DNF STORAGE
DIVISION OF DNFCORP

Solid State Disk Applicaiton Brief

FlexStor-SSD™ maximizes the ROI of the Oracle environment by increasing performance of existing infrastructure up to 600%, and eliminating the need to upgrade, replace or add servers.

Executive Summary

Adding high performance Solid State Disk to an Oracle infrastructure increases database performance significantly with a minimal investment in additional hardware. Utilizing SSD as Oracle temp space or virtual memory for high I/O operations increases transaction processing.

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Maximizing productivity while minimizing IT budget has been one of the most difficult challenges in the business world. As a company's data processing needs grow, more computing hardware, administration staff, and facilities are required to support those needs. Solid State Disks (SSD) can greatly improve the performance of the existing IT infrastructure, negating growing IT budgets. While Solid State Disks have been available for decades, they have never been as affordable or as high performing as the FlexStor-SSD™ Xeon RAID NAS Servers. The FlexStor-SSD™ provides the means to dramatically improve productivity while minimizing costs.

Performance Problems and Solutions
Oracle has robust functionality, which requires a great deal of resources. As such, there are many areas where the FlexStor-SSD™ can enhance Oracle's performance.

The **System Global Area** (SGA) is an Oracle shared memory structure and comprises three main areas:

* Buffer cache, which stores data and indexes to be manipulated.
* Shared pool, which holds the data dictionary and library caches, as well as shared SQL.
* Log buffers, which holds redo information that will eventually get flushed to the redo logs.

The SGA, along with a large user load, can consume a lot of memory, which can cause the computer's virtual memory subsystem to page data back and forth between memory and disk. This can be very costly to performance. Using the FlexStor-SSD's™ Solid State Disk storage for system swap space (virtual memory) can greatly speed up operations when Oracle operations use a large share of system memory.

Redo logs are written to so frequently that I/O contention problems on disks can degrade performance substantially. This is because the system needs to wait until the disk I/O completes. Placing the redo logs on to the FlexStor-SSD's™ Solid State Disk storage is one of the best Oracle performance enhancements one can make.

Temp space is for any sort that cannot be done in memory. Temporary segments created inside these files are used to perform sorts. Index creates, "order by" clauses, "group by" clauses, and joins all use this type of space. While Oracle will attempt to perform this in memory, it will typically need to go to disk to perform the larger sorts. Moving the Oracle temp space to FlexStor-SSD's™ Solid State Disk storage will often speed up these operations tremendously.

System Table Space is a large I/O center. Since access to it is typically heavy, relocation of this space to the FlexStor-SSD's™ Solid State Disk storage will increase performance.

Rollback segments are stored on disk, which are used for data manipulation. Writes to the database are applied to copies of the data located in the rollback segments first, and are only applied to the database files once the transactions are committed. Placing the rollback segments on the FlexStor-SSD's™ Solid State Disk storage will also improve the performance of ongoing transaction processing.

Summary
FlexStor-SSD™ maximizes the ROI of the Oracle environment by increasing performance of existing infrastructure up to 600%, and eliminating the need to upgrade, replace or add servers.

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