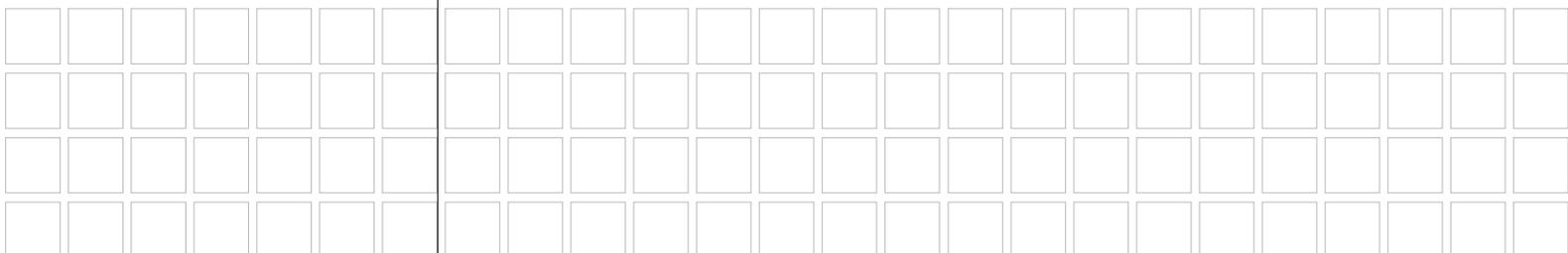


# JMS PERFORMANCE COMPARISON: PUBLISH/SUBSCRIBE MESSAGING

**SonicMQ® vs. TIBCO Enterprise™ for JMS**

***November 2003***

*Copyright © 2003 Sonic Software Corporation. All rights reserved.*



---

## TABLE OF CONTENTS

Executive Summary	3
<b>1.0 &gt;</b> Summary	4
<b>2.0 &gt;</b> Testing Methodology	4
Testing Tool	4
Test Scenarios	4
Test Duration	5
Environment Setup	5
Disk Usage	5
Measurement	5
Topology	5
<b>3.0 &gt;</b> Performance Results	6
<b>4.0 &gt;</b> System Configuration	8
Hardware Configuration	8
Software Configuration	9
Test Configuration	9
Broker Configurations	9
About Sonic Software Corporation	10

This paper presents a performance analysis of the publish/subscribe messaging throughput of SonicMQ® 5.0.2 and TIBCO Enterprise™ for JMS 3.1. The analysis provides a head-to-head comparison of these two products designed to illustrate the products' relative performance characteristics for several messaging scenarios. The test scenarios represent stress level conditions for real world applications. Examples of these applications include:

- > Financial institutions managing multiple data feeds
- > Small to large retail companies' pricing uploads
- > Pricing distribution for B2B marketplaces
- > Telco monitoring applications
- > Telco last mile broadband equipment management\*

The tests consider several combinations of subscriber durability and message reliability and transactionality. The tests performed herein present scenarios where the number of publishers and subscribers is equal. The tests examine performance under load, where a single message broker is required to support many publishers and subscribers.

In every case, SonicMQ demonstrated greater message throughput than TIBCO, in some cases by over 300%. While performance analysis should always be conducted for a particular messaging environment, the results of these tests suggest that SonicMQ will deliver messages more efficiently in demanding messaging environments.

---

## 1.0 > SUMMARY

Sonic Software Corporation has created a generic performance benchmark and used it to measure and compare the performance of its SonicMQ® 5.0.2 Java Message Service (JMS) against the evaluation version of TIBCO Enterprise™ for JMS 3.1.0. The benchmark measures the performance of the systems' publish-subscribe (Pub/Sub) JMS domain, with three combinations of message reliability, subscriber durability and session transactionality.

