



# IBM Sterling Order Management

*High performance and scalability*

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### **Executive summary**

Providing a superior cross-channel customer experience is extremely complex—perhaps more than it has ever been. Customers are demanding more choice in products, how they purchase those products and how those products are fulfilled. Selling a product is not as simple as just taking the order. It requires collaboration with outside suppliers as well as intelligent systems that determine the most efficient location to fulfill the item being purchased. This complexity can slow down an order management system that is not built for this type of processing.

To maintain a competitive advantage, companies need an intelligent order management solution that can accommodate complex transactions and scale as demand increases. The results from two studies show the scalability of the IBM® Sterling Order Management 9.1, IBM DB2® 9.7 and IBM Power® 770 server solution to process transaction volumes that are significantly beyond those found in most customer environments.

High performance can be maintained at volumes representative of those found in most customer environments. The primary objective of the two scalability studies is to help ensure that the Sterling Order Management 9.1 application performs and scales in high transaction volume environments and to provide data points to support Sterling Order Management solution purchases and adoption decisions.

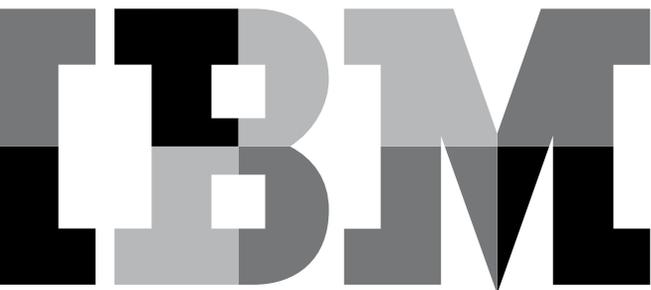




Figure 1: Configuration used for both benchmark tests

## Benchmark specification

In June 2011, IBM conducted a scalability study with the Sterling Order Management 9.1 application running under two operational, or use-case, scenarios at the IBM Innovation Center in Waltham, Massachusetts. The purpose of this scalability study was not intended to test the maximum performance of the solution and hardware but rather what a very high volume Tier 1 retailer may encounter. In both scenarios, the Sterling Order Management application manages the complete order fulfillment process, which at a high level includes the following:

1. Receiving instructions and creating orders
2. Authorizing the payment information of the created orders
3. Scheduling the authorized orders to available inventory
4. Releasing the scheduled orders
5. Sending the released orders to warehouses for shipping
6. Receiving and confirming in the Sterling Order Management application that the orders have shipped
7. Invoicing the shipped orders
8. Closing the invoiced orders

## Scalability study results summary

The first scenario simulated a retail operation where the Sterling Order Management application was used to manage the end-to-end order fulfillment process with inventory maintained in separate, existing inventory-master systems. In this scenario, during the steady state, the application processed the following workloads in parallel:

- **2.0 million lines created per hour**
- 139,000 orders (payments) authorized per hour
- 1.9 million order lines scheduled per hour
- 1.9 million order lines released per hour
- 1.9 million order lines sent to warehouse nodes per hour
- 1.9 million shipment lines confirmed per hour
- 2.4 million inventory adjustments per hour

For example, at any hour in the study, while the application was creating 2.0 million lines per hour, it was also concurrently scheduling 1.9 million order lines that were previously created, releasing 1.9 million order lines that were previously scheduled and so forth.

This operational mode allows customers to take advantage of the Sterling Order Management application's marketplace-leading functionality while at the same time preserving the use of their existing inventory masters.

The second scalability study simulated a different retail operation where the Sterling Order Management application was used to manage the complete order fulfillment process in addition to being the inventory master. In this scenario, the IBM solution processed the following workloads in parallel during the steady state:

- **1.1 million lines created per hour**
- 1.1 million order lines scheduled per hour
- 1.1 million order lines released per hour
- 1.1 million shipment lines confirmed per hour
- 1.7 million inventory adjustments per hour
- 640,000 get availability calls per hour

This study adds an additional 640,000 get available-to-promise (ATP) calls per hour to simulate different sales channels, such as the web store, using the IBM solution to determine whether the item is available to promise.

