Dell and FlashGrid: DBA Friendly Storage for Oracle Databases and Clusters

Turn standard NVMe PCIe SSDs inside database servers into scalable shared storage.

- 0.4 TB to 83 TB per server
- Leverage proven Oracle ASM for high availability and data mirroring
- Maximize database performance with FlashGrid Read-Local™ Technology
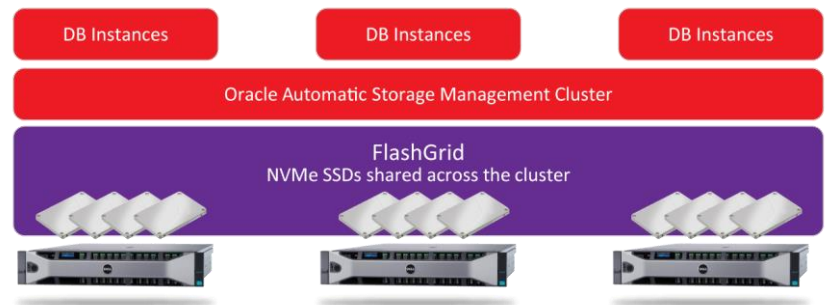- Reduce database licensing costs

Use Cases

- Oracle RAC or RAC One Node
- Oracle Database Single-Instance in a failover cluster
- Oracle RAC Standard Edition
- Extended distance clusters
- Transaction processing
- Data warehouse
- Private database cloud

12x performance at 1/6 of the cost of a flash array

Is performance of your Oracle databases limited by the storage array? Is your DBA team dependent on the storage team for solving critical performance and availability problems? The FlashGrid software running on Dell PowerEdge servers gives DBAs full control of the Oracle database storage and provides the new levels of performance, data availability, and agility.

Open Storage Designed for Oracle Clusters

FlashGrid leverages proven Oracle ASM capabilities for volume management, data mirroring, and high availability. With FlashGrid managing storage is an easy task for DBAs.
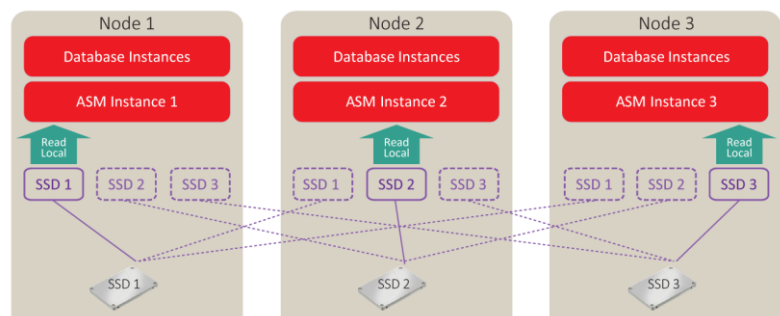

Reduce Database Licensing Costs

Accomplish more on fewer CPU cores. FlashGrid Read-Local Technology reduces CPU consumption and the unproductive I/O wait time by accessing flash storage through the highly optimized NVMe driver stack. The Remote Direct Memory Access technology eliminates the CPU overhead of the network stack and further reduces the I/O latency.

Prevent Network Congestion with FlashGrid Read-Local™ Technology

A congested storage network can limit the performance advantages of using flash storage. The FlashGrid Read-Local Technology reduces network traffic by up to 90% or more by serving read requests from local SSDs instead of moving data over the network. Unlike caching techniques, the FlashGrid Read-Local Technology accelerates even large table scans and backup operations.

Maximize Performance of Oracle Standard Edition

Performance with the Standard Edition depends on efficient execution of single-threaded queries and the I/O latency is critical. The combination of the FlashGrid Read-Local Technology, NVMe SSDs, and the optional InfiniBand/RDMA connectivity provides the best latency characteristics among all available storage technologies.

