




Pure Storage FlashArray//m20 40,000 Mailbox Resiliency Exchange 2013 Storage Solution

Tested with: ESRP – Storage Version 4.0
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Overview

This document provides information on Pure Storage's FlashArray //m20 based storage solution for Microsoft Exchange Server, based on the *Microsoft Exchange Solution Reviewed Program (ESRP) – Storage* program¹. For any questions or comments regarding the contents of this document, see Contact Information.

Disclaimer

This document has been produced independently of Microsoft Corporation. Microsoft Corporation expressly disclaims responsibility for, and makes no warranty, express or implied, with respect to, the accuracy of the contents of this document.

The information contained in this document represents the current view of Pure Storage on the issues discussed as of the date of publication. Due to changing market conditions, it should not be interpreted to be a commitment on the part of Pure Storage, and Pure Storage cannot guarantee the accuracy of any information presented after the date of publication.

Features



The FlashArray//m from Pure Storage is an all-flash storage array featuring mini size, modular scale, mighty performance, and meaningful simplicity for enterprise IT workloads. It is architected to replace racks of spinning disks with just a single 3U device and can be expanded up to nearly ½ petabyte. It consumes 80% less power. It is designed to grow with business application requirements. You can scale capacity and performance independently for generations. It is optimized for real world workloads rather than for artificial hero benchmarks. Experience the ultimate in simplicity: appliance-like deployment, with all software built-in and included. Enjoy worry-free

operation with 100% performance through failure and upgrades. More information in FlashArray//m is available at <https://www.purestorage.com/products/flash-array-m.html>

¹ The *ESRP – Storage* program was developed by Microsoft Corporation to provide a common storage testing framework for vendors to provide information on its storage solutions for Microsoft Exchange Server software. For more details on the *Microsoft ESRP – Storage* program, please click <http://technet.microsoft.com/en-us/exchange/ff182054.aspx>

FlashArray//m makes your investment in servers and Exchange more productive, while also lowering storage spend. With FlashArray//m, organizations can dramatically reduce the complexity of storage to make IT more agile and efficient, accelerating your journey to the cloud.

FlashArray//m's performance can also make your business smarter by unleashing the power of real-time analytics, driving customer loyalty, and creating new, innovative customer experiences that simply weren't possible with disk. All by Transforming Your Storage with FlashArray//m.

FlashArray//m enables you to transform your data center, cloud, or entire business with an affordable all-flash array capable of consolidating and accelerating all your key applications including Microsoft Exchange.

Solution Description

Unlike traditional disk based storage solutions where various arrays are designed to address specific customer profiles, FlashArray//m is designed to consolidate multiple data center workloads on a single array. FlashArray//m can scale from small to very large organizations with several hundred thousands of users. For this ESRP, we are demonstrating a design where FlashArray//m20 supports 40,000 users while leaving enough room to support additional applications on the same array.

The storage adapts to application, not the other way around – Pure Storage is proud to present this ESRP on FlashArray//m20. In this configuration, FlashArray//m is hosting 40,000 mailboxes in mere 3U rack space and still has plenty of I/O bandwidth to spare! As an Exchange administrator, you still have resources in the array for more users and applications.

No more painful data migration every three years – As you can scale capacity and performance independently for generations, FlashArray//m helps to break storage silos and puts application administrators in the front row. You never need to go through painful migrations of Microsoft Exchange data from storage to storage every 3-5 years. The hardware and software for FlashArray//m evolve around the data non-disruptively with zero impact on Microsoft Exchange availability and performance during updates and refreshes.

Bring down total cost of ownership – Customers of Pure Storage consolidate multiple enterprise IT workloads into FlashArray//m without compromising performance and resiliency. In most cases, customers co-locate Microsoft Exchange with other applications on FlashArray//m. The average data reduction from such environments is found to be 4 to 1. The result is substantial reduction in operating expenses with low power, space and cooling requirements in the data center. In addition, the elimination of storage silos and complexity helps data center managers to focus on value added business projects.

Note: *The 4 to 1 data reduction is based on real world data collected from Pure Storage's Pure1 platform where Exchange is deployed along with other applications. During the ESRP tests, the data reduction is significantly higher as Jetstress generates significant amount of duplicate data by design.*

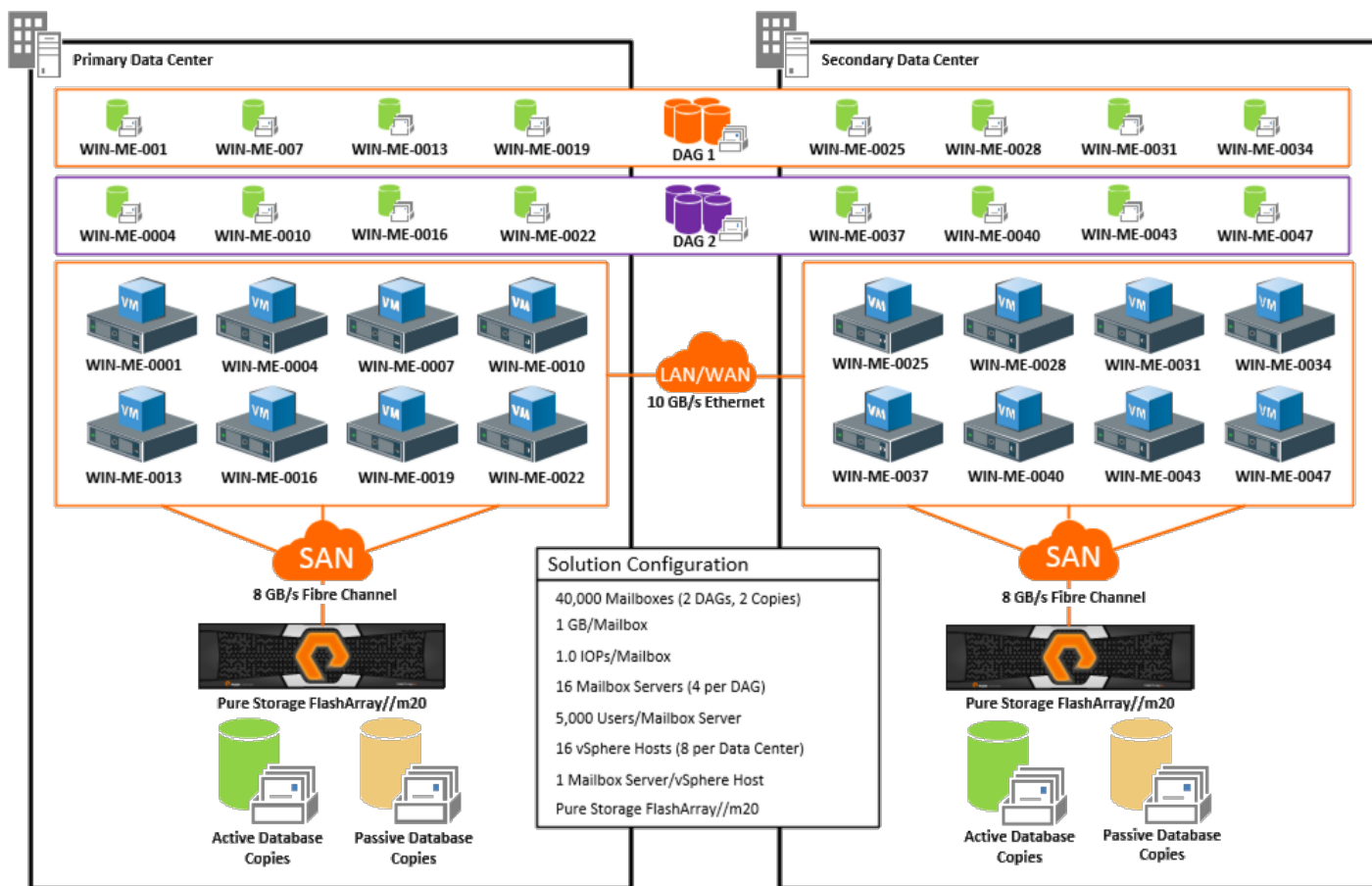


Figure 1. Solution architecture and configuration.

