



IBM and Lawson M3 (an Infor affiliate) ERP software workload optimization on the new IBM PureFlex System

Enterprise software in an easily managed delivery platform

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Abstract

The power of a centrally managed, consolidated computing platform, which the IBM PureFlex computing environment delivers, lends itself ideally for use by business and data center providers. This paper describes the testing of the Lawson M3 (an Infor affiliate) enterprise resource planning (ERP) product suite on the IBM PureFlex System.

Introduction

The goal of this project is to verify and validate a customer Lawson M3 ERP application setup running in the IBM® i and Microsoft® Windows® environment. This test positions Lawson M3 to take advantage of the consolidation and flexibility offered by the new PureFlex Systems.

Prerequisites

The test of the Lawson M3 application on the new IBM PureFlex System required the configuration and use of both hardware and software. The objective of this project is to enable and test the Lawson M3 application in a virtualized environment that included:

- IBM POWER7® compute node
- Intel® compute node
- IBM Storwize® V7000 storage area network (SAN) disk storage
- Virtual I/O Server (VIOS)
- Microsoft Windows 2008 on three partitions, two cores each
- IBM i OS V7R1 TR3 partition with two cores
- Lawson M3 10.1

The Lawson M3 application suite

With Lawson M3, you get enterprise resource planning (ERP) software solutions that focus on your industry to provide you the competitive advantage and flexibility you expect in best-practice business process automation. The market-leading solutions from Lawson are tailored to meet the specific conditions and requirements of individual industries. Refer to the solutions at the following URL for more details:

- Lawson Distribution Solution
www.lawson.com/Solutions/Industry-Solutions/Lawson-Distribution-Solution/
- Lawson for Equipment Service Management and Rental
www.lawson.com/Solutions/Industry-Solutions/Lawson-for-ESMR/
- Lawson for Fashion
www.lawson.com/Solutions/Industry-Solutions/Lawson-for-Fashion/
- Lawson for Food and Beverage
www.lawson.com/Solutions/Industry-Solutions/Lawson-for-Food-and-Beverage/
- Lawson Manufacturing Solution
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- Lawson for Service Industries
www.lawson.com/Solutions/Industry-Solutions/Lawson-for-Service-Industries/



As Lawson understands these industries, they are ideally suited to help customers make well-informed strategic decisions in the areas that matter the most to them.

Enterprise software suites derived using Lawson expertise are tailored to meet the specific conditions and requirements of individual industries.

The Lawson M3 ERP solution tested here is a Java™ technology-based application which runs on both IBM i and Windows servers.

The IBM PureFlex environment

The PureFlex environment consists of one POWER7 node that contained one IBM i partition and one Intel node with three Windows 2008 partitions. The following core M3 Business Engine applications were loaded on to a 2-socket / half-wide POWER7 compute node with 16 available processor cores and 64 GB memory. VIOS was installed as the bootable operating system. One IBM i partition was created and IBM i V7R1 TR3 was installed. The partition was given two processors and 16 GB of memory. The storage used to back up and store the operating systems and the Lawson M3 application was a Storwize V7000 SAN storage device.

Core applications:

- M3 System Foundation
- M3 Business Engine database
- LifeCycle Manager Service
- M3 WorkPlace
- Grid Host
- Grid M3 Business Engine
- HTTP Server
- IBM WebSphere® Application Server

The following Lawson M3 Windows applications were loaded on to a 2-socket / half-wide Intel compute node with 16 available processor cores and 64 GB of memory. Using VMWare VSphere, three Windows 2008 Server partitions were created as follows: Partition A with one core and 4 GB of memory, Partition B with four cores and 4 GB of memory, and Partition C with four cores and 8 GB of memory.

Partition A:

- LifeCycle Manager Server, Client, and Service
- Grid Host
- Microsoft SQL Server Enterprise Edition
- StreamServe
- M3 Enterprise Collaborator

Partition B:

- LifeCycle Manager Service
- Grid Server
- Grid Extensions (Event Hub, GDBC, Session Provider)
- Lawson Smart Office
- Lawson Web Services

Partition C:

- LifeCycle Manager Service
- M3 Adaptation Kit

Test results

The sections below describe the installation process that was used as well as tests that were done to validate Lawson M3 applications on the new IBM PureFlex System.

Installation

Installation of the core Lawson M3 applications both on the IBM i and Windows operating environments was done using Lawson LifeCycle Manager. LifeCycle Manager is the standard way to install Lawson M3 applications and can be used in a customer environment. A few Lawson M3 Windows application required manual setup and those were installed by following the Installation Guides that come with those products.

Test execution experience

Figure 1 shows the PureFlex environment that was created, the Lawson M3 applications that were installed, and the server on which they were installed. This setup was chosen because it is similar to a real-customer environment..

