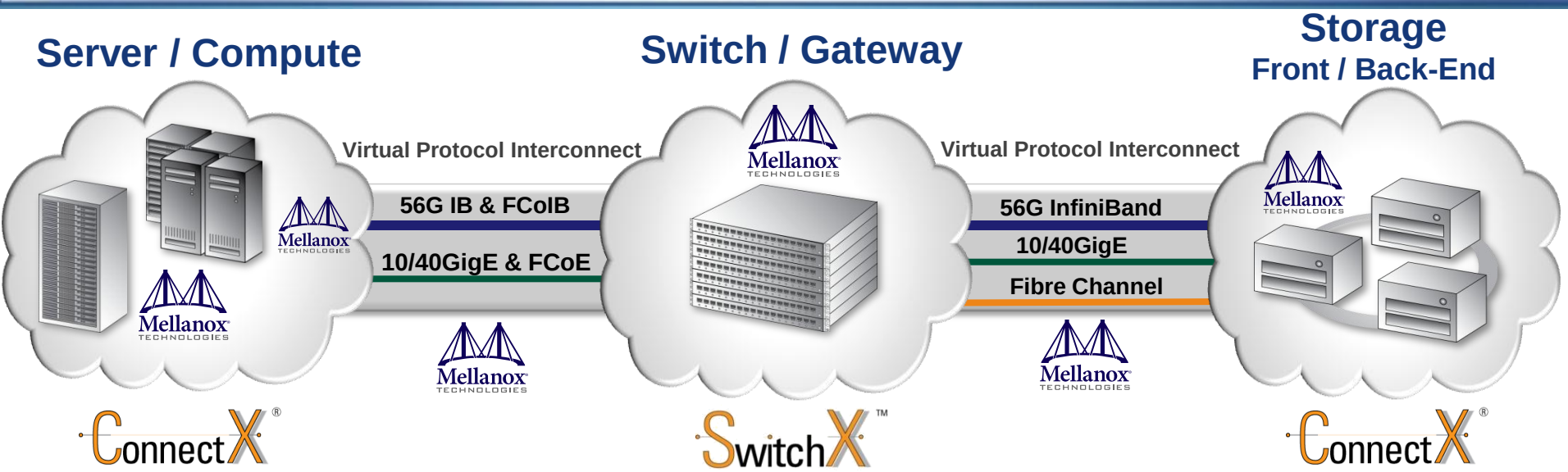
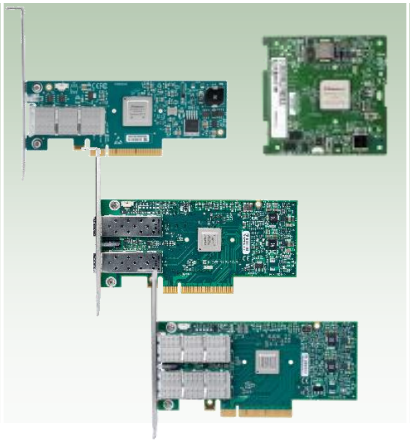
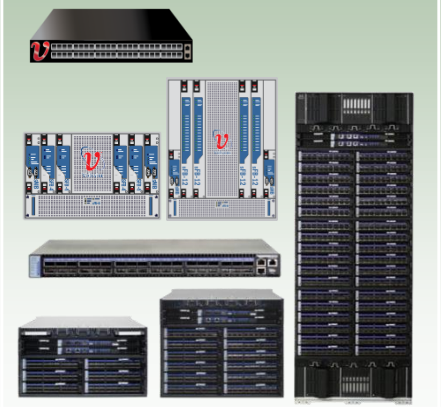
Bill Lee

Director, Product Marketing

Leading Supplier of End-to-End Connectivity Solutions



Comprehensive End-to-End InfiniBand and Ethernet Portfolio

ICs	Adapter Cards	Switches/Gateways	Host/Fabric Software	Cables
				

Mellanox Solutions for High Performance HPC

Host/Fabric Software Management

- UFM, Mellanox OS
- Integration with job schedulers
- Inbox Drivers

Application Accelerations

- Collectives Accelerations (FCA/CORE-Direct)
- GPU Accelerations (GPUDirect)
- MPI/SHMEM/PGAS
- RDMA
- Quality of Service

Networking Efficiency/Scalability

- Congestion Management
- Adaptive Routing
- Traffic aware Routing (TARA)

Server and Storage High-Speed Connectivity

- Latency
- Bandwidth
- CPU Utilization
- Message rate

Paving The Road to Exascale Computing

Dawning (China)

TSUBAME (Japan)

NASA (USA)
>11K nodes

LANL (USA)

PetaScale

Mellanox Connected

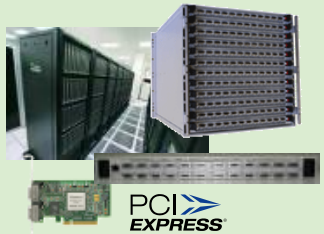
CEA (France)

- Mellanox InfiniBand is the interconnect of choice for PetaScale computing
  - Accelerating 50% of the sustained PetaScale systems (5 systems out of 10)

FDR 56Gb/s InfiniBand Is Here!