Targeted Customer Profile

The FlashArray//m solution for Microsoft Exchange 2013 from Pure Storage is designed for simplicity, reliability, and performance. It is scalable for any size organization that wants to deploy Microsoft Exchange Server on-premise on physical or virtual environments. This solution leverages the Cisco UCS platform to provide scalable compute resources. The characteristics of this solution include:

- 40,000 active user mailboxes
- 1.0 IOPS per user mailbox
- 1 GB mailbox size
- 16 virtualized Microsoft Exchange Servers each with 5,000 active users
- Native Database Availability Group (DAG) replication for mailbox resiliency and high-availability with 2 database copies maintained
- 24x7 background database maintenance (BDM) enabled
- 2 Pure Storage FlashArray//m20 storage arrays

Tested Deployment

The following tables provides details on the configuration of the individual components.

Simulated Exchange Configuration

Attribute	Value
Number of Exchange mailboxes simulated	40,000
Number of Database Availability Groups (DAGs)	2
Number of servers/DAG	8
Number of active mailboxes/server	5,000
Number of databases/host	4
Number of copies/database	2
Number of mailboxes/database	1,250
Simulated profile: I/O's per second per mailbox (IOPS, include 20% headroom)	1.0 IOPS
Database LUN size	3 TB
Log LUN size	200 GB
Total database size for performance testing	78.99 TB

Table 1. Simulated Exchange Configuration.

Storage Hardware

Component	Description
Storage connectivity (Fibre Channel, SAS, SATA, iSCSI)	Fibre Channel (FC), SAS
Storage model and OS/firmware revision	Pure Storage FlashArray//m20 running Purity 4.5.8 Windows Hardware Compatibility List
Storage cache	N/A
Number of storage controllers	2

Component	Description
Number of storage ports	4 (2 per controller)
Maximum bandwidth of storage connectivity to host	5 GB/s
Switch type/model/firmware revision	Cisco MDS9148S (BIOS 2.1.17, System 6.2(9)), Cisco Nexus 9K (BIOS 07.17, NXOS 6.1(2)I3(3a)), Cisco Fabric Interconnect 6248UP (2.2(3f))
HBA model and firmware	Cisco UCS VIC 1340
Number of HBAs/host	2
Host server type	Cisco C-220 (2 CPUs / 65,536MB), Cisco B200-M4 (2 CPUs / 131,072MB)
Total number of disks tested in solution	20
Maximum number of spindles ² can be hosted in the storage	N/A

Table 2. Storage Hardware

Storage Software

Component	Description
HBA driver	8 GB Fibre Channel SAN
Hypervisor	VMware vSphere 6.0.U1 (Vmware-ESXi-6.0.0-3073146-Custom-Cisco-6.0.1.1)
HBA QueueTarget Setting	32
HBA QueueDepth Setting	32

² Pure Storage FlashArray//m20 is an all-flash array, there are no moving parts (ie. spindles) in this solution.

Component	Description
Multi-Pathing	Microsoft Windows Server 2012 R2 Multipath-IO (Device Specific Module)
Host OS	Windows Server 2012 R2 Datacenter (6.3.9600)
ESE.dll file version	15.00.0516.026
Replication solution name/version	N/A

Table 3. Storage Hardware.

Storage Disk Configuration (Mailbox Store Disks)

Attribute	Description
Disk type, speed and firmware revision	N/A (all-flash storage solution)
Raw capacity per disk (GB)	1,024 GB
Number of physical disks in test	20
Total raw storage capacity (GB)	19,046.4 GB (18.6 TB)
Disk slice size (GB)	N/A
Number of slices per LUN or number of disks per LUN	N/A
RAID level	RAID-3D
Total formatted capacity	11.17 TB
Storage capacity utilization	5.8% (108.71TB / 18.6 TB)
Database capacity utilization	4.2% (78.99TB / 18.6 TB)

Table 4. Storage Disk Configuration (Mailbox Storage Disks)

Storage Disk Configuration (Transactional Log Disks)

Attribute	Description
Disk type, speed and firmware revision	N/A (all-flash storage solution)

Attribute	Description
Raw capacity per disk (GB)	1,024 GB
Number of Spindles in test	N/A (all-flash storage solution)
Total raw storage capacity (GB)	19,046.4 GB (18.6 TB)
Disk slice size (GB)	N/A
Number of slices per LUN or number of disks per LUN	N/A
RAID level	RAID-3D
Total formatted capacity	800 GB (4 x 200 GB LUNs)

Table 5. Storage Disk Configuration (Transactional Log Disks)

Best Practices

The technological evolution of Microsoft Exchange Server has changed from version to version. The advances made with Exchange Server 2013 have changed the basic requirements of I/O and type of storage. The improvements made to Exchange involved the core schema as well as the Extensible Storage Engine (ESE) that provide a reduction in required I/O. This FlashArray//m based solution from Pure Storage uses a 100% flash based architecture. One of the major benefits of our solution is we take out all of the complexities regarding RAID design. All of the data stored on a Pure Storage FlashArray is dual-parity protected using RAID-3D technology. In addition to unparalleled data protection we also provide a simplified management model allowing Exchange Administrators to create volumes easily reducing the needs for storage administrators to handle this task. It is as easy as clicking new volume, enter a name and a size and you are on your way.

Once an Exchange environment has been deployed, the FlashArray//m's FlashRecover Snapshot technology enables Exchange administrators to rapidly seed other Database Available Groups (DAGs). Leveraging FlashRecover leverages multiple data reduction techniques, such as storage level compression, deduplication and thin provisioning. These features deliver an average of 4:1 data reduction ratio even when Exchange is deployed along with other production workloads on the same FlashArray//m.

In addition to following Microsoft's best practice recommendations, Pure Storage recommends that our customers follow the below best practices which are also available on our Pure1 Community.

FlashArray Storage Configuration

As was mentioned earlier Pure Storage strives to reduce the complexity and management associated with the deployment of applications. All Pure Storage FlashArrays are configured for optimal multi-workload performance and do not require any specialized configurations or tuning. The only detail to consider is for volume design as follows:

- Separate the databases from the logs on individual volumes. For example, ExDb-1 has four 3TB volumes created to accommodate four databases and two copies. Four ExLog-1 volumes of 200GB are created for logs. These are not hard set rules and can be modified based on your Exchange administration and recovery requirements.

Mailbox Server Virtualization Configuration

The following are the recommendations to achieve optimal performance for the individual mailbox server virtualized instances:

- Windows Server NTFS volumes should use a 64KB Allocation Unit Size (AUS) for Microsoft Exchange databases and logs. This applies to Windows Server 2008 R2, Windows Server 2012 and Windows Server 2012 R2.
- All Service Pack updates or Operating System Hotfixes should be applied for all components in the infrastructure.
- Configure individual virtual instances of the mailbox servers with adequate CPU and memory resources. For the Jetstress tests performed we used a Cisco UCS B200-M4 dedicating 4 vCPUs and 40GB memory per virtual machine instance.

Hypervisor Configuration

Microsoft Exchange Server does not make a requirement for a particular hypervisor. The test results reported in this report VMware vSphere 6.0 was used to host the virtualized mailbox servers. Pure Storage provides our best practices for VMware vSphere available [here](#)

Networking

All Exchange Server deployments are concerned with high-availability. This is achieved with Exchange by using DAGs and we recommend multiple physical or virtual NICs that are connected to different networks to segregate user traffic from database replication traffic.

Backup Strategy

As mentioned earlier, the use of RDMS should be considered for Exchange to leverage application-consistent VSS snapshots for data protection. Pure Storage provides a VSS hardware provider that can be downloaded directly from a Web Management Interface and installed to work with supported backup software.

Contact Information

This ESRP is executed in Pure Storage labs. You may reach us through any of the following channels.

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Media: pr@purestorage.com
General: info@purestorage.com

Twitter: @purestorage

Web: www.purestorage.com

Test Result Summary

This section provides a high level summary of the test data from ESRP and the link to the detailed html reports which are generated by ESRP testing framework. Please click on the underlined headings below to view the html report for each test.

Reliability

A number of tests in the framework are to check Reliability tests runs for 24 hours. The goal is to verify the storage can handle high IO load for a long period of time. Both log and database files will be analyzed for integrity after the stress test to ensure no database/log corruption.

- No errors were reported in the saved event log file.
- No errors were reported for the database and log checksum processes.
 - Individual Database & Log Reports – See Appendix A – I
 - Individual SoftRecovery Reports – See Appendix A – I

Storage Performance Results

The Primary Storage performance testing is designed to exercise the storage with maximum sustainable Exchange type of IO for 2 hours. The test is to show how long it takes for the storage to respond to an IO request under load. The data below is the sum of all of the logical disk I/O's and average of all the logical disks I/O latency in the 2 hours' test duration. Each server is listed separately and the aggregate numbers across all servers is listed as well.

