

Web 2.0



Web 2.0 is defined as providing Infrastructure as a Service (IaaS) to users for their personal and professional use. The current Web 2.0 infrastructure is built using commodity hardware which keeps data center costs low with scalability for the future. These trends have existed in the HPC industry for a long time already, but the recent emergence of massive network access devices has led to a new services-oriented infrastructure which requires reliable networking infrastructure. A lower latency and higher throughput network infrastructure enables data centers to increase their hardware utilization and to scale up to massive capacities in an instant without having to worry about bottlenecks and bad user experiences. Web 2.0 represents a new tipping point for the value of network computing.

Mellanox server and storage networking solutions have been designed to deliver the needed networking and system efficiency capabilities related to bandwidth, latency, offloads and virtualization for Web 2.0 data centers. With networking solutions that deliver 56Gb/s throughput, cut Hadoop job's execution time by half, increase memcached TP/s by 10 times, 1us server-to-server or storage latency, and sophisticated I/O virtualization capabilities, Mellanox enables Web 2.0 focused data centers to perform with faster response time and a congestion free network. The power consumption of such data centers are also kept lower by using Mellanox networking hardware and acceleration software designed with such needs in mind. Mellanox hardware and software offloads further improve CPU efficiency and help cost-conscious Web 2.0 customers deliver the best ROI to their organizations.

KEY ADVANTAGES

- The world's fastest interconnect, supporting up to 56Gb/s
- The world's lowest latency, as low as 1 microsecond
- CPU offloads with the flexibility of RDMA capabilities
- UDA for efficient Hadoop clusters
- Memcached acceleration for higher TP/s
- Lossless packet transmission.
- Multi-protocol bridging for unified data center fabrics
- High Speed storage fabric manager
- Workload optimized network fabric manager

The Mellanox Solution

Mellanox adapters, switches, gateways and Web 2.0 specific acceleration technologies implement the world's fastest and most robust end-to-end networking solutions for a complete, high-performance Web 2.0 infrastructure. These capabilities ensure optimum data center performance with:

- Up to 56Gb/s fabric speed to support servers (or blade servers) and storage connectivity in any configuration.
- As low as one microsecond application latency leveraging the most efficient remote direct memory access (RDMA) between servers and storage.
- RDMA-based solutions speed transaction processing by offloading many portions of a transaction from the server CPU and operating system.

Mellanox's Unstructured Data Accelerator (UDA) accelerates Hadoop networks and improves the scaling of Hadoop clusters executing data analytics intensive applications. A novel data

moving protocol, which uses RDMA in combination with an efficient merge-sort algorithm, enables Hadoop clusters based on Mellanox InfiniBand and 10/40GbE with RoCE (RDMA over Converged Ethernet) adapter cards to efficiently move data between servers, accelerating the Hadoop framework.

Mellanox Message acceleration software and RDMA-enabled InfiniBand or Ethernet adapters enable transaction rates of 500K transactions per second or more, lower latencies, and up to 2.5GB/s bandwidth using a single 56Gb/s InfiniBand or 40GbE port. Memcached server users can significantly improve the response time of web serving applications with less memcached servers for the same load.

Mellanox Storage Accelerator (VSA) is a scale-out economical storage fabric solution for enterprise data centers. It can manage iSCSI storage over Ethernet and InfiniBand fabric via RDMA which provides low access time, high CPU utilization and high IOPS. It has built-in intelligence for enabling simultaneous converged fabric of FCoE and iSCSI for consolidated I/Os.

Mellanox's Unified Fabric Manager (UFM) is a platform to manage scale-out Ethernet and InfiniBand computing environments. It enables data center operators to efficiently provision, monitor and operate the modern data center fabric with high uptime and failover capabilities.

- Lossless transmission, ensuring that no packets are dropped and avoid retransmissions of data.
- Multi-protocol bridging - Mellanox BridgeX gateways allow for data center fabric consolidation, unifying InfiniBand, Fibre Channel, iSCSI, and Ethernet over a reliable high-speed interconnect.



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