

Memblaze PBlaze4 Accelerates Application of Integrated Database Machine in a Bank

7x

The computing power of the database

5/6

The time of backup/recovery for the whole database

50%

OPEX

A certain bank, one of our clients, is the first newly established national joint-stock commercial bank approved by the State Council since 1996. It was founded in 2005. By December 31, 2014, the bank has set up 17 primary branches, 14 secondary branches and 89 sub-branches. At the end of the same year, the bank was ranked in the 230th place among the global top 1,000 banks released by the British magazine The Banker, 48 positions improvement from the previous year. The bank has accomplished its targets of the first five-year plan. Now it is developing sustainably, soundly and rapidly, and its business is being further expanded.

The Challenges

Since being established, the bank has witnessed rapid business growth, and has set up more than a hundred branches. The continuous business growth has posed challenges to its IT architecture and services, and raised higher requirements on data services and applications. The traditional data warehouse is formed by minicomputer in combination with SAN centralized storage, which fails to meet the current business demand. The present data services are facing the following challenges

- The data growth demands a quicker analysis system and a faster decision-making system, while the traditional data warehouse cannot meet the business demands.
- The traditional approach is slow in data backup and recovery for disaster prevention and recovery, thus hinders IT operations.
- The traditional SAN storage system is much more complicated, and requires more operation and maintenance costs, thus a new solution is in urgent need to improve the system performance and save maintenance costs.

Solution Requirements

- High stability and high reliability. The storage product shall pass the scale application verification, be able to maintain stable for a long time, and meet the system's requirements on data security and integrity.
- High IOPS and low latency. The system's data processing speed can be improved, to respond to the requests of a huge number of users in time and give quick feedback analysis results, thereby shortening the current longer response time during data analysis.
- Reduce system costs. The new solution needs to greatly reduce the costs of system upgrade, operation and maintenance while eliminating the performance bottleneck of the SAN shared storage, and it should also be able to simplify the system architecture.

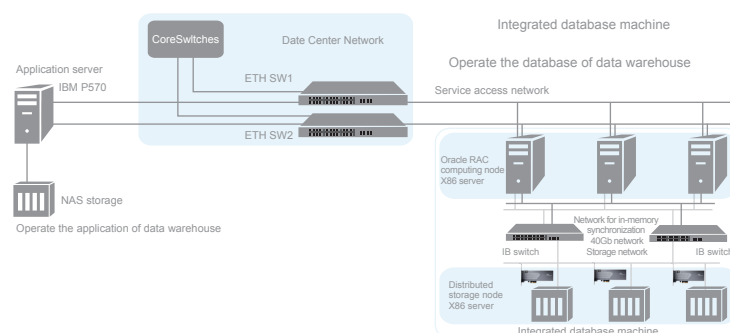
Details about the solution

- The universal x86 server is used as storage node and RAC database node on the hardware platform, the head office of the bank has deployed 22 storage nodes.
- RAC integrated machine uses two-way redundant IB switch for high-speed connection, and RDMA model is used for data transmission
- 1.6T PBlaze4 NVMe SSD is introduced for each node, as buffer of hotspot data, in replace of the original S3700 SATA SSD.

The Solution

Oracle RAC integrated machine is a currently popular database solution, to integrate the latest data storage acceleration and high-speed transmission technologies:

The deployment of the solution is shown in the following figure



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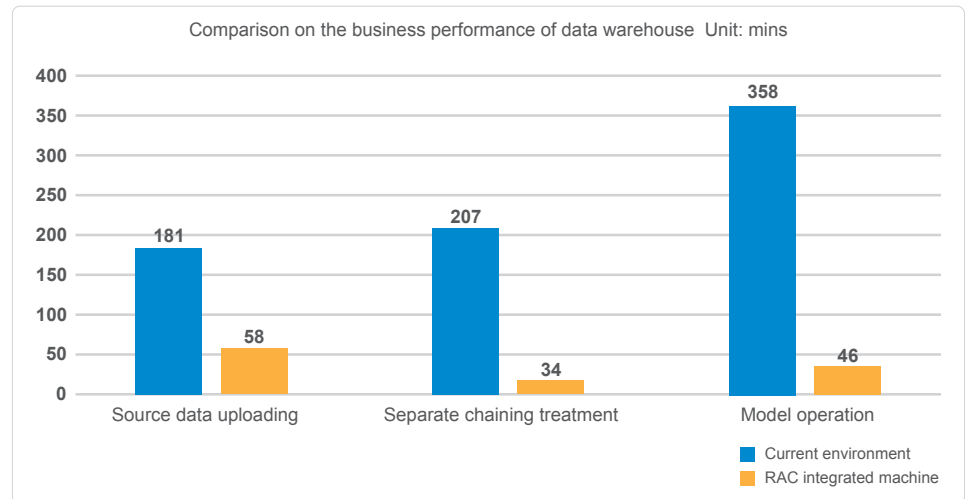
The integrated database machine based on universal hardware platform has pooled the current mainstream database acceleration technologies, and the deployment of IB network interconnection and PBlaze4 flash accelerator card has further improved the performance of the solution. It is easy to maintain, and the storage and database calculation nodes are also easy to expand, laying a solid basis for delivering quick data services.

—A DBA from our bank client

Business Benefits

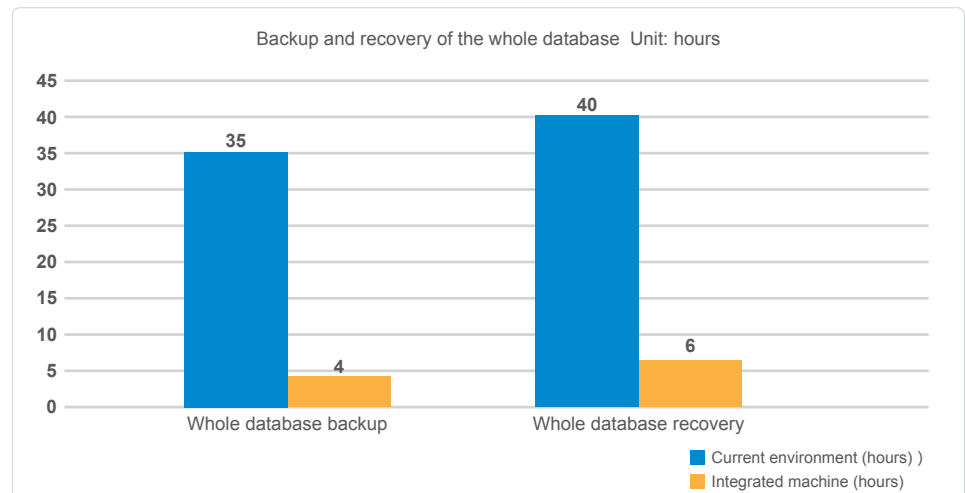
- Performance of data warehouse is improved in multiples

The data analysis and submission (to the China Banking Regulatory Commission) business, local business and data warehouse operation in the bank have higher requirements on the performance. By adopting the solution of deploying an integrated machine configured with PBlaze4 flash accelerator card, the business performance of the data warehouse, including the performance of source data uploading, separate chaining treatment and business simulation computing, has been improved in multiples. Particularly, the simulation computing ability based on business demand has been improved by 7 folds, which has thoroughly settled the performance issues under the current environment.



- The time for backup and recovery of the whole database is shortened in multiples

As a crucial part of database operation and maintenance, the time of database backup and recovery affects the efficiency and costs of operation and maintenance. The deployment of the integrated machine has shortened the backup and recovery time to below 1/6 of the original one.



- The infrastructural architecture is simplified, and OPEX is saved by 50%

The bank's new business system is no longer reliant on the traditional SAN storage system. The integrated machine solution based on universal X86 server and high-speed PBlaze4 storage medium can easily expand the computing power or storage space by increasing the number of database nodes or storage nodes. While improving the system performance, the deployment of integrated database machine no longer requires purchasing traditional microcomputers and SAN storage system that are used to improve the performance of data warehouse, thus the overall purchase and maintenance costs can be saved by 50%.