

Elevating VDI Performance: Primary Residential Mortgage Achieves Performance Resurgence and a 90% Reduction in Drive Failures with DymaxIO

A DYMAXIO CASE STUDY

CHALLENGES

- Performance challenges and heavy I/O load reemerged in new VDI implementation.
- Productivity issues related to slow-running applications.
- High levels of I/O leading to frequent hard drive replacements.

RESULTS SNAPSHOT



1 BILLION
I/Os REDIRECTED
FROM STORAGE



90%
REDUCTION IN DRIVE
FAILURES

ENVIRONMENT

- Key Applications: SQL, Windows File Server Clusters, multiple SaaS mortgage apps.
- Servers: Windows Servers 2016 & 2019.
- Operating System: Windows.
- Hypervisor: VMware ESXi 7.03, Horizon 8.10.
- Storage: vSAN in both environments (3 Drives per host, 26 hosts).
- Network: HP Aruba switching.

AT A GLANCE



Primary Residential Mortgage (PRMI), a prominent player in the mortgage industry, decided to implement VDI (Virtual Desktop Infrastructure) in response to the growing need for enhanced data security and to solve latency issues they were experiencing in their legacy desktop environment. They set up a robust hardware environment, with 22 well-provisioned ESXi hosts to support 400 concurrent sessions, so they were surprised when they encountered significant challenges with the performance of their VDI systems due to excessive I/O. This case study explores how PRMI overcame these challenges by turning to ConduSiv's DymaxIO®, resulting in not only restored performance but also a remarkable 90% decrease in drive failures and replacements.

THE CUSTOMER



Primary Residential Mortgage, Inc. (PRMI), founded in 1998, operates as a multibillion-dollar enterprise with over 250 branches, 2,200 employees, and is licensed to operate in 49 states. Renowned for its leadership in the mortgage industry, PRMI continually ranks as a top mortgage lender.

THE CHALLENGE



Jeremy Hill, PRMI's Director of IT Systems, discovered DymaxIO in 2016 when users were complaining about server performance. The complaints didn't make sense because Jeremy's forward-thinking approach to IT management had already led him to implement a state-of-the-art data center. Since hardware wasn't the issue, yet users continued to complain, Jeremy researched and discovered ConduSiv's DymaxIO optimization software. He implemented DymaxIO across all the virtual servers which stopped the user complaints and spared them from the hassle and expense of a rip-and-replace upgrade.

DYMAXIO BENEFITS

- Faster performance for Windows Servers, desktops, and laptops
- Better application performance
- Fast SQL and database performance
- Fast data transfer rates
- Increased throughput and reduced latency
- Fast file reads and writes
- Optimal performance from your storage, HDDs and SSDs
- More reliable Windows Servers, desktops, and laptops
- Reduced timeouts, crashes, freezes, hangs
- Reduced file corruption and data loss
- Reduced “phantom” IT issues
- Reduced user support calls
- Extended hardware lifecycle
- Increased VM Density
- Faster backups allowing backups to complete in named window’s timeframe
- Reduced network traffic, increasing your network bandwidth for other work
- Reduced cloud compute costs
- Overall increased system and network-wide efficiency due to increased performance, reliability, longevity, and energy conservation
- True “Set It and Forget It”® management
- Compatible with all SAN/NAS and hyperconverged systems
- Deploys to hundreds or thousands of servers with just a few clicks – no reboot required
- “Time saved” reporting dashboard to validate benefits
- Enterprise-wide visibility into I/O performance health from the operating system to storage

THE CHALLENGE (CONTINUED)



When latency issues surfaced in the main mortgage application installed on the mortgage brokers’ PCs, Jeremy’s team turned to VDI as the solution, which also provided extra data security. The team was surprised when performance challenges reappeared. Drawing from his experience and the benefits of DymaxIO on the servers, Jeremy wondered if DymaxIO could help address performance issues in his new VDI environment as well.

THE SOLUTION



Since Jeremy had been using ConduSiv’s I/O optimization software on the servers since 2016, he worked closely with his ConduSiv team to seamlessly deploy DymaxIO to 400 VDI clients across 22 hosts. Within just 30 days, DymaxIO eliminated over 1 billion I/Os, significantly reducing excessive and disruptive I/O traffic from hitting the underlying storage.

DymaxIO, installed on each VDI client, optimizes I/O at the source, right inside the Windows OS, reducing the overall number of I/O’s required to write each file. This proactive approach prevents the unnecessary creation of split I/Os by the Windows OS that impedes throughput on servers, networks, and storage. DymaxIO ensures that Windows generates as much sequential I/O as possible. The entire infrastructure benefits from this optimization.

IntelliWrite® technology in DymaxIO automatically prevents Windows NTFS from splitting I/Os, creating larger I/O packets on every write. This reduces random I/O traffic and replaces it with sequential I/Os which is easier for storage to process, increasing throughput. Next, IntelliMemory® is a dynamic read-only cache that further reduces I/O traffic to storage. This combined feature set enhances system performance and efficiency, making DymaxIO an invaluable asset to PRMI’s IT infrastructure.

DYMAXIO FEATURES

- IntelliWrite® enhances system performance by automatically preventing split I/Os at the source, in the logical disk layer inside the Windows OS before being written to disk. It replaces hard-to-process random I/O, with sequential I/O, eliminating the I/O Blender effect.
- IntelliMemory® utilizes intelligent caching algorithms to create a read-only cache, using only the idle, available free memory on the server.
- “Time Saved” Benefits Dashboard shows ongoing benefit of the software by displaying the amount of I/O offloaded from storage and the corresponding time saved.
- Set-It-and-Forget-It® feature ensures that DymaxIO is nondisruptive, operating seamlessly in the background, and optimizing I/O generated by the Windows OS in real-time without requiring a reboot for installations or upgrades.

THE RESULTS



After running into performance issues with their VDI implementation, Primary Residential Mortgage found the ideal solution in DymaxIO, that significantly improved performance and productivity. Jeremy emphasized its crucial role in boosting performance and reducing the I/O load, “It just makes sense to install DymaxIO in any virtual environment, whether it's VDI or hosted servers. It's critical for performance reasons and reduces the I/O load off backend storage. It makes a big difference.”

One unexpected and welcome benefit emerged – a remarkable decrease in hard drive failures since DymaxIO's installation. In the past two years, Jeremy's team replaced only 4 vSAN hard drives, a stark contrast to the typical 2 to 3 replacements per month in a comparable environment without DymaxIO. According to Jeremy, “This reduction in hardware failures is a clear indicator that the I/O load on our backend storage has significantly decreased, thanks to DymaxIO. This stands in contrast to other environments lacking I/O optimization, where hardware failures occur more frequently due to increased I/O load.”

From Jeremy's perspective, “Using DymaxIO across all VDI infrastructure provides a ripple effect, benefiting every guest in the environment. Given that most environments share storage, minimizing stress on shared storage and relying more on memory rather than disk access results in faster overall performance.” As Jeremy succinctly puts it, “The results speak for themselves and translate directly into improved end-user experiences and heightened process productivity.”

[Download a 30-day evaluation »](#)

ConduSiv Technologies

Contact Us // 800-829-6468 //

www.conduSiv.com