- Individual Performance Test Reports
 - Individual Performance Reports – See Appendix A – I

Individual Server Metrics

The sum of I/O's across Storage Groups and the average latency across all Storage Groups on a per server basis.

WIN-ME-0001

Database I/O	Value
Database Disks Transfers/sec	5439.899
Database Disks Reads/sec	3633.815
Database Disks Writes/sec	1806.084
Average Database Disk Read Latency (ms)	1.05275
Average Database Disk Write Latency (ms)	1.55275
Transaction Log I/O	Value
Log Disks Writes/sec	811.039
Average Log Disk Write Latency (ms)	0.412

WIN-ME-0004

Database I/O	Value
Database Disks Transfers/sec	6409.672
Database Disks Reads/sec	4295.139
Database Disks Writes/sec	2114.533
Average Database Disk Read Latency (ms)	1.162
Average Database Disk Write Latency (ms)	2.00925
Transaction Log I/O	Value
Log Disks Writes/sec	932.149
Average Log Disk Write Latency (ms)	0.4405

WIN-ME-0007

Database I/O	Value
Database Disks Transfers/sec	5539.138
Database Disks Reads/sec	3698.984
Database Disks Writes/sec	1840.154
Average Database Disk Read Latency (ms)	1.033
Average Database Disk Write Latency (ms)	1.51375
Transaction Log I/O	Value
Log Disks Writes/sec	825.697
Average Log Disk Write Latency (ms)	0.41125

WIN-ME-0010

Database I/O	Value
Database Disks Transfers/sec	5351.198
Database Disks Reads/sec	3576.194
Database Disks Writes/sec	1775.004
Average Database Disk Read Latency (ms)	1.07025
Average Database Disk Write Latency (ms)	1.7
Transaction Log I/O	Value
Log Disks Writes/sec	798.777
Average Log Disk Write Latency (ms)	0.415

WIN-ME-0013

Database I/O	Value
Database Disks Transfers/sec	5993.923
Database Disks Reads/sec	4007.353
Database Disks Writes/sec	1986.57
Average Database Disk Read Latency (ms)	0.9545
Average Database Disk Write Latency (ms)	1.41325
Transaction Log I/O	Value
Log Disks Writes/sec	890.468
Average Log Disk Write Latency (ms)	0.37

WIN-ME-0016

Database I/O	Value
Database Disks Transfers/sec	5373.341
Database Disks Reads/sec	3589.651
Database Disks Writes/sec	1783.69
Average Database Disk Read Latency (ms)	1.08025
Average Database Disk Write Latency (ms)	1.72975
Transaction Log I/O	Value
Log Disks Writes/sec	803.038
Average Log Disk Write Latency (ms)	0.4155

WIN-ME-0019

Database I/O	Value
Database Disks Transfers/sec	5497.137
Database Disks Reads/sec	3671.74
Database Disks Writes/sec	1825.397
Average Database Disk Read Latency (ms)	1.0465
Average Database Disk Write Latency (ms)	1.502
Transaction Log I/O	Value
Log Disks Writes/sec	818.388
Average Log Disk Write Latency (ms)	0.42025

WIN-ME-0022

Database I/O	Value
Database Disks Transfers/sec	5341.4
Database Disks Reads/sec	3568.865
Database Disks Writes/sec	1772.535
Average Database Disk Read Latency (ms)	1.06675
Average Database Disk Write Latency (ms)	1.51625
Transaction Log I/O	Value
Log Disks Writes/sec	799.088
Average Log Disk Write Latency (ms)	0.406

Aggregate Performance Across All Server Metrics

The sum of I/O's across servers in solution and the average latency across all all servers in solution.

Database I/O	Value
Database Disks Transfers/sec	44945.708
Database Disks Reads/sec	30041.741
Database Disks Writes/sec	14903.967
Average Database Disk Read Latency (ms)	1.05825
Average Database Disk Write Latency (ms)	1.617125
Transaction Log I/O	Value
Log Disks Writes/sec	6678.644
Average Log Disk Write Latency (ms)	0.4113125

Table 6. Aggregate Performance Across All Server Metrics.

Conclusion

This document is developed by Pure Storage, and reviewed by Microsoft Exchange Product team. The test results/data presented in this document is based on the tests introduced in the ESRP test framework. Customer should not quote the data directly for his/her pre-deployment verification. It is still necessary to go through the exercises to validate the storage design for a specific customer environment.

The FlashArray//m20 used in this ESRP demonstrates the following.

- 40,000 mail boxes contained in just 3U of rack space
- 1 IOPS per mail box with enough head room for growth and for running other workloads
- Up to 4:1 data reduction ratios for Exchange data even when multiple workloads are co-located

ESRP program is not designed to be a benchmarking program; tests are not designed to getting the maximum throughput for a giving solution. Rather, it is focused on producing recommendations from vendors for Exchange application. So the data presented in this document should not be used for direct comparisons among the solutions.

Appendix A – WIN-ME-0001

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0001

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:08:16 PM

Test End Time 1/31/2016 8:11:55 PM

Collection Start Time 1/31/2016 6:12:07 PM

Collection End Time 1/31/2016 8:11:45 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_Performance\Tuning_2016_1_31_18_9_14.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_Performance\Performance_2016_1_31_18_11_52.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second	5439.899
Target Transactional I/O per Second	5000
Initial Database Size (bytes)	5497711493120
Final Database Size (bytes)	5506787966976
Database Files (Count)	4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True

Number of Copies per Database 2

Database Configuration

Instance2604.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2604.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2604.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2604.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2604.1 1.200 2.645 910.380 452.910 32834.755 34038.029 0.000 0.412 0.000 202.416 0.000 7683.983

Instance2604.2 1.005 1.283 907.310 449.714 32836.091 34041.427 0.000 0.412 0.000 202.535 0.000 7673.873

Instance2604.3 1.006 1.162 907.468 451.277 32836.598 34035.083 0.000 0.412 0.000 203.170 0.000 7670.750

Instance2604.4	1.000	1.121	908.657	452.183	32833.809	34037.697	0.000	0.412	0.000	202.918	0.000	7689.862
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2604.1	8.875	261871.284
Instance2604.2	9.118	261906.897
Instance2604.3	9.125	261866.618
Instance2604.4	9.126	261807.520

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance2604.1	4.484	232561.883
Instance2604.2	4.478	232561.321
Instance2604.3	4.490	232560.484
Instance2604.4	4.500	232561.778

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
-----------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---------	-----

ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance2 604.1 1.200 2.645 919.2 452.9 35046.031 34038.029 0.958 0.412 4.484 202.416 232561.883 7683.983

Instance2 604.2 1.005 1.283 916.429 449.714 35115.324 34041.427 0.956 0.412 4.478 202.535 232561.321 7673.873

Instance2 604.3 1.006 1.162 916.593 451.277 35116.653 34035.083 0.956 0.412 4.490 203.170 232560.484 7670.750

Instance2 604.4 1.000 1.121 917.783 452.183 35110.556 34037.697 0.954 0.412 4.500 202.918 232561.778 7689.862

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.229	3.668	11.551
Available MBytes	38551.743	38465.000	38587.000
Free System Page Table Entries	16500158.409	16499562.000	16500350.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	47206870.313	46927872.000	47583232.000

Pool Paged Bytes

113459952.501 113274880.000 114159616.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:08:16 PM -- Preparing for testing ...

1/31/2016 6:08:21 PM -- Attaching databases ...

1/31/2016 6:08:21 PM -- Preparations for testing are complete.

1/31/2016 6:08:21 PM -- Starting transaction dispatch ..

1/31/2016 6:08:21 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:08:21 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:08:25 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:08:25 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:08:25 PM -- Attaining prerequisites:

1/31/2016 6:09:14 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 976957400.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:09:14 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:09:14 PM -- Automatic tuning is starting ...

1/31/2016 6:09:46 PM -- Instance2604.1 has 0.02 for read latency slope.

1/31/2016 6:09:46 PM -- Instance2604.2 has 0.00 for read latency slope.

1/31/2016 6:09:46 PM -- Instance2604.3 has 0.01 for read latency slope.

1/31/2016 6:09:46 PM -- Instance2604.4 has 0.01 for read latency slope.

