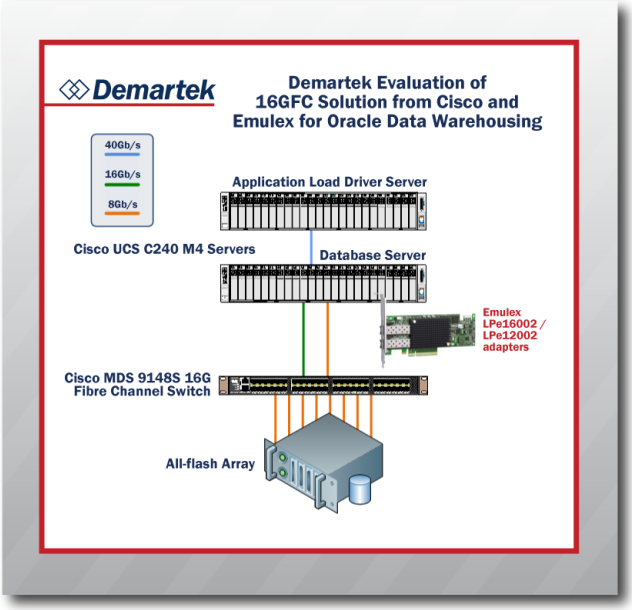
Accelerating Workload Performance with Cisco 16Gb Fibre Channel Deployments

16GFC provides performance boost for Oracle data warehousing workloads.

Executive Summary

As enterprises implement flash storage, they may find themselves constrained by the available bandwidth between the servers and storage, or foresee a constraint as they observe their growing data consumption patterns. A 16Gb Fibre Channel (16GFC) infrastructure consisting of Cisco MDS 9148S switches and Emulex LPe16002 host bus adapters (HBAs) addresses these increasing demands on storage performance by providing double the bandwidth of previous generation Fibre Channel technology.

Demartek evaluated Emulex 16GFC and 8GFC Fibre Channel adapters in an Oracle database data warehousing environment running on Cisco UCS servers and Cisco MDS Fibre Channel switches.



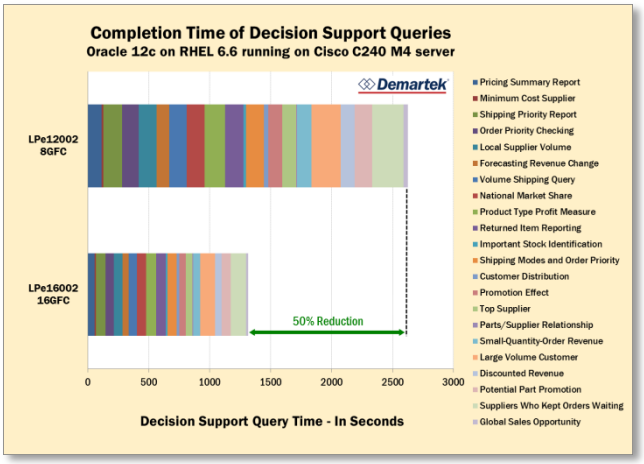
Key Findings

Demartek confirmed that, for the database workload tested, the 16GFC infrastructure with the Emulex LPe16002 HBA installed in a Cisco UCS C240 M4 server connected to a Cisco MDS 9148S Fibre Channel switch, exceeded the performance of the same workload in an 8GFC environment:

- The Cisco and Emulex solution completed the workload in approximately half the time
- Peak throughput was 2x higher
- Maximum I/O transactions were up to 6x greater
- LPe16002 supports PCIe Gen 3 and matches the I/O slots of the Cisco UCS C240 server
- Backward compatibility to 4GFC / 8GFC infrastructure provided a streamlined performance upgrade
- Emulex OneCommand Manager provides efficient deployment and management

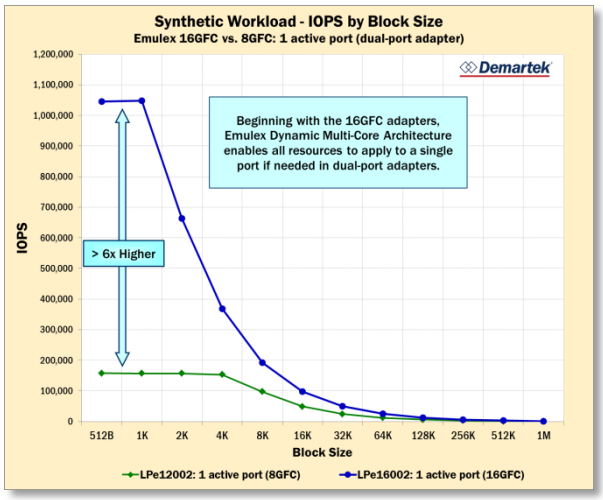
Query Response Time

The time to complete each of the individual 22 queries is shown for each of the adapters. Using the LPe12002 (8GFC) completion time as a baseline, we observed that the LPe16002 (16GFC) adapter achieved a 50% reduction in the time to complete the workload, from more than 43 minutes to approximately 22 minutes.



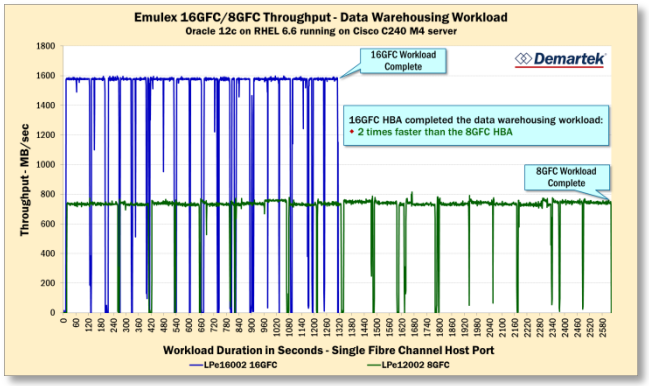
IOPS - Synthetic Workload

Emulex introduced its Dynamic Multi-Core Architecture with the LPe16000-series 16GFC adapters. When only one port of a dual-port adapter is configured, the dynamic multi-core architecture applies all resources to a single port in order to achieve maximum performance delivering up to 6X more IOPS on a single-port than the 8GFC adapter.



Throughput

In our tests, the real database workloads achieved nearly full line rate for each of the adapters, but the LPe16002 16GFC adapter allowed the workload to be completed in approximately half the time of the 8GFC adapter.



More Information

The full report is available on the Demartek website at:

www.demartek.com/Demartek_Emulex_16GFC_Cisco_Accelerating_Workload_Performance_Evaluation_2016-06.html