

First Rate Case Study

First Rate Improves Processor Utilization Four-Fold; Expects Complete ROI Within 6 Months

The Challenge

First Rate allows investment companies to outsource their business intelligence and to generate high quality reports based on that analysis. They operate in the financial industry, where the phrase, "time is money" has very real implications. So when their middleware servers began to bog down, they acted quickly.

After-hours processing was taking far too long, extending into the morning hours. As clients began using the application, system performance worsened and they began to complain. As a provider of top tier business intelligence, First Rate found this performance unacceptable to themselves and to their clients.

Steve Schneider, First Rate's network administrator, analyzed their system and found that their reporting server's primary problem was poor I/O. Evidence of this included a high disk queue, showing the processor was waiting on the hard disk, and a dismal processor utilization of 50%. Additionally, the system suffered from major disk thrashing in the morning, when the after-hours processing and the reporting application began competing for I/O, forcing the system to switch between operations.

Recognizing that they had to somehow improve processor utilization, Steve implemented a short-term but inadequate stopgap of a 1TB PE220s vault as he looked for a long-term solution. While a SAN might provide the necessary performance, such a solution was cost prohibitive. Alternate solutions that fit into their budget (such as software based RAM Disks utilizing the on-board RAM DIMMs) were unstable. After reading an article about Fusion-io on an online hardware site, he was stunned at the performance gains other companies were experiencing and decided to give some ioDrives a try.



"We are thrilled with the way ioDrives allow us to offer our clients unparalleled performance. We expect a full return on our investment within six months."

*Steve Schneider,
Network Administrator*

FUSION-io®

The Solution

First Rate's middleware environment consisted of four front-end Information Builder WebFocus reporting servers and two Microsoft SQL 2005 database servers. The core investment analysis was performed on the front-end servers by the WebFocus application, so Steve decided to focus his efforts on improving the front-end server performance.

Knowing that Fusion-io was designed to improve application I/O, Steve decided to test moving the files that experienced the highest I/O onto ioDrives. These files were WebFocus's Edatemp files.

First Rate ran benchmark tests with the Edatemp files located on three different storage media:

- 5-drive PE220s Vault with U320 SCSI 15k 73GB Drives. (First Rate's existing system—each vault contained the Edatemp files for two reporting servers.)
- Local SAS 2-drive (RAID1) configuration.
- ioDrive configured for optimal write performance.

Each test ran forty WebFocus agents against 46,000 accounts (all accounts flagged daily) on two months worth of data and generated 139 million Unit Value Returns (UVRs).

The Results

Just one ioDrive on each reporting server (for a total of four) improved processor utilization four-fold, allowing First Rate to do *three times* the work in the same amount of time. It also allowed Steve to repurpose the vaults for more standard storage uses. The results of the test are shown below.

EDATEMP ON	CPU UTILIZATION	TIME FOR COMPLETE RUN
PE220s Vault	50%	4:22 hours
2-drive SAS RAID	50%	4:30 hours
80GB ioDrives	90–100%	1:30 hours

The ioDrive's performance allowed First Rate's after-hours processing to complete on time, their application to perform at top speeds, and most importantly, it allowed their clients to manage their investments without slowdown.

Steve had the following to say about the results, "We are thrilled with the way ioDrives allow us to offer our clients unparalleled performance. We expect a full return on our investment within six months." He is now planning to test Fusion-io on First Rate's databases.

Changes to the System

SYSTEM BEFORE

First Rate's previous infrastructure consisted of:

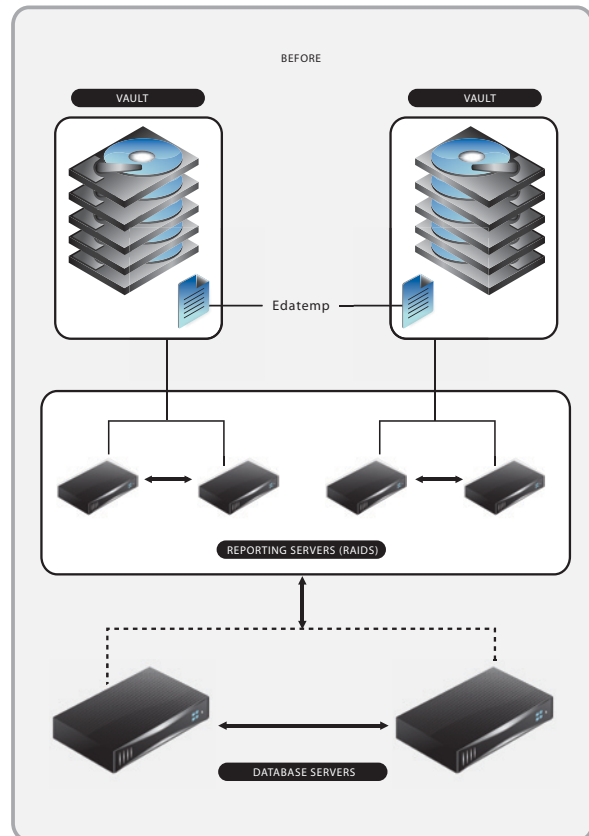
Four reporting servers

- Dell PE1950 Quad/Dual processor with 4GB RAM
- OS: Windows 2003 Enterprise Server R2
- Server Software: WebFocus 7.6.7, ReportCaster 7.6.7, First Rate Performance 6.0
- Disks: Two 15,000 RPM SAS drives in a RAID1

One 1TB PE 220s Vaults for every two reporting servers (Edatemp files on the vault)

Two database servers

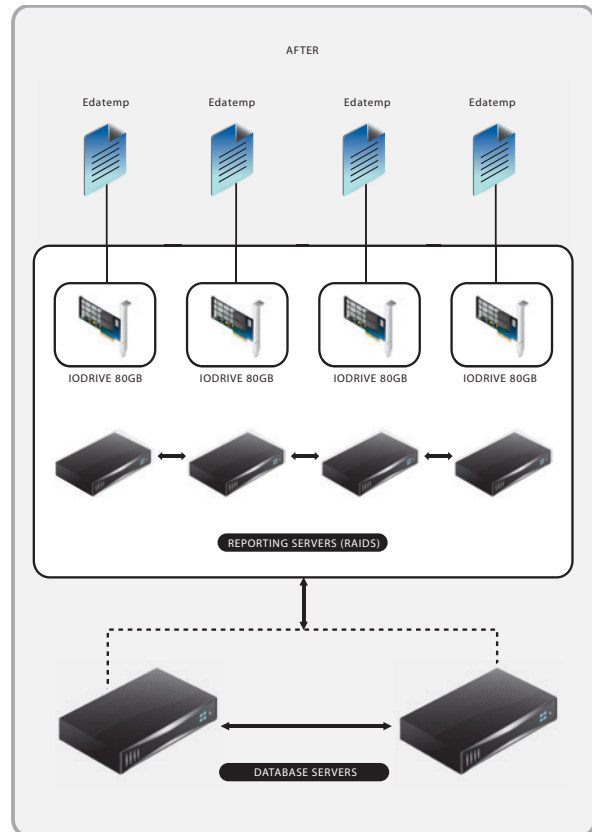
- Dell R900 Quad/Quad processor with 128GB RAM
- OS: Windows 2003 Enterprise Server R2
- Server software: Microsoft SQL Server 2005
- Disks: Two 15,000 RPM SAS drives in a RAID1



SYSTEM AFTER

Their previous system changed as follows:

- Decommissioned both vaults
- Added one 80GB ioDrive to each reporting server (for a total of four), moving the Edatemp files to the ioDrives



About the Customer

First Rate® provides investment performance measurement and analysis solutions to the wealth management industry. The First Rate Performance Solution allows investment firms to calculate accurate rates of return, better analyze the results efficiently and generate dynamic "boardroom quality" presentations for their clients. As a trusted advisor, First Rate provides its customers with a level of focus, depth and expertise that is truly unique to the industry.