1/31/2016 6:11:51 PM -- 1410 batch transactions/sec and 8 sessions have 5521 IOPS.

1/31/2016 6:11:51 PM -- 8 sessions have actual 5521 IOPS (target IOPS: 5000)

1/31/2016 6:11:51 PM -- Instance2604.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.2 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.3 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.4 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:11:51 PM -- Instance2604.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:11:52 PM -- Performance logging has ended.

1/31/2016 6:11:52 PM -- Automatic tuning succeeded.

1/31/2016 6:11:52 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:11:52 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:11:52 PM -- Attaining prerequisites:

1/31/2016 6:11:52 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1061732000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:11:53 PM -- Performance logging has ended.

1/31/2016 8:11:53 PM -- JetInterop batch transaction stats: 160067, 160067, 160067 and 160067.

1/31/2016 8:11:53 PM -- Dispatching transactions ends.

1/31/2016 8:11:53 PM -- Shutting down databases ...

1/31/2016 8:11:55 PM -- Instance2604.1 (complete), Instance2604.2 (complete), Instance2604.3 (complete) and Instance2604.4 (complete)

1/31/2016 8:11:55 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_Performance\Performance_2016_1_31_18_11_52.blg has 479 samples.

1/31/2016 8:11:55 PM -- Creating test report ...

1/31/2016 8:11:57 PM -- Instance2604.1 has 1.2 for I/O Database Reads Average Latency.

1/31/2016 8:11:57 PM -- Instance2604.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:11:57 PM -- Instance2604.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:11:57 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:11:57 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:11:57 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_Performance\Performance_2016_1_31_18_11_52.xml has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance820.1	1307930.59	04:36:59	78.70
Instance820.2	1307866.59	04:33:51	79.60
Instance820.3	1307874.59	04:36:30	78.83
Instance820.4	1307874.59	04:36:30	78.83
Avg			78.99
Sum			315.96

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance820.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance820.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance820.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance820.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	(msec)					(msec)	(msec)				
Instance 820.1	4.781	0.000	313.413	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 820.2	4.791	0.000	317.623	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 820.3	4.777	0.000	314.191	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 820.4	4.780	0.000	314.199	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.066	2.332	4.046
Available MBytes	39715.090	39710.000	39724.000
Free System Page Table Entries	16500523.834	16500297.000	16500617.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	67540188.354	67530752.000	67571712.000
Pool Paged Bytes	154026435.819	153477120.000	154099712.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:47:32 PM -- Preparing for testing ...
 1/25/2016 3:47:36 PM -- Attaching databases ...
 1/25/2016 3:47:36 PM -- Preparations for testing are complete.
 1/25/2016 3:47:41 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:47:41 PM -- Backing up databases ...
 1/25/2016 8:24:41 PM -- Performance logging has ended.
 1/25/2016 8:24:41 PM -- Instance820.1 (100% processed), Instance820.2 (100% processed), Instance820.3 (100% processed) and Instance820.4 (100% processed)
 1/25/2016 8:24:41 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_DatabaseBackup\DatabaseBackup_2016_1_25_15_47_36.blg has 553 samples.
 1/25/2016 8:24:41 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41854034	0	0	0	1307938 MB/16561 sec
F:\Jetstress002001.edb	41851986	0	0	0	1307874 MB/15398 sec
G:\Jetstress003001.edb	41852242	0	0	0	1307882 MB/16358 sec
H:\Jetstress004001.edb	41852242	0	0	0	1307882 MB/16621 sec
(Sum)	167410504	0	0	0	5231578 MB/16620 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.057	0.000	1260.076	0.000	65536.000
F:	0.050	0.000	1357.086	0.000	65536.000
G:	0.053	0.000	1278.722	0.000	65536.000
H:	0.052	0.000	1247.141	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	4.931	3.675	8.874
Available MBytes	39756.665	39727.000	39779.000
Free System Page Table Entries	16500212.662	16499672.000	16500391.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	54412478.727	54353920.000	54677504.000
Pool Paged Bytes	127003590.597	126341120.000	127926272.000

Test Log 1/21/2016 7:29:40 AM -- Preparing for testing ...

1/21/2016 7:29:45 AM -- Attaching databases ...

1/21/2016 7:29:45 AM -- Preparations for testing are complete.

1/21/2016 7:29:45 AM -- Starting transaction dispatch ..

1/21/2016 7:29:45 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:45 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:29:49 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:29:49 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:29:49 AM -- Attaining prerequisites:

1/21/2016 7:30:19 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1003385000.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:19 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:19 AM -- Automatic tuning is starting ...
1/21/2016 7:30:51 AM -- Instance1416.1 has 0.05 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.2 has 0.01 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.3 has 0.02 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.4 has 0.01 for read latency slope.
1/21/2016 7:32:56 AM -- 1854 batch transactions/sec and 8 sessions have 6451 IOPS.
1/21/2016 7:32:56 AM -- 8 sessions have actual 6451 IOPS (target IOPS: 5000)
1/21/2016 7:32:56 AM -- Instance1416.1 has 1.5 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:57 AM -- Performance logging has ended.
1/21/2016 7:32:57 AM -- Automatic tuning succeeded.
1/21/2016 7:32:57 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:32:57 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:57 AM -- Attaining prerequisites:
1/21/2016 7:32:57 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1059963000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:58 AM -- Performance logging has ended.
1/22/2016 7:32:58 AM -- JetInterop batch transaction stats: 2076210, 2076210, 2076210 and 2076210.
1/22/2016 7:32:58 AM -- Dispatching transactions ends.
1/22/2016 7:32:58 AM -- Shutting down databases ...
1/22/2016 7:32:59 AM -- Instance1416.1 (complete), Instance1416.2 (complete), Instance1416.3 (complete) and Instance1416.4 (complete)
1/22/2016 7:32:59 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.blg has 5754 samples.
1/22/2016 7:32:59 AM -- Creating test report ...
1/22/2016 7:33:16 AM -- Instance1416.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:16 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:16 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.xml has 5753 samples queried.
1/22/2016 7:33:16 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.html was saved.
1/22/2016 7:33:17 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:17 AM -- Verifying database checksums ...
1/22/2016 12:10:18 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100% processed)
1/22/2016 12:10:18 PM -- Performance logging has ended.

1/22/2016 12:10:18 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_16.blg](#) has 553 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance820.1	504	74.9525808
Instance820.2	501	74.1826213
Instance820.3	503	74.6882489
Instance820.4	507	75.9873577
Avg	503	74.953
Sum	2015	299.8108087

Database Configuration

Instance820.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance820.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance820.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance820.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instance	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 820.1	1.580	1.013	3784.868	27.078	37911.159	32768.000	2.241	0.000	33.847	0.000	209682.388	0.000
Instance 820.2	1.579	1.015	3796.917	27.229	37751.403	32768.000	2.250	0.000	34.036	0.000	209697.751	0.000
Instance 820.3	1.593	0.997	3730.939	27.133	37846.297	32768.000	2.241	0.056	34.040	0.028	209796.346	113.778
Instance 820.4	1.600	1.025	3766.420	26.747	37772.841	32768.000	2.191	0.000	33.434	0.000	209716.901	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance 820.1	9.003	261712.842
Instance 820.2	9.006	262144.000
Instance 820.3	9.045	260416.973

Instance820.4

9.003

262144.000

Total I/O Performance

MSExchange Database ==> Instance s	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 820.1	1.580	1.013	3793.871	27.078	38442.248	32768.000	2.241	0.000	33.847	0.000	209682.388	0.000
Instance 820.2	1.579	1.015	3805.923	27.229	38282.369	32768.000	2.250	0.000	34.036	0.000	209697.751	0.000
Instance 820.3	1.593	0.997	3739.983	27.133	38384.549	32768.000	2.241	0.056	34.040	0.028	209796.346	113.778
Instance 820.4	1.600	1.025	3775.423	26.747	38307.885	32768.000	2.191	0.000	33.434	0.000	209716.901	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	20.498	14.929	25.032
Available MBytes	38514.703	38460.000	39345.000

Free System Page Table Entries 16499848.595 16499711.000 16499933.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 69803589.189 69799936.000 69816320.000

