

Flash accelerates SAP and Oracle environment 12 times

Overview

Business challenges

- Improve access to SAP environment, poor response times and delays

Solution

- Implementation of flash system, which is clearly faster in the execution of processes

Benefits

- Achieved impressive results on the QA system
 - CPU and databank response time got synchronized
 - Achieved performance targets
 - Energy consumption and electricity costs of the storage system were reduced considerably
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An international heating, air conditioning and ventilation (HVAC) company has been around for more than 135 years. The family enterprise provides worldwide energy efficient products and systems. With current sale volumes of 2.3 billion Euros in the 2011 financial year, the group and its over 12,000 global employees is one of the leading companies in the HVAC industry.

The challenge

In the internal IT operation, the company draws on powerful SAP environments which access memory MaxDB and Oracle-database environments. The intensity of this access created a potential point of system instability. Due to the latency times of the disk storage systems, several software applications, both dialog transactions and other background programs, very high volumes of optional read access (random I/O) were generated, resulting in poor response times and delays.

The solution

Since nearly all optimizing and expansion possibilities of the SAN's were exhausted, alternative ways were looked for in order to generate the necessary speed. The decision was quickly made to use a purpose-built, flash system. Unlike hard disk drives, flash storage has no moving parts. Flash systems are clearly faster in the execution of processes.



“The application of the flash system is a leap in technology in response to storage-performance!”

—Director of IT Infrastructure

While a hard drive provides 250 to 350 IOPS (read-/write operations per second), all flash systems can provide one-half million IOPS. The company selected Texas Memory Systems, an IBM® Company (TMS) for a “Proof of Concept” (POC). TMS was the leading producer of high performance flash systems worldwide.

The POC stipulated that the client would be obligated to accept the solution only if pre-agreed-upon performance targets had been achieved. Six critical points were quickly outlined in which significant improvement was expected.

1. Improvement of end of the month analysis and reports, which due to the long response time were prior to the POC running parallel to the daily IT operations and negatively affecting response times for IT users.
2. Considerable acceleration of transfer time for the Material Resource Planning (MRP) which is extremely important for the production of planning, but is not allowed to run parallel to production.
3. Improvement of reload time of buffered tables.
4. Optimization of work-in-process in the Electronic Invoice Verification application in order to reduce considerably long wait times and the associated working time.
5. Reduction of long response times in the processing of the online requirements and supply list, especially for those parts which are used in multiple production lists.
6. Enabling databank consistency checks. Prior to the installation of the RamSan-620 system—predecessor to IBM FlashSystem 710—this test took more than 43 hours and accordingly could not be carried out on a regular basis. This carried a very high risk, as the accuracy of the data records could only be checked periodically on a random test basis.

Solution component

Hardware

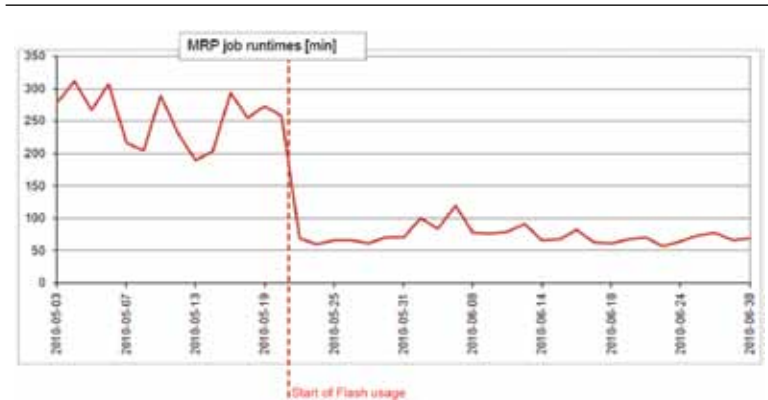
- RamSan-620 (Predecessor to IBM® FlashSystem™ 710)
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The POC test was carried out under real-world production conditions on the company premises. The flash system used for the benchmark was compared with the existing systems, both a high end disk array and a mid-range disk array.

The data gathered from the POC was impressive. The measured flash system response time under normal workload is 30 times faster in reading and 7.5 times faster in writing than the high-end system.

A similar result was achieved when compared to the midrange system. Under the same high workload, low and predictable response times were achieved with the flash system. Writes using the midrange disk system drastically worsened from 1.11 ms to 14.66 ms since the write cache reached the capacity, reducing writes to the physical speed of the hard disk drives.

In the first test configuration, the flash system functioned exclusively as a read accelerator and supported the mirrored redo logs and data volumes of the midrange system. In the second scenario, the flash system was allocated full read and write functionality. The results were impressive. Critical transactions and batch jobs were enormously improved. The data consistency check of 43 hours was reduced to only 3.8 hours. A line item request now only took 24 seconds, whereas before it took 298 seconds—a 12 times improvement! The end of the month analyses experienced a performance acceleration of the factor 3.1; however, the backup tape drives achieved no significant improvement because the speed of the tape appeared to be the limiting factor.

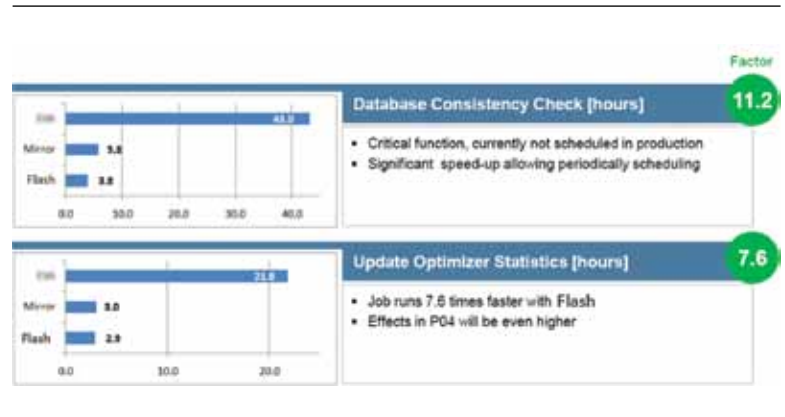


The result

After convincing results on the QA system, the predecessor to IBM FlashSystem™ 710 was placed into production. The company decided to allocate and configure all read operations to the flash unit databank. The databank in the primary data center was put into the hands of an all-flash system.

The investment for the first integration phase cost a total of 200,000 Euros. That is a lot of money, but in comparison with the results and the consequentially achieved savings it is a conceivably low sum.

CPU and databank response times were just about synchronized. Starting from the planning of materials up to production, it has become possible to optimize the internal processes. Performance problems have been completely eliminated and system user satisfaction has risen significantly, because most transactions are now being processed faster and with greater system stability. Additionally, the energy consumption and electricity costs of the storage system were reduced considerably.



The company's conclusion was clear. "The application of the flash system is a leap in technology in response to storage-performance!" said the director of IT. A system analyst at the company responsible for the SAP-infrastructure said, "All expectations concerning the performance were more than fulfilled. Even after 6 months in the production phase, there has been no decline in the I/O-times, as observed in other Flash-products. Its reliability has also convinced us because to date there hasn't been one single disturbance." With the introduction of this extremely fast technology in the SAP environment, the heating and climate specialist, like in so many other aspects of its business, is once again one step ahead of its competition.

For more information

To learn more about IBM FlashSystem please contact your IBM representative or IBM Business Partner, or visit the following website:
ibm.com/storage/flash



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