

Riversand Goes Extreme with MPSC

A Benchmark to Build On

Presented with:



Driven by the ever-growing need by large retailers for “extreme information management” with powerful systems, **Riversand Technologies** needed hard proof that its data management solutions will deliver wide scalability and process vast amounts of data via a SQL Server database at accelerated speeds.

Such proof of performance for its Product Information Management (PIM) and Master Data Management Center (MDMCenter) is critical to sales, but Riversand needed access to infrastructure and multiple technologies for high-end benchmarking. The company turned to the **Microsoft Partner Solutions Center (MPSC)** to stage their test.

Omni-Channel Selling: The Need for Speed

For a textbook example of technology adoption, look no further than today’s business and consumer buyer. Information-hungry, price-savvy, and mobile-empowered, today’s online buyers expect a multi-screen, multi-media consistent experience across channels and touch points. Forget about connecting the channels; buyers want channels to blend.

Enter omni-channel selling. In short, it means leveraging all the buyer’s touch points – mobile, social, kiosks, store, marketplace, distributors, etc. – to create a seamless experience. Further, companies must intelligently interact with today’s buyers across traditional and non-traditional channels such as websites, physical stores, kiosks, direct mail and catalogs, call centers, social media, mobile devices, and more.

But this need precipitates massive data management requirements – what Gartner calls “extreme information management” – via systems that are easily scalable and can process rivers of constantly-changing product and buyer information. Managing such details and orchestrating processes is a big challenge for companies like Nordstrom, Bed, Bath & Beyond, Schneider Electric, and Teva Pharmaceuticals. Therefore, they must seek solutions to consolidate and manage large volumes of data.

As a single repository for the enterprise-wide distribution to multiple channels, MDMCenter has proven its value to customers across a variety of industries. But the need to manage this explosion of corporate data has necessitated the establishment of benchmarks associated with a high-performing and scalable system.

“As part of our 7.0 release, we designed and architected a flexible platform to scale and perform across the multiple tiers of omni-channel selling,” said Anil Kini, Riversand Co-founder and CTO. “We needed a well-designed and -engineered benchmark test to prove these capabilities.”

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Cisco – A long-time solutions partner enlisted the MPSC to design and execute the test, working with key Microsoft partners **X-IO** and Scalability Experts.

Test Objectives

The MPSC test team devised a benchmark test that would demonstrate MDMCenter's capability for:

- Scalability and performance of a large product implementation
- Extreme processing capabilities to handle large volumes of data
- Complex hardware topology that can be easily implemented using Cisco® Unified Computing System® (UCS) Manager to support cloud initiatives
- Extremely fast (sub second) data retrieval and search performance for product data to support user interface and system integration performance

By simulating day-to-day operations of omni-channel and extreme data initiatives, the test would record performance and scalability benchmarks deployed on the Cisco UCS™ platform with SQL Server 2008 as the database server, Windows Server 2008 R2 SP1 Enterprise, and the X-IO ISE storage system.

Benchmark criteria included:

- A large MDM deployment of over 10 million products
- 1.6 billion attribute values
- Combined storage of over 30 TB
- 200 concurrent users

The Technology Driving the Test

Such precise criteria meant the MPSC partners had to deliver on three high demand areas: storage, speed, and performance.

Storage capacity was an initial constraint: Riversand needed over 100 terabytes, which exceeded MPSC supplies. X-IO demonstrated that its scalability metrics could meet the challenge, partnering its storage solutions with Cisco UCS chassis and blades to accommodate the benchmark compute requirements.

“When big I/O operations come into the MPSC, we often direct them to X-IO solutions, based on their demonstrated capability,” said David Hayes, MPSC Senior Director. “The small footprint and large performance capability makes its solutions a perfect candidate for a disk-heavy benchmark – just what the Riversand benchmark test demanded.”

The compatibility of the X-IO storage system with SQL Server also proved to be a key factor. ISE-2 and the flash-enabled Hyper ISE storage solutions complemented SQL server, virtualization, and data system performance tests.

Despite the high storage demands, the Hyper ISEs maintained between 15,000 and 20,000 Input/Output Operations Per Second (IOPS) for the main production runs, resulting in more than 1GB per second of throughput to the Hyper ISEs. This was back-end storage IOPS encompassing multiple Logical Unit Numbers (LUNs) via unclustered servers, as high availability was not required (although clustering generally does not impact performance).