2002
SDR

2005
DDR



2008
QDR

2011
FDR

The Fastest Interconnect For HPC Servers and Storage

FDR InfiniBand - Superior Connectivity Solution

Highest Throughput

Doubling the network throughput for faster data access and distribution

Reduces congestions and fabric hot spots for better network utilization

Lowest Latency

Less than 0.7us latency for faster data access

Reduces CPU idle time for higher efficiency and productivity

Paving the Road to Exascale Computing

Highest performance standard-based interconnect solutions

Highest Message Rate

Greater than 90M messages per second for faster synchronization

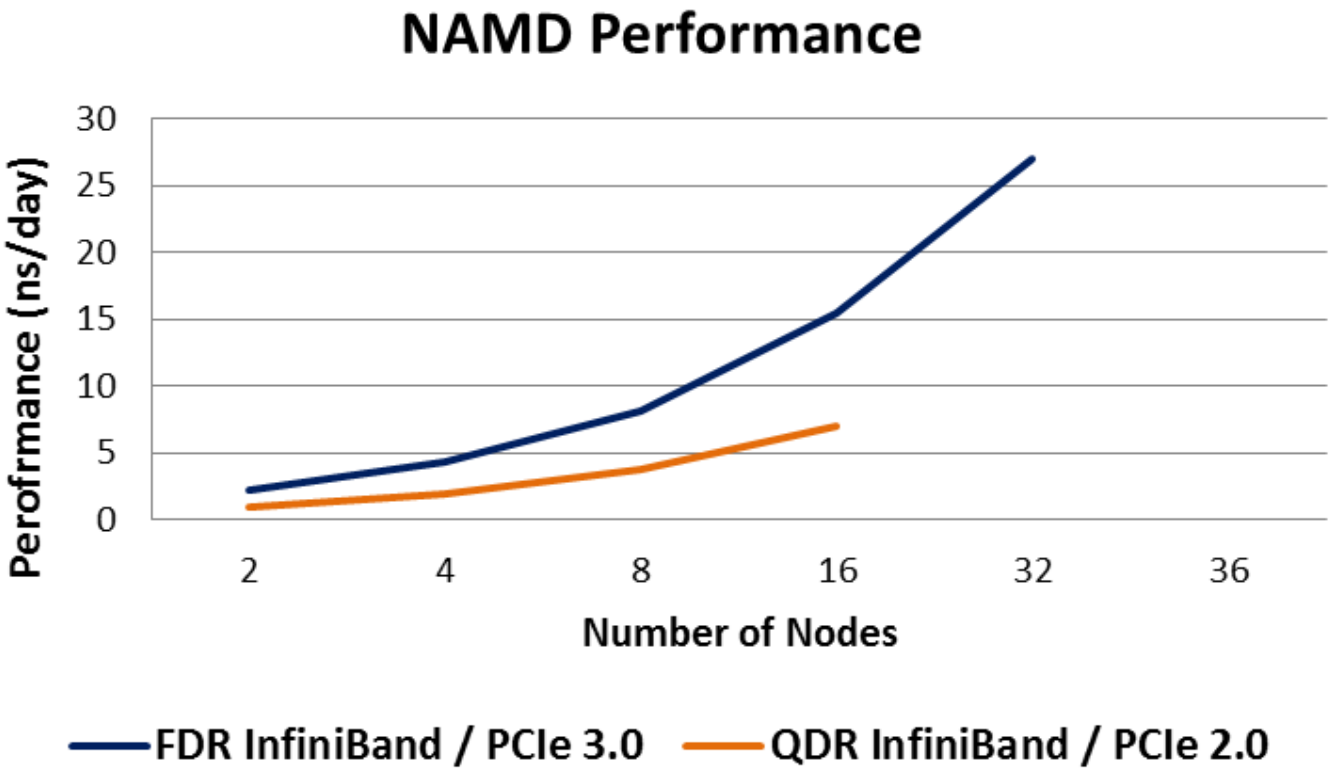
Improves cluster scalability

Highest Reliability and Deterministic Latency

New hardware-based link level reliability mechanisms for fewer retransmissions

Improves application performance predictability

Bioscience Application Example



- NAMD - Parallel molecular dynamics code designed for simulation of large bioscience systems
- FDR InfiniBand / PCIe 3.0 delivers **120%** higher performance versus QDR InfiniBand / PCIe 2.0

