Dell Acceleration Appliances for Databases

Extreme performance - fast!

Ultra-high performance for your database infrastructure: OLTP, DSS and Hybrid Workloads

The Dell Acceleration Appliances for Databases are easy to procure and deploy, pre-integrated solutions that enable mid-market and enterprise customers to quickly and cost effectively boost database performance.

Who will benefit from the Dell Acceleration Appliances for Databases (DAAD)?

Customers who are experiencing bottlenecks in OLTP database performance, especially in Oracle environments, will find that DAAD provides the ability to address this issue without major platform or infrastructure overhauls, without large expenditures on additional traditional disk or compute resources, and without a significant increase in database licensing costs. DAAD is an exellent solution for database administrators who face impediments to user expansion, gaps in SLA fulfillment, and limited data-center space availability.

DAAD is database agnostic, and will work with any OLTP database platform - including those running on non-Dell servers. Initially Dell engineering is providing reference architectures focused specificially on Oracle improvements in IOPs, transactions per minute and latency (see figures below). These results are an example of what the Dell Acceleration Appliance for Databases can do for your database infrastructure with minimal disruption, development and cost.

The highly available two-node appliance solution provides 12TB of redundant tier-1 storge capacity with a total of 24TB of raw storage capacity. The storage appliance delivers over 1 million random read IOPs with a 0.5 millisecond latency for 4k random read which equates to 27 times the IOPs and 96% of the latency that 96x 15k conventional drives can provide. On HammerDB's TPC-C-like performance studies, the four-node Oracle RAC database on the two-node appliance can deliver 960,000 peak New Orders per Minute (NOPM) and over 2.5 million Transactions Per Minute (TPM).

Database and operating system independent block storage provides acceleration for any database infrastructure (Oracle, MS SQL, SAP, ASE, SAP HANA, MySQL, etc.)

27X lower latency (~500µs) and 27.5X the IOPs (>1M) of traditional spinning disk SAN technology

Leveraging industry leading solutions:
- Dell PowerEdge Servers
- Fusion-io 3TB ioDrive2 card
- Fusion-io Ion Acceleration

Pre-integrated system that provides up to 12TB of flash storage for database servers on the network (with optional high availability, mirrored configuration)

Fully manageble using Dell LifeCycle Controller and iDRAC management, as well as with the Fusion-io Ion plug-in for Oracle Enterprise Manager

Figure 1. Oracle 12c RAC database reference architecture

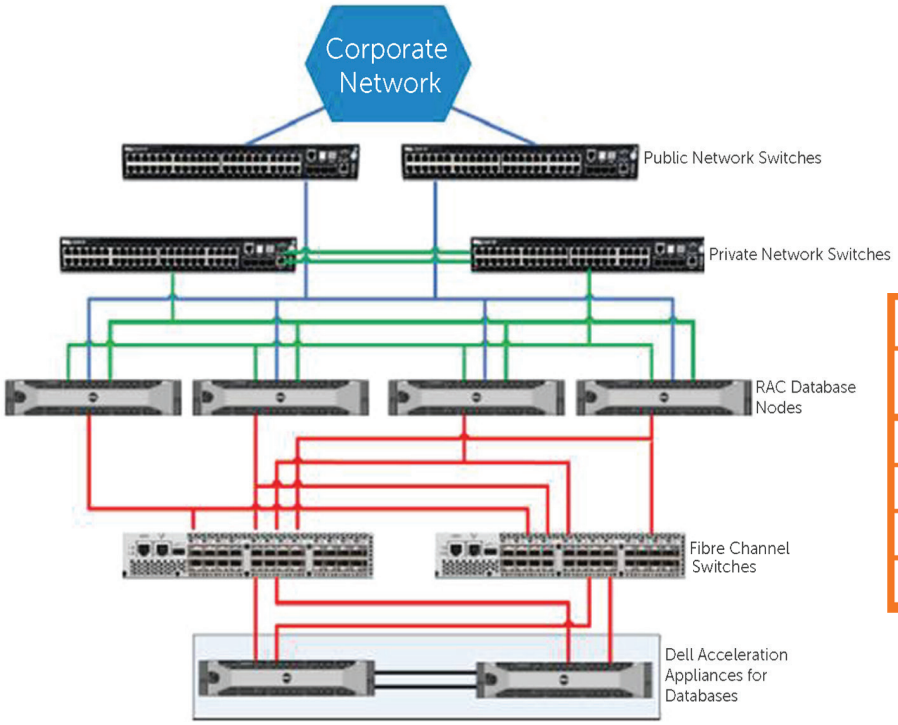

Table 1. % improvement vs. traditional disks

	DAAD vs 96-Disk Baseline		
Test Name	IOPs	MBps	Latency Reduction
4k Random Read	27.4x	27.4x	96%
8k Random 70/30 R/W	9.2x	9.2x	89%
1MB Sequential Read	2.6x	2.6x	N/A
1MB Sequential Write	4.4x	4.4x	N/A

What is the Dell Acceleration Appliance for Databases (DAAD) configuration?

The following is a listing of primary components and software pre-integrated into the DAAD system:

	Standalone	High-Availability
Servers	PowerEdge R720	PowerEdge R720
CPU(s)	2 x Intel Xeon E5-2690 v2	2 x Intel Xeon E5-2690 v2
RAM	256GB	256GB
Solid state disks (MLC)	4 x Fusion-io ioDrive2 3.0TB	4 x Fusion-io ioDrive2 3.0TB
Fibre Channel HBA	Qlogic 2662 Dual-Port 16Gb	Qlogic 2662 Dual-Port 16Gb
Infiniband	N/A	Mellanox ConnectX-3 Dual-Port 40Gb (for mirroring)
Accelerator software	Fusion-io Ion Acceleration software v2.4.1	Fusion-io Ion Acceleration software v2.4.1 (w/high availability option installed)

For more information, contact your Dell representative.