**For all specific test configurations indicated in this document, the SonicMQ JMS broker yields higher message rates than TIBCO Enterprise™ for JMS.**

It must be noted that different configurations or performance tuning of any JMS broker may potentially yield throughput gains (or losses) for any of these tests. Changes to the test definitions will produce different throughput rates, and this should be considered when attempting to map these results to expected performance of any particular JMS application.

---

## 2.0 > TESTING METHODOLOGY

### *Testing Tool*

The JMS message-driving tool used for these performance tests is a Sonic Software benchmark utility called TestHarness. TestHarness uses each JMS product's client libraries to access the respective system's JMS implementation.

TestHarness is available for free download in source code from Sonic's website at <http://www.sonicsoftware.com>. Evaluators are encouraged to download the utility and use it to replicate the results presented in this document, or to measure other test scenarios not included here.

### *Test Scenarios*

Three different "one-to-one" tests were run. In "one-to-one" tests, clients are paired such that each publisher/subscribe pair exchanges messages on a single topic. For example, in the "10/10/10" tests (meaning 10 subscribers / 10 publishers / 10 topics), there are 10 pairs of publishers and subscribers, each exchanging messages on one of 10 topics.

In order to generate the highest amount of message load, no processing time is introduced at either side of the client message exchanges. Allowing publishers to send messages as fast as possible in this manner enables the tests to expose the maximum message throughput rates.

The test message size was chosen to reflect use cases observed in typical customer proof of concept scenarios.

The maximum number of users in the test cases was restricted to ensure that the tests did not saturate the CPU and/or memory of the client machines.

---

### ***Test Duration***

All test scenarios were executed for a total of thirty-three minutes. Each test execution was comprised of thirty-three sixty-second intervals. The first two and last intervals were considered “ramp-up” and “ramp-down” intervals, respectively. Ramp-up intervals are times during which the systems are increasing their message handling capacities, typically via resource allocation, in response to the newly introduced client load. Similarly, during ramp-down intervals, the systems are decreasing their capacity in response to decreased client loads that result from test completion.

The remaining thirty intervals were considered “measurement” intervals during which steady-state performance was achieved. Steady-state is the condition in which message rates exhibit negligible change.

### ***Environment Setup***

All client connections, publishers and subscribers were established before any testing ramp-up periods were begun. Each product’s message store, log files, queues, and topics were deleted and recreated, and the broker stopped and restarted between each test.

### ***Disk Usage***

The server machine made use of three disk drives during execution: one disk hosted the machine OS, and the two RAID disks hosted product and testing binaries and data.

Client machines used a single disk drive for test execution. The single disk hosted the machine OS, as well as product and client binaries. Note that other than loading product and test binaries, client tests had no disk interaction during test execution.

### ***Measurement***

Performance data was collected during the thirty-minute measurement intervals only - no data was collected during ramp-up and ramp-down intervals. Tests were run twice, and measurements were averaged to obtain final results.