Synchronous Flash Storage for Stretched Clusters

Stretched (extended distance) clusters provide a local disaster recovery solution across two or three locations with high availability characteristics of a local cluster. Unlike replication techniques, in extended distance clusters the data is mirrored by ASM synchronously across the different locations. No committed transactions are lost if one site goes down.

High-Speed Storage Network without Switches

In 2- or 3-node clusters the FlashGrid Direct-Fabric™ Technology allows using direct back-to-back links for storage traffic. 40 Gbps speeds can be realized without adding the cost of network switches.

Software Compatibility
- Oracle Database 12.1, 11.2, EE or SE/SE2
- Oracle Grid Infrastructure 12.1
- Red Hat Enterprise Linux 7, Oracle Linux 7
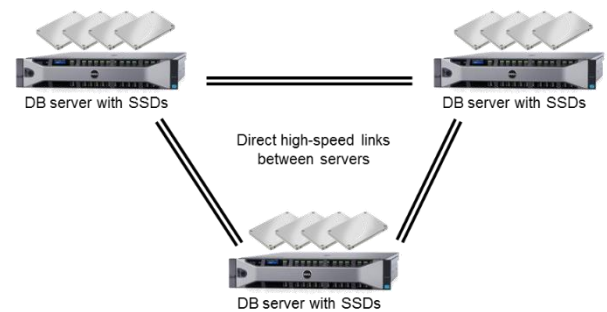- Oracle VM 3.3, 3.4, VMware 5.5, VMware 6.x

High Availability of Data

The FlashGrid solution has fully distributed architecture with no single point of failure. All data is stored with 2-way or 3-way mirroring across nodes. Mirroring of the data by ASM is the simplest and the highest-performance data redundancy mechanism for Oracle databases.

ACFS Snapshots for Dev/Test Clones

The ACFS file system and copy-on-write snapshots provide a fast and efficient way for creating multiple clones of a database without multiplying the amount of stored data.

Frequent Backups, Fast Recovery

Having all data on flash makes the RMAN backups and recoveries ultra-fast. The FlashGrid Read-Local Technology further accelerates backups, minimizes the CPU overhead, and minimizes the impact on the running applications.

DB server with SSDs — DB server with SSDs — Direct high-speed links between servers — DB server with SSDs

Recommended Dell Servers

Server model	2.5" hot-plug NVMe SSDs			Add-in PCIe card NVMe SSDs			MAX TOTAL capacity per server
	# slots	Max capacity per SSD	Max capacity per server	# slots for SSDs	Max capacity per SSD	Max capacity per server	
Dell PowerEdge R730xd	4	3.2 TB	12.8 TB	5	6.4 TB	32 TB	44.8 TB
Dell PowerEdge R930	8	3.2 TB	25.6 TB	9	6.4 TB	57.6 TB	83.2 TB
Dell PowerEdge R630	4	3.2 TB	12.8 TB	2	6.4 TB	12.8 TB	25.6 TB

About FlashGrid Inc.

FlashGrid provides Oracle database customers with simple solutions to the toughest storage problems. Fast, scalable, and reliable, yet simple and open - this is the type of storage that FlashGrid software enables for mission-critical database clusters. No more proprietary storage. Only standard servers and standard SSDs. Why buy a storage array if you can download the FlashGrid software?
www.flashgrid.io

The Dell Technology Partner Program

FlashGrid Inc. is a Dell Technology Partner and FlashGrid software is certified by Dell to run on the Dell platforms specified in the above technical overview.

The Dell Technology Partner Program is a multi-tier program that includes ISVs, IHVs and Solution Providers. This global program helps partners build innovative and competitive business solutions using Dell platforms. Program resources keep customer costs low and helps to sustain competitiveness.

The program has a structured and streamlined process that combines technology and business strategies with Dell Solution Center expertise to onboard and test partner products on Dell platforms. This testing process helps ensure that products have met the technical requirements to perform well on Dell platforms.