Pool Paged Bytes 156365021.405 156356608.000 156377088.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:11:29 PM -- Preparing for testing ...
2/1/2016 6:11:34 PM -- Attaching databases ...
2/1/2016 6:11:34 PM -- Preparations for testing are complete.
2/1/2016 6:11:34 PM -- Starting transaction dispatch ..
2/1/2016 6:11:34 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:34 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:38 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:38 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:38 PM -- Attaining prerequisites:
2/1/2016 6:12:03 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1005416000.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:12:04 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:12:04 PM -- Automatic tuning is starting ...
2/1/2016 6:12:35 PM -- Instance820.1 has 0.05 for read latency slope.
2/1/2016 6:12:35 PM -- Instance820.2 has 0.01 for read latency slope.
2/1/2016 6:12:35 PM -- Instance820.3 has 0.01 for read latency slope.
2/1/2016 6:12:35 PM -- Instance820.4 has 0.01 for read latency slope.
2/1/2016 6:14:41 PM -- 1258 batch transactions/sec and 8 sessions have 4888 IOPS.
2/1/2016 6:14:41 PM -- 8 sessions have actual 4888 IOPS (target IOPS: 5000)
2/1/2016 6:14:41 PM -- Instance820.1 has 1.5 for I/O Database Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:41 PM -- Instance820.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:41 PM -- Instance820.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:41 PM -- Instance820.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:41 PM -- Instance820.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:41 PM -- Instance820.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:41 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:15:13 PM -- Instance820.1 has 0.00 for read latency slope.
2/1/2016 6:15:13 PM -- Instance820.2 has 0.06 for read latency slope.
2/1/2016 6:15:13 PM -- Instance820.3 has 0.02 for read latency slope.
2/1/2016 6:15:13 PM -- Instance820.4 has 0.00 for read latency slope.
2/1/2016 6:17:18 PM -- 1554 batch transactions/sec and 10 sessions have 6024 IOPS.

2/1/2016 6:17:18 PM -- 10 sessions have actual 6024 IOPS (target IOPS: 5000)
2/1/2016 6:17:18 PM -- Instance820.1 has 2.1 for I/O Database Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.4 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:17:18 PM -- Instance820.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:17:18 PM -- Instance820.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:17:18 PM -- Instance820.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:18 PM -- Instance820.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:17:18 PM -- Instance820.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:19 PM -- Performance logging has ended.
2/1/2016 6:17:19 PM -- Automatic tuning succeeded.
2/1/2016 6:17:19 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:17:19 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:17:19 PM -- Generating log files ...
2/1/2016 6:27:22 PM -- I:\ (100.6% generated), J:\ (100.2% generated), K:\ (100.6% generated) and L:\
(101.4% generated)
2/1/2016 6:27:23 PM -- Performance logging has ended.
2/1/2016 6:27:23 PM -- JetInterop batch transaction stats: 21839, 21839, 21838 and 21838.
2/1/2016 6:27:23 PM -- Dispatching transactions ends.
2/1/2016 6:27:23 PM -- Shutting down databases ...
2/1/2016 6:27:24 PM -- Instance820.1 (complete), Instance820.2 (complete), Instance820.3 (complete) and
Instance820.4 (complete)
2/1/2016 6:27:24 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_SoftRecovery\Performance_2016_2_1_18_17_19.blg has 40 samples.
2/1/2016 6:27:24 PM -- Creating test report ...
2/1/2016 6:27:25 PM -- Instance820.1 has 1.6 for I/O Database Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:25 PM -- Instance820.1 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:25 PM -- Instance820.2 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:25 PM -- Instance820.3 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:25 PM -- Instance820.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:25 PM -- Instance820.4 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:25 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/1/2016 6:27:25 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/1/2016 6:27:25 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_SoftRecovery\Performance_2016_2_1_18_17_19.xml has 39 samples queried.
2/1/2016 6:27:25 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_SoftRecovery\Performance_2016_2_1_18_17_19.html was saved.
2/1/2016 6:27:25 PM -- Performance logging started (interval: 2000 ms).
2/1/2016 6:27:25 PM -- Recovering databases ...
2/1/2016 6:28:42 PM -- Performance logging has ended.
2/1/2016 6:28:42 PM -- Instance820.1 (74.9525808), Instance820.2 (74.1826213), Instance820.3
(74.6882489) and Instance820.4 (75.9873577)
2/1/2016 6:28:42 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX1_SoftRecovery\SoftRecovery_2016_2_1_18_27_25.blg has 37 samples.
2/1/2016 6:28:42 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0001

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:40 AM

Test End Time 1/22/2016 7:32:59 AM

Collection Start Time 1/21/2016 7:33:12 AM

Collection End Time 1/22/2016 7:32:53 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_19.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5985.329

Target Transactional I/O per Second	5000
Initial Database Size (bytes)	5368753422336
Final Database Size (bytes)	5485707395072
Database Files (Count)	4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance1416.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1416.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1416.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1416.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1 416.1	1.429	5.346	1000.836	497.036	32834.655	34164.853	0.000	0.430	0.000	221.018	0.000	7785.859
Instance1 416.2	0.913	1.774	997.993	497.657	32838.445	34160.874	0.000	0.430	0.000	222.065	0.000	7769.209
Instance1 416.3	0.876	1.349	998.295	498.132	32838.395	34159.581	0.000	0.430	0.000	222.290	0.000	7766.965
Instance1 416.4	0.905	1.334	997.929	497.451	32837.894	34161.682	0.000	0.430	0.000	222.104	0.000	7762.713

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1416.1	8.391	261825.980
Instance1416.2	9.032	261826.470
Instance1416.3	9.093	261837.436
Instance1416.4	9.075	261821.782

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance1416.1	5.010	232561.657
Instance1416.2	5.006	232561.251
Instance1416.3	5.008	232562.068
Instance1416.4	5.000	232561.482

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1416.1												
Instance1416.2												
Instance1416.3												
Instance1416.4												

))					c)	c)					
---	---	--	--	--	--	----	----	--	--	--	--	--

Instance1 416.1 1.429 5.346 1009.228 497.036 34738.579 34164.853 0.998 0.430 5.010 221.018 232561.657 7785.859

Instance1 416.2 0.913 1.774 1007.024 497.657 34892.133 34160.874 1.001 0.430 5.006 222.065 232561.251 7769.209

Instance1 416.3 0.876 1.349 1007.388 498.132 34905.516 34159.581 0.997 0.430 5.008 222.290 232562.068 7766.965

Instance1 416.4 0.905 1.334 1007.004 497.451 34901.498 34161.682 0.996 0.430 5.000 222.104 232561.482 7762.713

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.263	3.665	13.603
Available MBytes	38712.745	38596.000	38752.000
Free System Page Table Entries	16500307.616	16499928.000	16500471.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	53921846.813	52617216.000	54792192.000
Pool Paged Bytes	123608093.542	123129856.000	128360448.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:40 AM -- Preparing for testing ...

1/21/2016 7:29:45 AM -- Attaching databases ...
1/21/2016 7:29:45 AM -- Preparations for testing are complete.
1/21/2016 7:29:45 AM -- Starting transaction dispatch ..
1/21/2016 7:29:45 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
1/21/2016 7:29:45 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
1/21/2016 7:29:49 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
1/21/2016 7:29:49 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
1/21/2016 7:29:49 AM -- Attaining prerequisites:
1/21/2016 7:30:19 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1003385000.0 (lower bound: 966367600.0, upper bound: none)
1/21/2016 7:30:19 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:19 AM -- Automatic tuning is starting ...
1/21/2016 7:30:51 AM -- Instance1416.1 has 0.05 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.2 has 0.01 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.3 has 0.02 for read latency slope.
1/21/2016 7:30:51 AM -- Instance1416.4 has 0.01 for read latency slope.
1/21/2016 7:32:56 AM -- 1854 batch transactions/sec and 8 sessions have 6451 IOPS.
1/21/2016 7:32:56 AM -- 8 sessions have actual 6451 IOPS (target IOPS: 5000)
1/21/2016 7:32:56 AM -- Instance1416.1 has 1.5 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:56 AM -- Instance1416.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:57 AM -- Performance logging has ended.
1/21/2016 7:32:57 AM -- Automatic tuning succeeded.
1/21/2016 7:32:57 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:32:57 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:57 AM -- Attaining prerequisites:
1/21/2016 7:32:57 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1059963000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:58 AM -- Performance logging has ended.
1/22/2016 7:32:58 AM -- JetInterop batch transaction stats: 2076210, 2076210, 2076210 and 2076210.
1/22/2016 7:32:58 AM -- Dispatching transactions ends.
1/22/2016 7:32:58 AM -- Shutting down databases ...
1/22/2016 7:32:59 AM -- Instance1416.1 (complete), Instance1416.2 (complete), Instance1416.3 (complete) and Instance1416.4 (complete)
1/22/2016 7:32:59 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.blg has 5754 samples.
1/22/2016 7:32:59 AM -- Creating test report ...
1/22/2016 7:33:16 AM -- Instance1416.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:16 AM -- Instance1416.4 has 0.4 for I/O Log Reads Average Latency.