### ***Topology***

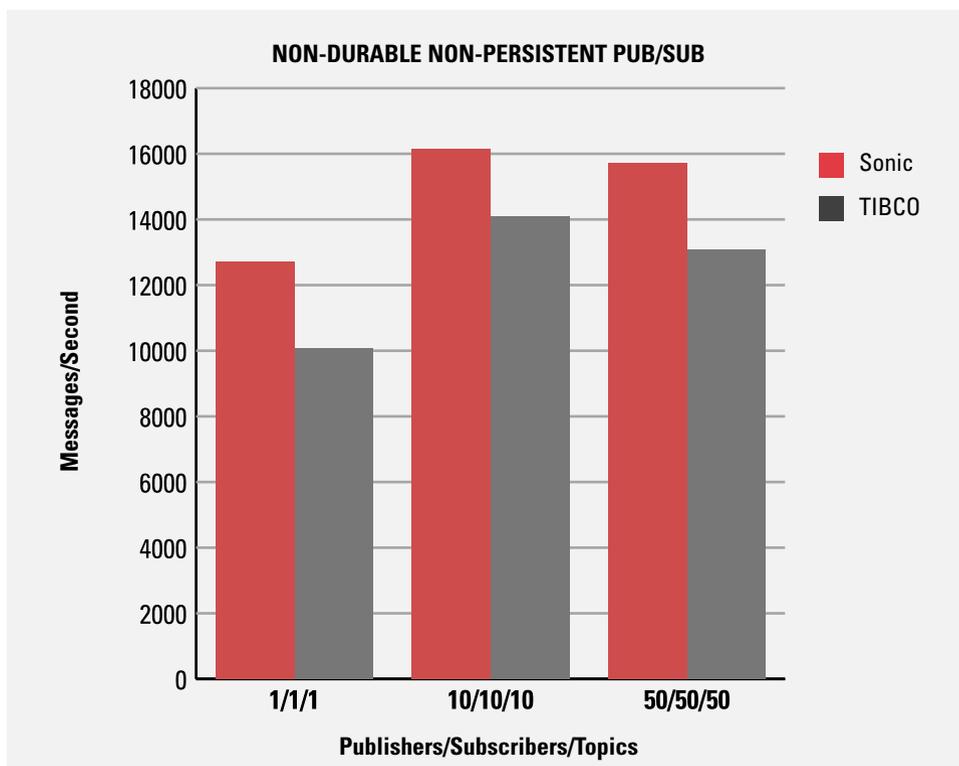
Publisher and subscriber clients were run on two separate, identical client machines. The JMS brokers were run on a separate server machine. The system configurations are detailed in section 4. The three systems were interconnected on an isolated network using a single network switch.

