

Analyze 1,000 Terabytes of Data in 1 Second!

Turn your data center into a profit center



Executive Summary

There has never been a more exciting time in the world of data, a time in which new solutions are transforming the way companies do business. The amount of data we collect each day continues to increase dramatically, and companies that can quickly transform the data into business decisions gain a significant competitive advantage. In order to achieve that, companies turn to data analytics solutions that can analyze vast amounts of data in less time than ever before. Mellanox's interconnect solution is the foundation of these solutions due to its ability to move data faster than any other existing solution and in the most efficient way. Efficient utilization of processor resources means that with Mellanox you can do more with less – fewer servers are required to perform a given workload; reducing CapEx/OpEx and resulting in better ROI.

The Microsoft SQL Server 2012 Parallel Data Warehouse (PDW) appliance can **analyze 1,000 terabytes of data in 1 second** due to its usage of Mellanox's FDR 56Gb/s InfiniBand solution as the unified interconnect between servers and storage. This powerful data analytics machine can turn your data center into a profit center by making your data a competitive asset.

Challenge

Hy-Vee is an employee-owned supermarket chain with 235 stores and 59,000 employees across eight states in the Midwestern United States. In order to make a decision about which products to promote, Hy-Vee collects data on all of their customers' transactions – what they buy, at what time of the day, and how much they pay, which gives Hy-Vee the required insight to improve its business. Every day at 3:00 a.m., all the data that was collected throughout the previous business day is sent to the Hy-Vee data center for analysis. However, Hy-Vee's analysts were unable to extract business reports analyzing the transactions

of the previous business day until two weeks later. In other words, Hy-Vee's analysts were working each day with data that was two weeks old because their systems could not analyze the vast amount of data fast enough. Making business decisions and reacting to customer trends based on data that is two weeks old was challenging, so the company was looking for a scalable and reliable solution that could analyze data quickly enough to allow them to make business decisions before the next business day.

Solution and Results

To help companies meet their business goals faster, Microsoft introduced the Microsoft SQL Server 2012 Parallel Data Warehouse (or the PDW appliance, for short). The PDW provides extreme data analytics performance at a very low cost - the new appliance can analyze 1,000 terabytes of data in 1 second. This record time is due to the PDW's usage of Mellanox's 56Gb/s FDR InfiniBand interconnect solution as the unified interconnect between the compute servers and storage, and due to the SMB Direct RDMA protocol that takes advantage of the Mellanox solutions.



**Up to 50X faster data query,
up to 2X the data loading rate**

**Unlimited storage scalability
for future proofing**

**Accelerated by
Mellanox FDR 56Gb/s InfiniBand
End-to-End Solutions**

Microsoft SQL 2012 Parallel Data Warehouse

Using the PDW and InfiniBand's capability to move data faster than any other existing interconnect solution, Hy-Vee's data query operation time was reduced from 20 minutes to 20 seconds.

By taking advantage of the solution's capabilities, Hy-Vee is now able to analyze collected data at 3:00 a.m., and quickly decide on the right product campaigns before the opening of the next business day at 6:00 a.m. Hy-Vee can now make real-time decisions on what products should be advertised and evaluate the effectiveness of their product promotions.

Summary

Modern companies need to analyze data in near real time. Having this ability enables them to make more accurate business decisions and to gain competitive advantage. How fast the data can move determines the performance of the overall system; if the system's interconnect has reduced performance, it will lead to a degradation of application performance, limited scalability, and poor ROI.

Mellanox's products and solutions enable higher performance and efficiency for business analytics solutions. With Mellanox, businesses do not need to compromise their application performance to achieve lower TCO.

Mellanox's solutions deliver the following features:

- The fastest interconnect adapters, with 10, 40, and 56Gb/s bandwidth per port and sub-1µs latency
- RDMA and full operating system bypass
- A superior high-availability solution based on lossless interconnect technology
- I/O consolidation of LAN, IPC, and storage over a single wire

Learn more on how Mellanox and Mellanox-based data analytics solutions can help your business, by visiting:
http://www.mellanox.com/page/clustered_database



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