1/22/2016 7:33:16 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:16 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:16 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_57.xml
has 5753 samples queried.

Appendix B – WIN-ME-0004

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0004

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:09:24 PM

Test End Time 1/31/2016 8:15:26 PM

Collection Start Time 1/31/2016 6:15:39 PM

Collection End Time 1/31/2016 8:15:16 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_Performance\Tuning_2016_1_31_18_10_7.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_Performance\Performance_2016_1_31_18_15_23.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6409.672

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5498063814656

Final Database Size (bytes) 5509078056960

Database Files (Count) 4

Jetstress System Parameters

Thread Count 10

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance2292.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2292.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2292.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2292.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2292.1 1.441 3.937 1076.866 529.877 32874.245 34058.696 0.000 0.440 0.000 232.959 0.000 7796.395

Instance2292.2 1.084 1.531 1072.214 528.472 32874.355 34057.608 0.000 0.441 0.000 233.258 0.000 7794.402

Instance2292.3 1.053 1.286 1073.581 528.397 32868.877 34052.762 0.000 0.440 0.000 233.066 0.000 7782.208

Instance2292.4	1.070	1.283	1072.478	527.787	32872.498	34051.294	0.000	0.441	0.000	232.866	0.000	7790.832
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2292.1	8.613	261911.926
Instance2292.2	9.069	261815.641
Instance2292.3	9.099	261888.957
Instance2292.4	9.086	261898.224

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance2292.1	5.323	232561.205
Instance2292.2	5.318	232562.331
Instance2292.3	5.303	232560.549
Instance2292.4	5.303	232561.836

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance2 292.1 1.441 3.937 1085.478 529.877 34691.553 34058.696 1.020 0.440 5.323 232.959 232561.205 7796.395

Instance2 292.2 1.084 1.531 1081.283 528.472 34794.556 34057.608 1.020 0.441 5.318 233.258 232562.331 7794.402

Instance2 292.3 1.053 1.286 1082.680 528.397 34793.656 34052.762 1.026 0.440 5.303 233.066 232560.549 7782.208

Instance2 292.4 1.070 1.283 1081.564 527.787 34796.420 34051.294 1.020 0.441 5.303 232.866 232561.836 7790.832

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	9.154	3.772	12.149
Available MBytes	38554.422	38513.000	38582.000
Free System Page Table Entries	16500263.136	16499679.000	16500413.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	47411362.472	46804992.000	47816704.000

Pool Paged Bytes

113108055.649 112893952.000 113348608.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:09:24 PM -- Preparing for testing ...

1/31/2016 6:09:28 PM -- Attaching databases ...

1/31/2016 6:09:28 PM -- Preparations for testing are complete.

1/31/2016 6:09:28 PM -- Starting transaction dispatch ..

1/31/2016 6:09:28 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:09:28 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:09:33 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:09:33 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:09:33 PM -- Attaining prerequisites:

1/31/2016 6:10:07 PM -- \\MSExchange Database(JetstressWin)\Database Cache Size, Last: 983494700.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:10:08 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:10:08 PM -- Automatic tuning is starting ...

1/31/2016 6:10:39 PM -- Instance2292.1 has 0.01 for read latency slope.

1/31/2016 6:10:39 PM -- Instance2292.2 has 0.00 for read latency slope.

1/31/2016 6:10:39 PM -- Instance2292.3 has 0.00 for read latency slope.

1/31/2016 6:10:39 PM -- Instance2292.4 has 0.01 for read latency slope.

1/31/2016 6:12:45 PM -- 1317 batch transactions/sec and 8 sessions have 5081 IOPS.

1/31/2016 6:12:45 PM -- 8 sessions have actual 5081 IOPS (target IOPS: 5000)

1/31/2016 6:12:45 PM -- Instance2292.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.2 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.3 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.4 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:12:45 PM -- Instance2292.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:12:45 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:13:17 PM -- Instance2292.1 has 0.00 for read latency slope.

1/31/2016 6:13:17 PM -- Instance2292.2 has 0.00 for read latency slope.

1/31/2016 6:13:17 PM -- Instance2292.3 has 0.00 for read latency slope.

1/31/2016 6:13:17 PM -- Instance2292.4 has 0.02 for read latency slope.

1/31/2016 6:15:23 PM -- 1619 batch transactions/sec and 10 sessions have 6375 IOPS.

1/31/2016 6:15:23 PM -- 10 sessions have actual 6375 IOPS (target IOPS: 5000)

1/31/2016 6:15:23 PM -- Instance2292.1 has 1.8 for I/O Database Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.2 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.3 has 1.1 for I/O Database Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.4 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:23 PM -- Instance2292.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 6:15:23 PM -- Instance2292.4 has 0.0 for I/O Log Reads Average Latency.
 1/31/2016 6:15:23 PM -- Performance logging has ended.
 1/31/2016 6:15:23 PM -- Automatic tuning succeeded.
 1/31/2016 6:15:24 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
 1/31/2016 6:15:24 PM -- Performance logging started (interval: 15000 ms).
 1/31/2016 6:15:24 PM -- Attaining prerequisites:
 1/31/2016 6:15:24 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1057862000.0 (lower bound: 966367600.0, upper bound: none)
 1/31/2016 8:15:25 PM -- Performance logging has ended.
 1/31/2016 8:15:25 PM -- JetInterop batch transaction stats: 189330, 189329, 189329 and 189329.
 1/31/2016 8:15:25 PM -- Dispatching transactions ends.
 1/31/2016 8:15:25 PM -- Shutting down databases ...
 1/31/2016 8:15:26 PM -- Instance2292.1 (complete), Instance2292.2 (complete), Instance2292.3 (complete) and Instance2292.4 (complete)
 1/31/2016 8:15:26 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX4 Performance\Performance 2016 1 31 18 15 23.blg](#) has 479 samples.
 1/31/2016 8:15:26 PM -- Creating test report ...
 1/31/2016 8:15:29 PM -- Instance2292.1 has 1.4 for I/O Database Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.2 has 1.1 for I/O Database Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.3 has 1.1 for I/O Database Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.4 has 1.1 for I/O Database Reads Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:29 PM -- Instance2292.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:29 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:15:29 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:15:29 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX4 Performance\Performance 2016 1 31 18 15 23.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance2808.1	1308042.59	04:36:19	78.90
Instance2808.2	1307994.59	04:36:32	78.83
Instance2808.3	1308026.59	04:36:32	78.83

Instance2808.4 1307994.59	04:35:07	79.24
Avg		78.95
Sum		315.79

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance2808.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2808.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2808.3 Log path: K:\
 Database: G:\Jetstress003001.edb

Instance2808.4 Log path: L:\
 Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2808.1	4.799	0.000	315.052	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance2808.2	4.793	0.000	314.665	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance2808.3	4.791	0.000	314.657	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance2808.4	4.792	0.000	316.243	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.598	2.722	6.880

Available MBytes	39654.661	39551.000	39666.000
Free System Page Table Entries	16500707.428	16500350.000	16500824.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	75933799.884	75927552.000	75960320.000
Pool Paged Bytes	176878376.812	176799744.000	181731328.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:47:38 PM -- Preparing for testing ...
 1/25/2016 3:47:42 PM -- Attaching databases ...
 1/25/2016 3:47:42 PM -- Preparations for testing are complete.
 1/25/2016 3:47:47 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:47:47 PM -- Backing up databases ...
 1/25/2016 8:24:20 PM -- Performance logging has ended.
 1/25/2016 8:24:20 PM -- Instance2808.1 (100% processed), Instance2808.2 (100% processed),
 Instance2808.3 (100% processed) and Instance2808.4 (100% processed)
 1/25/2016 8:24:20 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_DatabaseBackup\DatabaseBackup_2016_1_25_15_47_42.blg has 552 samples.
 1/25/2016 8:24:20 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41857618	0	0	0	1308050 MB/16462 sec
F:\Jetstress002001.edb	41856082	0	0	0	1308002 MB/15361 sec