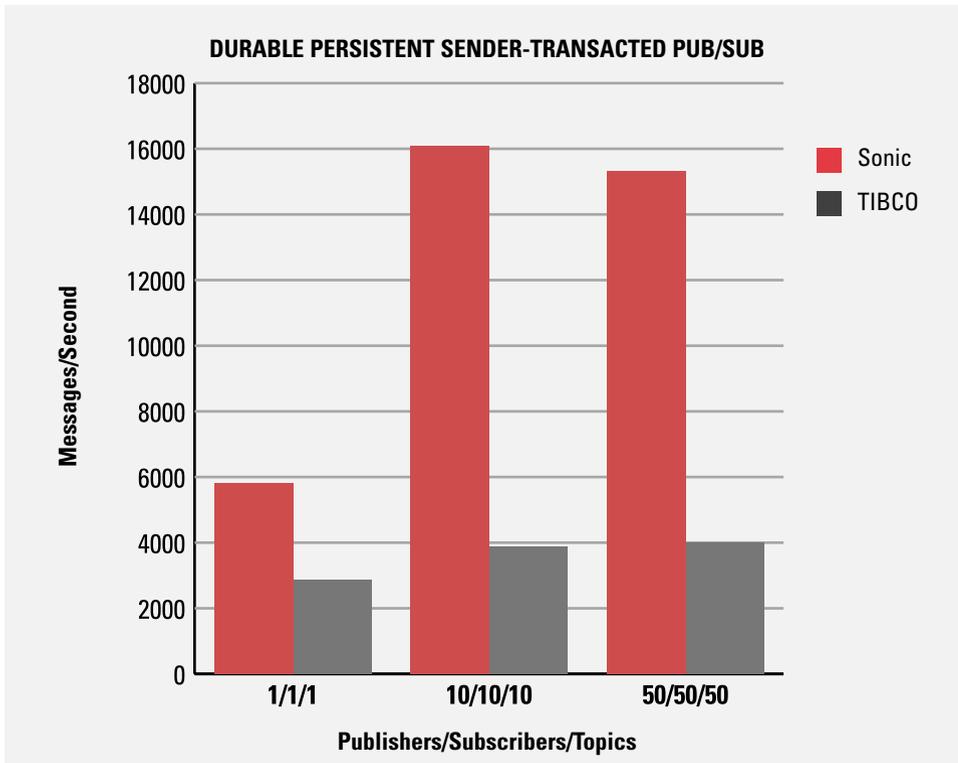
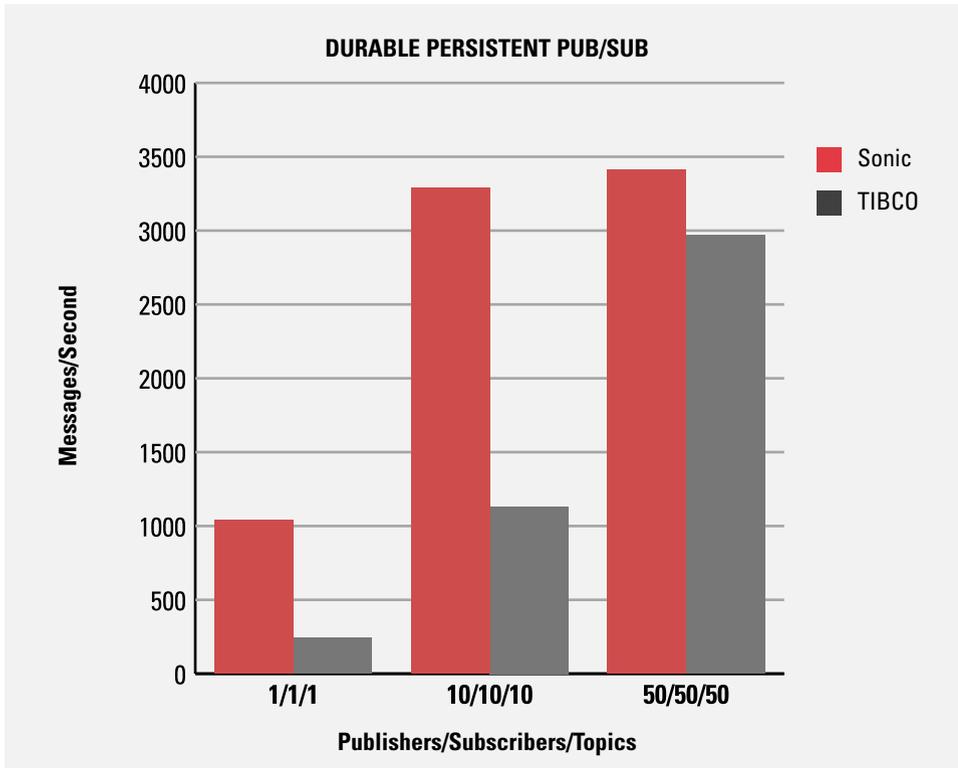
### 3.0 > PERFORMANCE RESULTS

Following are the tabular data and charts detailing the receive message rates for each test.

TestID	P/S/T*	Durability	Reliability	Sender Transacted	Msgs/Txn	MsgSize	Receive Msg Rates		Sonic/TIBCO
							SONIC Msgs/Sec	TIBCO Msgs/Sec	
1	1/1/1	Nondurable	Non-persistent	No	N/A	1024	12711	10085	1.26
2	10/10/10	Nondurable	Non-persistent	No	N/A	1024	16133	14079	1.15
3	50/50/50	Nondurable	Non-persistent	No	N/A	1024	15704	13073	1.20
4	1/1/1	Durable	Persistent	No	N/A	1024	1042	243	4.29
5	10/10/10	Durable	Persistent	No	N/A	1024	3286	1132	2.9
6	50/50/50	Durable	Persistent	No	N/A	1024	3409	2967	1.15
7	1/1/1	Durable	Persistent	Yes	50	1024	5822	2871	2.03
8	10/10/10	Durable	Persistent	Yes	50	1024	16097	3874	4.16
9	50/50/50	Durable	Persistent	Yes	50	1024	15311	3999	3.83

\* P/S/T stands for number of publishers / number of subscribers / number of topics





