Memblaze SDS solution of FlashRAID and NVMe SSD accelerates HSBC applications

- Memblaze FlashRAID SDS solution based on X86 sever and NVMe SSD, to replace traditional SATA SSD raid group.
- More than twice of the performance when compared to SATA SSD raid group with comparison cost.
- Storage speed aggregation and data security protection with CLI and GUI management interface

Customer profile:

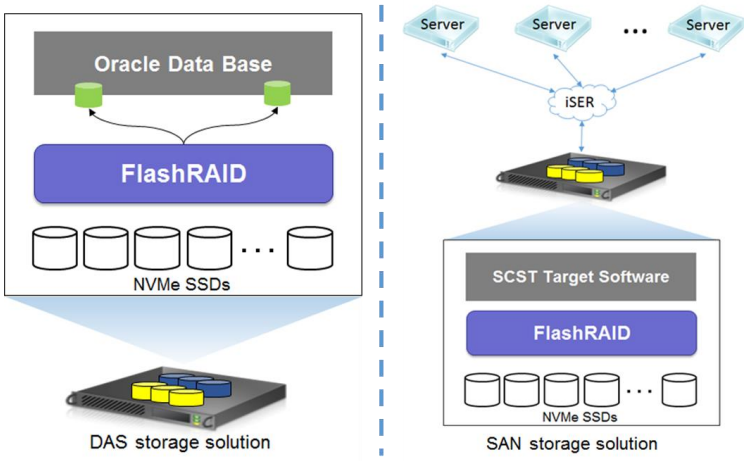
HSBC is one of the world's largest banking and financial services organizations. HSBC serve around 38 million customers through four global businesses: Retail Banking and Wealth Management, Commercial Banking, Global Banking and Markets, and Global Private Banking. The global headquarters of the HSBC Group are at London, UK. The bank also has an extensive branch network across the UK to support the needs of our personal and business customers. The shape of HSBC's business in the UK is changing. We are in the process of separating our retail bank from our investment bank and creating HSBC UK to serve our personal and business customers.

Problem and Solution:

The report system based on data mart is critical for the bank business. High performance and high reliability is the two factor to consider when building the system. Traditional hardware RAID solution is popular, but the limitation is the long latency and relatively low bandwidth, which will slow down the data reporting process. NVMe SSD is the next generation product to replace SATA SSD. The IT manager has done the research on this kind of high speed SSD product, but there are still some problems, such as how to ensure the data security and how to manage the NVMe SSD device. One of Memblaze solution partner promoted the SDS solution in which the two key components, e.g. FlashRAID software and NVMe SSD, are provided by Memblaze. The brief information as below:

- FlashRAID™ is a SDS software developed by Memblaze. It use the storage pool to manage the HDD and SATA/SAS/NVMe SSD. It supports RAID 0/1/5/6/10/01/50/51 configurations and the tiering storage.
- Memblaze PBlaze™ serial SSD is world class enterprise PCIe NVMe SSD. It have been extensively used by 600 customers across the world.

Two solutions are provided by FlashRAID. One is the DAS storage solution, for example, it combines the multi-disks together and provide to the storage space to local server. The other is SAN storage solution, user can build up a storage sever and export the storage space to computer servers.



Hardware and Software Configurations:

HSBC evaluated the FlashRAID DAS storage solution, including the performance and reliability such as storage rebuild and system reboot stress test. Finally they implemented the FlashRAID with 4 piece PBlaze4 SSD. The RAID5 configuration had been chose to balance the performance, data security and cost.

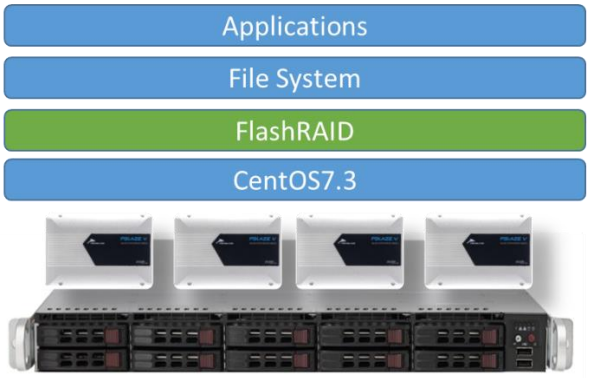
Details are as below:

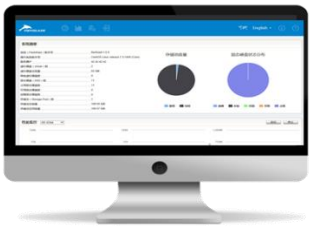
Sever: SuperMicro 2U sever

OS: CentOS7.3

SSD: 4 piece PBlaze4 2.4TB NVMe SSD

Software: FlashRAID





The FlashRAID configuration to create the RAID5 vdisk:

FlashRAID> disk add -d nvme0n1,nvme1n1,nvme2n1,nvme3n1

FlashRAID>spool create -n spool0 -f 4MB -d nvme0n1,nvme1n1,nvme2n1,nvme3n1

FlashRAID> vdisk create -n spool0 -a -l 5 -f 4KB -c 2

Customer Benefit:

Customer compared the FlashRAID solution with traditional RAID group. Four pieces PBlaze4 NVMe SSD performance is much better than eight piece SATA SSD.

	FlashRAID+4 NVMe SSD	**Hardware RAID+ 8 SATA SSD**

	RAID5	**RAID5**
Sequential Write 1MB QD32 (GB/s)	2100	2188
Sequential Read1MB QD32 (GB/s)	5182	2196
Random Write 4K QD256 (IOPS K)	280	158
Random Read 4K QD256 (IOPS K)	1146	110

“Memblaze provide a storage solution based the FlashRAID software and PBlaze NVMe SSD, which delivered much better performance than the hardware RAID group. After extensive evaluation we decided to implement Memblaze solution to our reporting system, which vastly shorten the processing time”

--HSBC IT manager