G:\Jetstress003001.edb	41857106	0	0	0	1308034 MB/16443 sec
H:\Jetstress004001.edb	41856082	0	0	0	1308002 MB/16542 sec
(Sum)	167426888	0	0	0	5232090 MB/16541 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read
E:	0.057	0.000	1265.800	0.000	65536.000
F:	0.050	0.000	1358.495	0.000	65536.000
G:	0.053	0.000	1270.537	0.000	65536.000
H:	0.052	0.000	1257.638	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.736	4.510	7.004
Available MBytes	39722.857	39692.000	39751.000
Free System Page Table Entries	16500389.619	16499853.000	16500577.000

Transition Pages RePurposed/sec	0.000	0.000	0.000
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Pool Nonpaged Bytes	62703589.982	62652416.000	63012864.000
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Pool Paged Bytes	154881958.795	154181632.000	155852800.000
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Test Log 1/21/2016 7:29:43 AM -- Preparing for testing ...
1/21/2016 7:29:48 AM -- Attaching databases ...
1/21/2016 7:29:48 AM -- Preparations for testing are complete.
1/21/2016 7:29:48 AM -- Starting transaction dispatch ..
1/21/2016 7:29:48 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
1/21/2016 7:29:48 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
1/21/2016 7:29:52 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
1/21/2016 7:29:52 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
1/21/2016 7:29:52 AM -- Attaining prerequisites:
1/21/2016 7:30:08 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 978817000.0 (lower bound: 966367600.0, upper bound: none)
1/21/2016 7:30:09 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:09 AM -- Automatic tuning is starting ...
1/21/2016 7:30:40 AM -- Instance2808.1 has 0.00 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.2 has 0.01 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.3 has 0.01 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.4 has 0.04 for read latency slope.
1/21/2016 7:32:46 AM -- 1855 batch transactions/sec and 8 sessions have 6495 IOPS.
1/21/2016 7:32:46 AM -- 8 sessions have actual 6495 IOPS (target IOPS: 5000)
1/21/2016 7:32:46 AM -- Instance2808.1 has 1.4 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Performance logging has ended.
1/21/2016 7:32:46 AM -- Automatic tuning succeeded.
1/21/2016 7:32:47 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:32:47 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:47 AM -- Attaining prerequisites:
1/21/2016 7:32:47 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1055609000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:48 AM -- Performance logging has ended.
1/22/2016 7:32:48 AM -- JetInterop batch transaction stats: 2087264, 2087263, 2087263 and 2087263.
1/22/2016 7:32:48 AM -- Dispatching transactions ends.
1/22/2016 7:32:48 AM -- Shutting down databases ...
1/22/2016 7:32:50 AM -- Instance2808.1 (complete), Instance2808.2 (complete), Instance2808.3 (complete) and Instance2808.4 (complete)

1/22/2016 7:32:50 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.blg has 5754 samples.
 1/22/2016 7:32:50 AM -- Creating test report ...
 1/22/2016 7:33:04 AM -- Instance2808.1 has 1.4 for I/O Database Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.1 has 0.4 for I/O Log Writes Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.1 has 0.4 for I/O Log Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.2 has 0.9 for I/O Database Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.2 has 0.4 for I/O Log Writes Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.2 has 0.4 for I/O Log Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.3 has 0.9 for I/O Database Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.3 has 0.4 for I/O Log Writes Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.3 has 0.4 for I/O Log Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.4 has 0.9 for I/O Database Reads Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.4 has 0.4 for I/O Log Writes Average Latency.
 1/22/2016 7:33:04 AM -- Instance2808.4 has 0.4 for I/O Log Reads Average Latency.
 1/22/2016 7:33:04 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/22/2016 7:33:04 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/22/2016 7:33:04 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.xml has 5753 samples queried.
 1/22/2016 7:33:04 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.html was saved.
 1/22/2016 7:33:05 AM -- Performance logging started (interval: 30000 ms).
 1/22/2016 7:33:05 AM -- Verifying database checksums ...
 1/22/2016 12:08:46 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100% processed)
 1/22/2016 12:08:46 PM -- Performance logging has ended.
 1/22/2016 12:08:46 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_4.blg has 551 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance2808.1	501	62.7237113
Instance2808.2	510	63.4986773
Instance2808.3	509	63.2334767
Instance2808.4	507	63.4986773
Avg	506	63.239

Sum	2027	252.9545426
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Database Configuration

Instance2808.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2808.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2808.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2808.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2808.1	1.373	0.722	4495.105	32.384	37761.111	32768.000	1.961	0.000	40.480	0.000	209708.906	0.000
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Instance2808.2	1.375	0.738	4494.250	32.450	37753.574	32768.000	1.904	0.000	40.563	0.000	209706.830	0.000
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Instance2808.3	1.376	0.743	4491.373	32.583	37876.029	32768.000	1.933	0.000	40.729	0.000	209716.325	0.000
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Instance2808.4	1.385	0.731	4443.922	32.052	37762.543	32768.000	1.915	0.000	40.066	0.000	209710.954	0.000
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Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2808.1	8.991	262144.000
Instance2808.2	8.975	262144.000
Instance2808.3	8.991	262144.000
Instance2808.4	9.024	261048.540

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2808.1	1.373	0.722	4504.096	32.384	38209.032	32768.000	1.961	0.000	40.480	0.000	209708.906	0.000
Instance2808.2	1.375	0.738	4503.225	32.450	38200.774	32768.000	1.904	0.000	40.563	0.000	209706.830	0.000

Instance2 1.376 0.743 4500. 32.583 38324. 32768. 1.93 0.00 40.72 0.000 209716 0.00
808.3 364 098 000 3 0 9 .325 0

Instance2 1.385 0.731 4452. 32.052 38215. 32768. 1.91 0.00 40.06 0.000 209710 0.00
808.4 946 055 000 5 0 6 .954 0

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	22.757	15.328	33.914
Available MBytes	38532.935	38462.000	39351.000
Free System Page Table Entries	16500067.645	16499994.000	16500150.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	77760974.452	77758464.000	77762560.000
Pool Paged Bytes	178642944.000	178638848.000	178651136.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 2/1/2016 6:11:23 PM -- Preparing for testing ...
 2/1/2016 6:11:27 PM -- Attaching databases ...
 2/1/2016 6:11:27 PM -- Preparations for testing are complete.
 2/1/2016 6:11:27 PM -- Starting transaction dispatch ..
 2/1/2016 6:11:27 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
 2/1/2016 6:11:27 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
 2/1/2016 6:11:32 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
 2/1/2016 6:11:32 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
 2/1/2016 6:11:32 PM -- Attaining prerequisites:
 2/1/2016 6:11:53 PM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 974192600.0 (lower bound: 966367600.0, upper bound: none)
 2/1/2016 6:11:54 PM -- Performance logging started (interval: 5000 ms).
 2/1/2016 6:11:54 PM -- Automatic tuning is starting ...