### Benchmark configuration

The benchmark was conducted on the following configuration:

- Sterling Order Management 9.1
- IBM DB2 9.7 Fix Pack 4
- Database server
  - IBM AIX® 6100-06-02 64-bit
  - IBM Power 770 with the following:
    - 48-core 3.1 GHz
    - 288 GB RAM
    - 8 Gbps (aggregated) network
- IBM System Storage® DS8700

At the core of the benchmark configuration was a high performance, highly parallel IBM Power 770 server that was configured with 48 IBM POWER7® 3.1 GHz processing four-way simultaneous multithreading (SMT4) cores. Each SMT4 core represents four logical processors that are capable of running up to four threads in parallel. As a result, the Power 770 server was capable of running up to 192 concurrent threads.

The Sterling Order Management application’s workload ran on six IBM Intel technology-based IBM System x® 3550 M3 servers that were equipped with eight Intel Xeon processing cores for a total of 48 Intel Xeon cores.

The choice of the IBM Power 770 server was crucial because the benchmark needed fast and massively parallel computing cores along with its ability to support a large amount of memory, network traffic, and a high number of DB2 connections.

The storage was a high-end enterprise class IBM System Storage DS8700 storage device. The goal for this benchmark was to configure the storage area network with at least six disk spindles per processing core. Given the Power 770 server’s 48 cores, we needed at least 288 spindles.

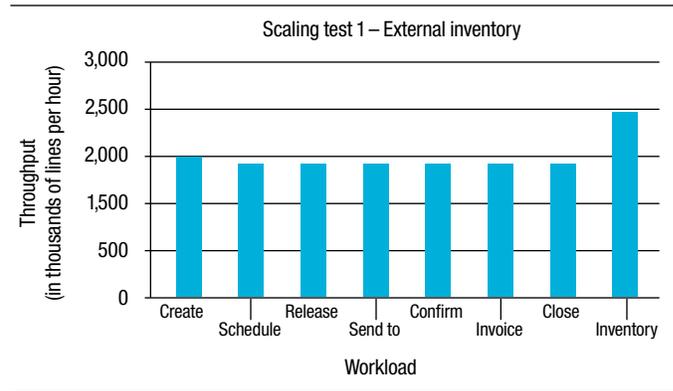


Figure 2: Test 1 throughput results

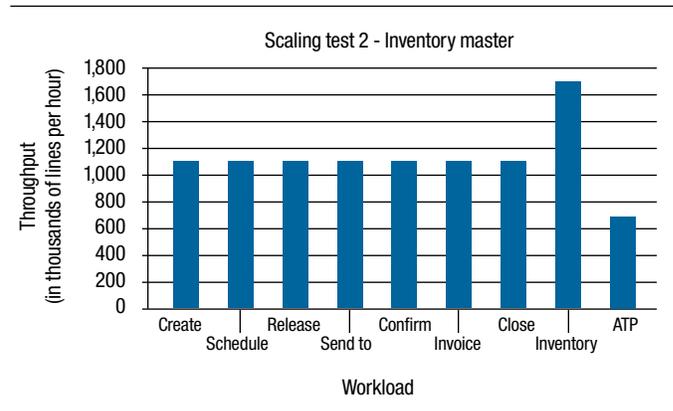


Figure 3: Test 2 throughput results

## Conclusion of results

The results of the scalability study showed that with minimal hardware configuration in a DB2 environment, the Sterling Order Management solution can scale to reach performances that far exceed the ordering needs of a typical Tier 1 organization. A large organization will process around 40 million lines per year, which translates to more than 100,000 peak order lines per hour. This is far below the 1.1 million lines achieved in this benchmark study, simulating a typical live environment. This scalability will provide IBM clients the flexibility and growth needed to address the ever-increasing demands of providing a superior cross-channel customer experience.

## Why IBM?

As part of the IBM smarter commerce family of solutions, Sterling Order Management can add value on its own or be combined with smarter commerce software solutions, as well as hardware and services, to provide the performance and scalability needed to help ensure that products and services will be fulfilled accurately and efficiently across channels.

## For more information

To learn more about Sterling Order Management, please contact your IBM representative or IBM Business Partner, or visit:

[ibm.com/software/commerce/order-management/](http://ibm.com/software/commerce/order-management/)



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