## 4.0 > SYSTEM CONFIGURATION

### Hardware Configuration

	Client Systems	Server System	
Processor(s)	Dual Intel XEON 2.0 GHz	Dual Intel XEON 2.0 GHz	
Physical Memory	1GB	1GB	
Operating System	Microsoft Windows 2000 Professional Service Pack 4	Microsoft Windows 2000 Server Service Pack 4	
Java Virtual Machine (Sonic only)	IBM 1.3.0_0642402	IBM 1.3.0_062402	
JVM arguments (Sonic only)	-server -Xms512m -Xmx512m	-Xms512m -Xmx512m -Xss100k	
Disk Drives	Seagate ST340016A	Maxtor Atlas 10K III	Fujitsu MAM3367MP
Size	40GB	36.7 GB	36.7GB 36.7GB
Type	IDE	SCSI	SCSI SCSI
Controller	Intel 82801BA Ultra ATA	LSI Logic 1030 Ultra320	LSI Logic MegaRAID Elite 1650
Disk caching	None	None	Write-through
Controller caching	None	None	None
RAID Level	N/A	N/A	0
File system	NTFS	NTFS	
Connectivity	1 Gigabit Ethernet	1 Gigabit Ethernet	

---

## Software Configuration

For all tests, both companies' software was used default configuration values with the following exceptions:

### Test Configuration

- > For all sender-transacted tests, the message size was 1024 bytes, with 50 messages per transaction. (Sender-transacted denotes that message sender sessions were transacted, but not receivers)
- > All non-transacted sessions were executed in DUPES\_OK\_ACKNOWLEDGE mode, in which the systems perform lazy acknowledgement, thereby minimizing the amount of work required to prevent duplicate acknowledgements.
- > In all tests, each publisher and each subscriber used a single connection to the broker.

### Broker Configurations

SonicMQ 5.0.2\_155

- > Run with IBM JRE 1.3.0\_062402
- > Recovery log file set to 1GB

TIBCO Enterprise™ For JMS 3.1.0 Evaluation Copy

- > The max\_msg\_memory value was set to 512 MB to accommodate the large number of topics and clients.
- > Store\_minimum was set to 1GB to ensure sufficient preallocated persistent message storage.
- > In persistent tests, the TIBCO topics were set to failsafe to ensure persistence to disk.

---

## **ABOUT SONIC SOFTWARE CORPORATION**

Sonic Software provides the first comprehensive business integration suite built on an enterprise service bus (ESB). The Sonic product line delivers a distributed, standards-based, cost-effective, easily managed infrastructure that reliably integrates applications and orchestrates business processes across the extended enterprise. Sonic is the world's fastest growing integration and middleware company and counts global leaders among over 500 customers in financial services, energy, telecommunications and manufacturing. Sonic is an independent operating company of Progress Software Corporation (Nasdaq: PRGS), a \$300 million software industry leader. Headquartered in Bedford, Mass., Sonic Software can be reached on the Web at [www.sonicsoftware.com](http://www.sonicsoftware.com), or by phone at +1-781-999-7000 or 1-866-GET-SONIC.

### **Corporate and North American Headquarters**

Sonic Software Corporation, 14 Oak Park, Bedford, MA 01730 USA  
Tel: 781-999-7000 Toll-free: 866-GET-SONIC Fax: 781-999-7202

### **EMEA Headquarters**

Sonic Software (UK) Limited, 210 Bath Road, Slough, Berkshire SL1 3XE, United Kingdom  
Tel: + 44 (0)1753 217000 Fax: + 44 (0)1753 217001

© Copyright 2003 Sonic Software Corporation. All rights reserved. Sonic ESB and SonicMQ are trademarks of Sonic Software Corporation. All other trademarks, marked and not marked, are the property of their respective manufacturers. Specifications subject to change without notice.



[www.sonicsoftware.com](http://www.sonicsoftware.com)

© 2003 Sonic Software Corporation.  
All rights reserved.