Intel Nehalem for PCIe 2.0

Purdue University "Carter" - #55

- 648 HP servers, Intel Sandy Bridge CPUs
- Mellanox FDR InfiniBand adapters (with PCIe 3.0), switches and cables
- The smallest node count cluster to achieve 187Tflops!

"Carter and it's improved interconnect will enable investigation beyond what is currently feasible on any existing university resource"
Alan Qi, Cancer Stem cell research

Climate change models is easily 2x as fast and seems to scale much farther than ever before. Run times have gone from 2 hours to 7 minutes."
Dr. Mike Baldwin, Climate change researcher

PURDUE UNIVERSITY

Mellanox Virtual Protocol Interconnect Solutions with PCIe 3.0

ConnectX®-3

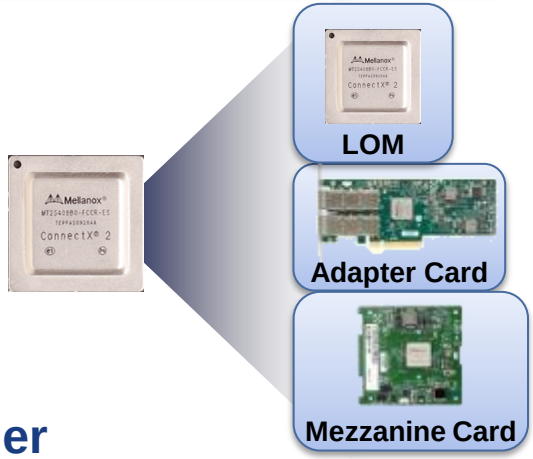
redhat. Novell suse Microsoft vmware OPENFABRICS SOFTWARE

Applications

Networking | **Storage** | **Clustering** | **Management**

SW Acceleration Products

PCI EXPRESS™



- **Industry leader**
  - Dual-port FDR IB or 40GbE
  - PCI Express 3.0
  - Native RDMA
  - CORE-Direct

SwitchX™

Unified Fabric Manager

Switch OS Layer

- **Industry leader**
  - Ultra-low latency
  - 36 x FDR IB/40GE or 64 x 10GbE
  - Switch systems: from 36-port to 648-port
  - 4Tbit switching capacity
  - Integrated routers and bridges

FDR 56Gb/s InfiniBand Solutions Portfolio

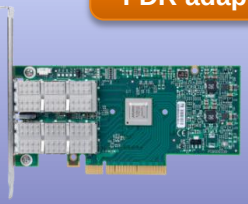
Modular Switch

SX6500
Up to 648 ports FDR

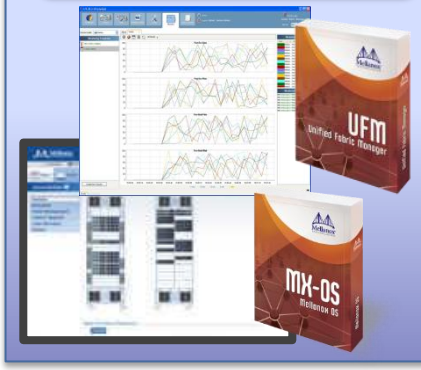
648p 324p 216p 108p

Adapters

Single and dual port FDR adapter card



Management



Mellanox M-1 E-2-E Cluster Support Services

Edge Switch

SX60XX
1U 36 port

SX6036 – 36 ports managed

SX6025 – 36 ports externally managed

Cables

Feature License Keys

UFM Diagnostics

Virtual Protocol Interconnect

Note: Please check availability with your Mellanox representative

Expanding HPC Frontiers


University, Academic


Labs, Research


Computational Aided Engineering


Bioscience


Oil and Gas


Weather


Digital Media

Performance
100+%
Increase

Complete High-Performance Scalable Interconnect Solutions for Server and Storage

TCO
50+%
Reduction

Energy Costs
65+%
Reduction

Infrastructure
60+%
Saving

Visit us at booth #522

Thank You

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HPC@mellanox.com