Adaptec maxCache™ SSD Performance Solution Boosts Performance of Retail Trading Company Infrastructure

Introduction

Vysshaja Liga Trading Company was founded in 1992 and has become the largest and one of the fastest-developing retail outlets in Russia. The company has 80 supermarkets in the Kostroma, Yaroslavl and Ivanovo regions and is expanding rapidly.

The Problem

It is typical for retail trading companies to use a shared database with large amounts of simultaneous client sessions.

Vysshaja Liga Trading Company's employees use a client-server model to access the database, which has a capacity of 270GB and is growing rapidly. The database can accommodate up to 300 simultaneous sessions and up to 20 simultaneous active users, but the company's growth rate was outpacing the database's ability to keep up.

"As the number of branches and employees grew, productivity was dropping due to the increased time needed to process requests to the database," said Anton Kuvarin, CIO of Vysshaja Liga Trading Company.

Concerned with the potentially negative impact the database sluggishness could have on future business development, the company contacted ARBYTE Group, the leading Russian developer, manufacturer and supplier of computing equipment and complex IT-solutions

Optimal Solution

ARBYTE engineers and Vysshaja Liga Trading Company's engineers analyzed the existing IT infrastructure and found that the disk subsystem of the database server was overloaded and acting as a bottleneck to the whole infrastructure. The existing server disk subsystem could not be upgraded.

ARBYTE recommended a new server solution with modern disk subsystem technology offering both capacity and performance.

Adaptec maxCache™ SSD Caching

ARBYTE's solution included Adaptec by PMC Series 5 controllers outfitted with the Adaptec maxCache SSD Cache Performance Kit. Consisting of a customized Intel 32GB or 64GB X25-E SATA SSD used as high-performance cache and Adaptec's maxCache SSD Caching Software, the kit can be added to any Series 5Z, Series 5 or Series 2 controller in order to increase a server's performance by accelerating random reads.

Executive Summary

Challenge
Significant client access delays while executing requests to the database server of a large retail trading company.

Solution
The transition of the existing database server to a new server with modern storage subsystem technology featuring the Adaptec by PMC Series 5 RAID controllers with maxCache SSD Performance Kit.

Results
The new scalable server solution provides scope for development of the trading database network over the next 3-5 years.

"Creating a new database server for the customer, we have made major bets on a decision from Adaptec — maxCache, which have provided us with the expected results. This solution has proven its viability and its results confirmed the correctness of the implementation choices made. Business needs of our client in today's server-based solution with high speed data processing, their constant availability and the possibility of further development of IT structure fully satisfied."

— Eduard Tolvinsky, server product line manager of ARBYTE Group.

Adaptec maxCache™ SSD Performance Solution
Boosts Performance of Retail Trading Company Infrastructure

By leveraging its unique presence in the data path, Adaptec maxCache SSD caching software with its patent-pending Learned-Path Algorithm identifies frequently-read data, and optimizes "reads" by copying this data directly into an SSD cache pool to enable faster retrieval of future requests. Because this is done at the controller level, these processes are completely transparent and do not require any changes to storage architectures, application software or operating systems.

Adaptec maxCache SSD Performance Kit is ideally suited to read intensive applications, such as web, file and database servers. With maxCache, IT departments can get the most out of SSDs by creating High-Performance Hybrid Arrays that provide the large storage capacity of HDDs with the I/O performance of SSDs.

To achieve the maximum performance of the storage subsystem, an Adaptec 5805 RAID controller was used in conjunction with an Adaptec maxCache SSD Performance Solution 32 GB kit.

"New database server has improved total performance of IT company structure by 5-7 times, now our staff is able to more efficiently work with the database, we have got new opportunities for developing of business. New resources will support the company's growth over the next 3-5 years and allow us to look in the future."

— Anton Kuvarin,
CIO of Vysshaja Liga Trading Company

The results are in the table below.

Comparison	Old server	New server
Max transaction time (min)	30	5
Average transaction time per day (min)	0.88	0.22

Users Opinions	Old server	New server
Document operation (bill processing)	Up to 10-15 min	Up to 1 min
Answer to a fast request	Up to 5 sec	1 sec

About the customer

Vysshaja Liga Trading Group, Kostroma city

· Founded in 1992
· Manufacturing and trading of food and other products
· Website: **http://www.vliga.com**

About the solution provider

ARBYTE Group
· Founded in 1991.
· The leading Russian developer, manufacturer and supplier of computing equipment and complex IT-solutions
· The company produces storage systems, servers, clusters, workstations, PCs and provides technical support and warranty.
· Website: **http://www.arbyte.ru**

The Solution Configuration

· 2-way Xeon CPU, 24GB RAM ECC REG DDR3, Adaptec RAID 5805 + maxCache 32GB, 6 HDD SAS 800GB 15K rpm in RAID-10

Adaptec Products

· Adaptec RAID Controller 5805
· Adaptec maxCache SSD Performance Solution 32GB

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maxCache

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