



Accelerating, Virtualizing, and Scaling SQL Server with Windows Flash Array

Achieve higher SQL Server 2012 performance and efficiency through a collaboratively developed high-availability storage platform based on Windows Storage Server 2012 R2

Highlights

Blazing Speed

- Consolidate SQL Servers
- Dramatically higher SQL Server performance
- Fast all-flash SMB Direct storage solution
- Ultra-fast read/write commits for OLTP
- Optimized MS stack
- DAS performance with SAN features at a NAS price

Enterprise Scalability

- Optimize CPU investments across workloads
- Up to 4 arrays (8 nodes) per cluster
- SQL Server scaling to enterprise workloads

Enterprise Resiliency

- Continuous availability with multiple layers of protection
- Windows Server clustering
- SMB multichannel support
- Zero single points of failure
- Easy data mirroring
- Snapshot backups for disaster recovery

Microsoft SQL Server is a powerful and cost-effective database solution for a variety of structured data storage needs, including OLTP, data warehouse, business intelligence, real-time analytics, SharePoint, and in-house developed applications. Not surprisingly, many businesses run on SQL Server. However, unprecedented growth in enterprise data makes managing, scaling, and ensuring DBMS availability difficult, if not cost prohibitive. It's clear that a new approach is needed that can support database growth, improve efficiency and manageability, and deliver acceptable performance levels without breaking the IT budget.

To meet this challenge, Violin and Microsoft have collaborated to develop a fundamentally different storage platform that enables you to scale SQL Server performance and ensure availability at a very favorable price point. The Violin Windows Flash Array (WFA) combines Violin's patented flash storage optimization algorithms, Microsoft's fast SMB Direct protocol, and Microsoft Windows Storage Server 2012 R2 so can easily consolidate your SQL Server environment to scale more effectively and meet your growing needs while delivering blazingly fast throughput to handle the most demanding workloads.

Eliminate the I/O Bottleneck and Increase Performance

Performance varies in traditional architectures. WFA addresses traditional I/O bottlenecks through the combination of SMB Direct and flash-based storage to deliver consistent high performance on a simpler architecture with reduced CPU load for every byte, every time. This means you can recoup compute cycles for other workloads. WFA eliminates the need for a dedicated storage infrastructure to support SQL Server and Hyper-V virtualization. This makes storage simpler and less risky to setup and manage, as there are no disk groupings, data locality issues, performance mapping or tuning required. You can improve SQL Server performance today and align with Microsoft's networked storage technology roadmap. WFA offers a smaller, less expensive IT footprint with higher utilization and performance than traditional SANs but with cost savings of up to 80%.

Scale SQL Server Higher than Before

SMB Direct runs at PCIe speeds to deliver the features of a SAN at the price of NAS with the performance of DAS. When you access Violin flash-based storage through SMB Direct, you get the efficiency for ultra-fast read and write commits that can increase performance by up to 10x while reducing CPU demand by up to 30%. With Hyper-V virtualization, you can optimize CPU cycles without the performance penalty of other virtualization solutions. You maintain consistent performance while adding users, threads, tables, LUNs, etc.



This is a fundamentally different and better storage platform for SQL Server 2012 jointly developed with Microsoft

SQL Server under Hyper-V does not suffer from up to 20% overhead found in other virtualization solutions; you can consolidate workloads without performance penalty

SMB Direct (SMB 3.0 over RDMA) can reduce CPU utilization by up to 30%

Self-healing clusters ensure continuous availability of mission critical SQL Server data and applications as they can sustain any single point of failure and remain operational

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With management based on System Center and PowerShell, existing staff with Windows management skills can administer and provision storage resources, which reduces the needed skill sets, tools, and training. You can rapidly deploy new development, test, and Q/A scenarios with the knowledge that roll out and roll up will be quick and simple, and the test beds will match the speed and architecture of your production environment. You can non-disruptively scale-up or scale-out based upon your needs as WFA supports both Windows Storage Spaces and Scale-out File Server (SOFS). You can rest assured that your SQL Server environment will be able to scale alongside your present or future workload needs.

Stay Online All the Time

WFA combines a multi-node cluster and a storage array featuring global hot spares to help you attain modern 24x7 operations. This turnkey solution simplifies maintenance and requires only 3U of rack space. Envision disaster recovery that is simple; High Availability configuration and deployment is option-rich and as quick and simple as software configuration. You can mirror any share with the click of a mouse. Windows clustered failover ensures continuous availability of Microsoft SharePoint and other in-house developed applications using SQL Server data stores on the back end. Our balance of compute, network, and storage performance reduces I/O bottlenecks and potential service interruptions due to workload spikes.

Enterprise Class Storage Features

With Windows Storage Server 2012 R2 as the operating environment, WFA delivers many feature-rich performance-enhancing capabilities. In addition to high performance, WFA cost saving features include thin provisioning for increased storage utilization, deduplication to reduce storage demand especially in virtualized environments, data compression, and space efficient snapshots. WFA offers unique flexibility through Storage Live Migration, which enables movement of executing virtual machines within the cluster without down time. Further, WFA data protection includes mirroring through Storage Spaces, replication, and SMB Encryption of data in flight, all within the resiliency of a Windows Server Failover cluster.

Improve Your SQL Server Results

WFA is designed for continuous availability and reduced risk to operations through multi-layered hardware and software resiliency that delivers enterprise-class storage performance at an attractive price point. Maximize your SQL Server performance with greater flexibility on a simpler architecture. Violin and Microsoft collaboratively optimized this solution to leverage WFA's unique performance profile so you can run your SQL Server environment.

To learn more about how WFA can dramatically improve your Microsoft SQL Server environment, please contact your Violin Memory representative.

For more details on Violin Memory solutions for Microsoft environments, go to <http://www.violin-memory.com>



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