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Even with this large IOPS and throughput, the read and write latency values of the Hyper ISEs never exceeded 20ms – an impressive display, as noted by Kini.

“The X-IO system proved that we could deliver a high level of performance coupled with very fast response times – a critical factor to our customers,” he said. “The test underscored how the Cisco/X-IO solution could be scaled to grow without a drop in performance levels.”

Managing this hardware-heavy test system was assigned to the Cisco UCS Manager, which demonstrated that it could handle a complex, multi-tier, multi-server architecture (comprised of over 20 servers). The UCS platform also demonstrated its compatibility with SQL Server 2008 R2, enabling the deployment of the 1.6 billion row SQL database and achieving, in concert with X-IO technology, an impressive 9133 SQL front-end IOPS (from application against a single LUN).

Tight integration between the Microsoft System Center Operations Manager and System Center Orchestrator allowed the testing team to take full advantage of the programmatic control that Cisco provides through the Cisco UCS Manager XML API framework. Architects and administrators monitored, managed, and orchestrated both hardware and software processes.

A powerful, robust, and scalable server platform, the Cisco UCS Manager enabled MDMCenter to attain superior performance numbers. “Their server management platform enabled us to deploy, configure, and manage our complex test environment very easily, and will provide significant infrastructure value to our clients,” noted Kini.

Scalability Experts brought expertise in SQL Server performance and MDM to the test. In addition to architectural guidance, Scalability Experts closely monitored the SQL Server performance during all the tests, analyzed performance issues, and guided ways to improve the performance and scalability of SQL Server. Short-term changes have already contributed to the outstanding performance, while long-term adaptations will further increase performance and scalability.

Results

Riversand, Microsoft, Cisco, X-IO, and Scalability Experts demonstrated via a comprehensive benchmark test that MDMCenter’s capabilities deliver on the demands of extreme information management in an omni-channel application.

The benchmark test not only confirmed MDMCenter capabilities, but showcased speed and scalability that exceeded all expectations of the aspects that the benchmark aimed to measure.

Extreme information management

- Established the strong performance of MDMCenter software to manage high volumes of data for a large quantity of users.

Scalable

- Authenticated MDMCenter’s capability to scale horizontally without a reduction in performance. The addition of incremental data met the end user’s need for application performance.
- Demonstrated system could deploy in a complex, heterogeneous environment using Cisco UCS and X-IO platforms. Substantiated scalability using n-tier deployment with load-balancers in each tier to meet complex IT requirements.
- Established deployment ease and configuration of the application for private and public cloud models as viable solution options – the Cisco UCS platform supports client deployments on Riversand’s on-premise and cloud/SaaS offerings.

Speed

- Demonstrated sub-second response times for data retrieval using Appfabric in-memory cache for high volume, concurrent requests. Also established that SQL server could process over 2 billion records in a single database table in a transactional context and met performance and scalability requirements.
- Confirmed MDMCenter’s swift processing time – reduced load time for 1 million entities from a number of days to just three hours. Linear performance numbers for up to 10 million entities shows greater efficiency for data migrations and large scale loads.

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MPSC

Located in Redmond, WA, the Microsoft Partner Solutions Center (MPSC) offers customers and partners an environment where industry leaders and partners can collaborate in a single setting: a place where Microsoft and partners help customers rethink how to evaluate, plan, build, and deploy a broad variety of solutions.

From POC to customer briefings, the MPSC helps partners and customers maintain a competitive edge and take full advantage of today's business opportunities.

Types of customer engagements:

- Customer briefing
- Technology showcase
- Proof of concepts
- Training
- Custom engagements

MPSC resources:

- More than 600 servers available on-site
- More than 100 terabytes of available storage
- Aid from more than 35 Microsoft partners available on-site
- Ample infrastructure and lab space to facilitate customized and secure environments
- Ability to host engagements either on-site or through remote high-speed connection

MPSC: microsoft.com/mpsc
mpscinfo@microsoft.com

Riversand:

Susan Magi, susan.magi@riversand.com

Cisco:

John Zamierowski, jzamiero@cisco.com

Rick Mittelstaedt, rmittels@cisco.com

X-IO:

Gigi McDougall, gigi.mcdougall@X-IO.com

Scalability Experts:

Roger Wolter, rwolter@scalabilityexperts.com