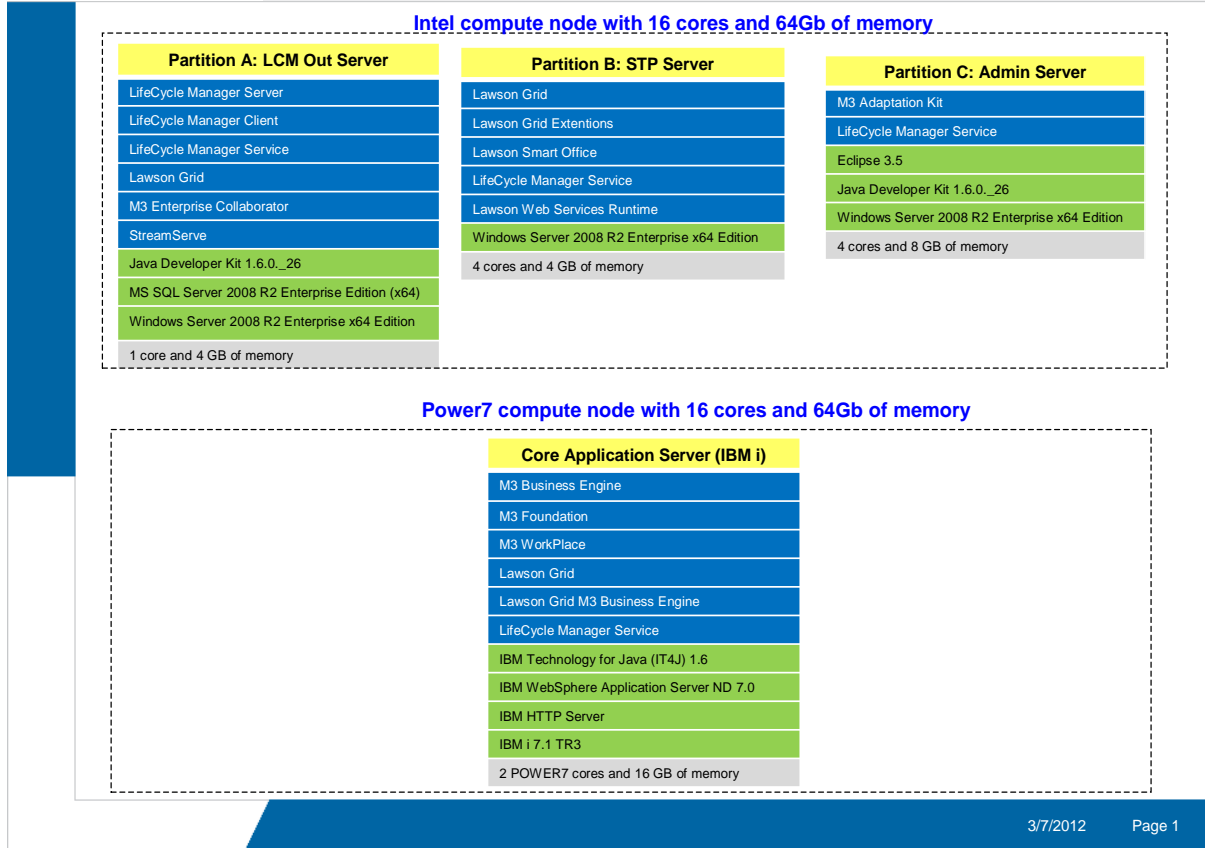


Figure 1: Lawson M3 PureFlex test environment

After setting up the environment, tests were performed to validate proper functioning of the environment. On the IBM i partition, the M3 Business Engine Order Entry test was run to drive a large volume of orders through the server. With this test, the team was able to validate that the M3 application installed on the IBM i partition was behaving as expected. On the Windows partitions, the following smoke tests were performed.

Installation smoke tests

- Lifecycle Manager installation smoke test to verify connectivity and manageability of the LCM Service network.
- Lawson Smart Office installation smoke test, that verifies that Lawson Smart Office can be installed, started, and connected to M3 Business Engine. By this test, the team also verified that Lawson Web Services are set up correctly and functioning properly.
- M3 Enterprise Collaborator or MEC installation smoke test that verifies the connectivity for external transactions (typically similar to Electronic Data Interchange or EDI) to M3 Business Engine.



Lawson M3 PureFlex test results

The following results are from the Lawson M3's Order Entry test. Results are reported in the *number of invoiced order lines per hour*. An invoiced order line is one that has completed all of the interactive and batch processing required for that order and the order lines to have a status of 77 or completed. To demonstrate that the results were repeatable, the results consisted of two runs with identical parameters. The results obtained here are inline with previous measurements that have been done on POWER7 systems (see Table 1). When taking into account that the test here used a configuration with significantly less cores, memory and disks than the previous results, this also demonstrates that the results obtained here are inline or better than expected.

Two-socket/half-wide POWER7 compute node. The POWER7 node invoiced 250,422 order lines per hour in one run and 250,623 order lines per hour in the second run. In both runs, 110 virtual users were used. Processor utilization was 97 percent for both runs.

Response time. Table 1 shows the average response time for each Web browser transaction on the PureFlex POWER7 compute node. Response times do not include the average think time for each transaction and they measure the entire length of the run, not just the 90-minute measurement interval.

Step	Number per order	Average response time (seconds)	
		Run 1	Run 2
Create order head	1	0.181	0.181
Insert order line	5	0.119	0.122
Close order	1	0.094	0.099

Table 1. Average response times for the POWER7 node

Reference:

Lawson M3 on IBM POWER7 and IBM i 7.1

ibm.com/support/techdocs/atmastr.nsf/WebIndex/WP101682



Summary

The setup for this test was done to approximate a real-customer environment. A test run of this environment on the IBM PureFlex system and functional testing by Lawson M3 indicated that the POWER7 node was very responsive and stable. The test team did not need to tune any of the known IBM i performance knobs although the Rochester team applied the already known performance tuning techniques to VIOS / Storwize V7000 and IBM i when the environment was created. With multiple functional tests running on the system, the Lawson M3 software ran as expected without any application issues. Also, even though the focus of these tests was to verify functional compatibility, the team also noticed that the systems lived up to the expected performance guidelines.



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