cannot provide the bandwidth, nor scale economically to meet future growth requirements. 25GbE technology provides superior server and switch port density by providing higher bandwidth in a single lane along with lower costs and power consumption. 25GbE is a new standard that leverages technology defined for 100 Gigabit Ethernet implemented as four 25Gbps lanes (IEEE 802.3bj) running on four fiber or copper pairs. Solutions built on 25GbE are backward and forward compatible with 10, 50, 100, and future 200 and 400 GbE products, ensuring an upgrade path that future-proofs solutions.

As high bandwidth interconnection become more prevalent, processing network requests places a significant burden on the CPU. With offloads such as RDMA, efficiency can be gained to further improve performance of 25GbE networks. RDMA allows network adapters direct access to application buffers, bypassing the kernel, CPU and protocol stack so the CPU can perform more useful tasks while I/O transfers are taking place. This delivers increased performance within servers, allowing application workloads to efficiently scale in high-bandwidth networks, making the decision to migrate to 25GbE a simple one.

ConnectX-4 Features
- ✓ 10 to 100Gb Ethernet speeds
- ✓ DPDK (Data Plane Dev Kit) for outstanding small packet performance
- ✓ Lower latency with RoCE (RDMA over Converged Ethernet) for latency-sensitive applications
- ✓ Faster network virtualization with VXLAN / NVGRE / GENEVE tunnel offload

SN Series Switch Features
- ✓ 10 to 100Gb Ethernet speeds
- ✓ Predictability, zero packet loss, wire-speed throughput
- ✓ True cut-through switching for the lowest latency
- ✓ Choice of operating systems to eliminate vendor lock-in
- ✓ Lowest power and density