2/1/2016 6:12:25 PM -- Instance2808.1 has 0.01 for read latency slope.
2/1/2016 6:12:25 PM -- Instance2808.2 has 0.01 for read latency slope.
2/1/2016 6:12:25 PM -- Instance2808.3 has 0.01 for read latency slope.
2/1/2016 6:12:25 PM -- Instance2808.4 has 0.01 for read latency slope.
2/1/2016 6:14:31 PM -- 1341 batch transactions/sec and 8 sessions have 5165 IOPS.
2/1/2016 6:14:31 PM -- 8 sessions have actual 5165 IOPS (target IOPS: 5000)
2/1/2016 6:14:31 PM -- Instance2808.1 has 1.5 for I/O Database Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:31 PM -- Instance2808.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:31 PM -- Performance logging has ended.
2/1/2016 6:14:31 PM -- Automatic tuning succeeded.
2/1/2016 6:14:31 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:14:31 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:14:31 PM -- Generating log files ...
2/1/2016 6:29:15 PM -- I:\ (100.2% generated), J:\ (102.0% generated), K:\ (101.8% generated) and L:\
(101.2% generated)
2/1/2016 6:29:15 PM -- Performance logging has ended.
2/1/2016 6:29:16 PM -- JetInterop batch transaction stats: 21765, 21765, 21765 and 21765.
2/1/2016 6:29:16 PM -- Dispatching transactions ends.
2/1/2016 6:29:16 PM -- Shutting down databases ...
2/1/2016 6:29:17 PM -- Instance2808.1 (complete), Instance2808.2 (complete), Instance2808.3 (complete)
and Instance2808.4 (complete)
2/1/2016 6:29:17 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_SoftRecovery\Performance_2016_2_1_18_14_31.blg has 58 samples.
2/1/2016 6:29:17 PM -- Creating test report ...
2/1/2016 6:29:17 PM -- Instance2808.1 has 1.4 for I/O Database Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.1 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.1 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.2 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.2 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.3 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.3 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.4 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:17 PM -- Instance2808.4 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:17 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/1/2016 6:29:17 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/1/2016 6:29:17 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_SoftRecovery\Performance_2016_2_1_18_14_31.xml has 57 samples queried.
2/1/2016 6:29:17 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_SoftRecovery\Performance_2016_2_1_18_14_31.html was saved.
2/1/2016 6:29:18 PM -- Performance logging started (interval: 2000 ms).
2/1/2016 6:29:18 PM -- Recovering databases ...
2/1/2016 6:30:22 PM -- Performance logging has ended.
2/1/2016 6:30:22 PM -- Instance2808.1 (62.7237113), Instance2808.2 (63.4986773), Instance2808.3
(63.2334767) and Instance2808.4 (63.4986773)
2/1/2016 6:30:22 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX4_SoftRecovery\SoftRecovery_2016_2_1_18_29_17.blg has 31 samples.

2/1/2016 6:30:22 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0004

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:43 AM

Test End Time 1/22/2016 7:32:50 AM

Collection Start Time 1/21/2016 7:33:02 AM

Collection End Time 1/22/2016 7:32:42 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_8.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6020.033

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368753422336

Final Database Size (bytes) 5486244265984

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance2808.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2808.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2808.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2808.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2808.1 1.351 4.663 1005.839 499.659 32835.243 34163.465 0.000 0.435 0.000 222.053 0.000 7783.580

Instance2808.2 0.915 1.701 1004.526 500.946 32837.240 34155.033 0.000 0.435 0.000 223.027 0.000 7764.275

Instance2808.3 0.882 1.354 1003.793 500.751 32836.736 34160.092 0.000 0.435 0.000 223.337 0.000 7765.395

Instance2808.4 0.908 1.346 1003.914 500.605 32837.818 34160.959 0.000 0.435 0.000 223.096 0.000 7766.300

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2808.1	8.499	261837.192
Instance2808.2	9.045	261830.389
Instance2808.3	9.095	261816.684
Instance2808.4	9.078	261849.107

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance2808.1	5.031	232561.100
Instance2808.2	5.023	232561.366
Instance2808.3	5.032	232561.206
Instance2808.4	5.026	232561.181

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Laten	I/O Database Writes Average	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average	I/O Database Writes Average	I/O Log Reads Average Late	I/O Log Writes Average Late	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average
Instance2808.1												
Instance2808.2												
Instance2808.3												
Instance2808.4												

	cy (msec)	Latency (msec)			Bytes	Bytes	ncy (msec)	ncy (msec)				Bytes
Instance2 808.1	1.351	4.663	1014. 337	499.6 59	34753. 947	34163. 465	0.99 9	0.43 5	5.031	222.0 53	232561 .100	7783. 580
Instance2 808.2	0.915	1.701	1013. 572	500.9 46	34880. 800	34155. 033	0.99 9	0.43 5	5.023	223.0 27	232561 .366	7764. 275
Instance2 808.3	0.882	1.354	1012. 888	500.7 51	34892. 845	34160. 092	1.00 1	0.43 5	5.032	223.3 37	232561 .206	7765. 395
Instance2 808.4	0.908	1.346	1012. 993	500.6 05	34890. 206	34160. 959	1.00 4	0.43 5	5.026	223.0 96	232561 .181	7766. 300

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.482	4.133	14.825
Available MBytes	38678.883	38595.000	38710.000
Free System Page Table Entries	16500472.866	16500098.000	16500621.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62301602.925	60940288.000	62914560.000
Pool Paged Bytes	151814588.908	151461888.000	156545024.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:43 AM -- Preparing for testing ...
1/21/2016 7:29:48 AM -- Attaching databases ...
1/21/2016 7:29:48 AM -- Preparations for testing are complete.
1/21/2016 7:29:48 AM -- Starting transaction dispatch ..
1/21/2016 7:29:48 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
1/21/2016 7:29:48 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
1/21/2016 7:29:52 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
1/21/2016 7:29:52 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
1/21/2016 7:29:52 AM -- Attaining prerequisites:
1/21/2016 7:30:08 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 978817000.0 (lower bound: 966367600.0, upper bound: none)
1/21/2016 7:30:09 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:09 AM -- Automatic tuning is starting ...
1/21/2016 7:30:40 AM -- Instance2808.1 has 0.00 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.2 has 0.01 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.3 has 0.01 for read latency slope.
1/21/2016 7:30:40 AM -- Instance2808.4 has 0.04 for read latency slope.
1/21/2016 7:32:46 AM -- 1855 batch transactions/sec and 8 sessions have 6495 IOPS.
1/21/2016 7:32:46 AM -- 8 sessions have actual 6495 IOPS (target IOPS: 5000)
1/21/2016 7:32:46 AM -- Instance2808.1 has 1.4 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:46 AM -- Instance2808.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:46 AM -- Performance logging has ended.
1/21/2016 7:32:46 AM -- Automatic tuning succeeded.
1/21/2016 7:32:47 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:32:47 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:47 AM -- Attaining prerequisites:
1/21/2016 7:32:47 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1055609000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:48 AM -- Performance logging has ended.
1/22/2016 7:32:48 AM -- JetInterop batch transaction stats: 2087264, 2087263, 2087263 and 2087263.
1/22/2016 7:32:48 AM -- Dispatching transactions ends.
1/22/2016 7:32:48 AM -- Shutting down databases ...
1/22/2016 7:32:50 AM -- Instance2808.1 (complete), Instance2808.2 (complete), Instance2808.3 (complete) and Instance2808.4 (complete)
1/22/2016 7:32:50 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.blg has 5754 samples.
1/22/2016 7:32:50 AM -- Creating test report ...
1/22/2016 7:33:04 AM -- Instance2808.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.3 has 0.4 for I/O Log Reads Average Latency.

1/22/2016 7:33:04 AM -- Instance2808.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:04 AM -- Instance2808.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:04 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:04 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:04 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_46.xml
has 5753 samples queried.

Appendix C – WIN-ME-0007

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0007

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:13:47 PM

Test End Time 1/31/2016 8:16:59 PM

Collection Start Time 1/31/2016 6:17:11 PM

Collection End Time 1/31/2016 8:16:49 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_Performance\Tuning_2016_1_31_18_14_17.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_Performance\Performance_2016_1_31_18_16_56.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5539.138

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5501670916096

Final Database Size (bytes) 5510940327936

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance1712.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1712.2 Log path: J\
Database: F:\Jetstress002001.edb

Instance1712.3 Log path: K\
Database: G:\Jetstress003001.edb

Instance1712.4 Log path: L\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1712.1 1.150 2.491 923.4 459.00 32822. 34043. 0.00 0.41 0.000 205.99 0.00 7701.964

Instance1712.2 1.000 1.295 924.6 459.99 32820. 34033. 0.00 0.41 0.000 206.34 0.00 7686.612

Instance1712.3 0.981 1.126 925.1 460.52 32821. 34019. 0.00 0.41 0.000 206.80 0.00 7676.627

Instance1712.4	1.001	1.143	925.753	460.621	32821.310	34039.821	0.000	0.411	0.000	206.553	0.000	7679.227
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1712.1	8.908	261866.543
Instance1712.2	9.112	261918.584
Instance1712.3	9.133	261850.816
Instance1712.4	9.121	261844.889

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance1712.1	4.583	232562.625
Instance1712.2	4.573	232561.208
Instance1712.3	4.574	232561.904
Instance1712.4	4.573	232562.875

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance1 712.1 1.150 2.491 932.3 459.0 35010.987 34043.428 0.949 0.411 4.583 205.992 232562.625 7701.964

Instance1 712.2 1.000 1.295 933.7 459.9 35056.389 34033.293 0.944 0.412 4.573 206.345 232561.208 7686.612

Instance1 712.3 0.981 1.126 934.2 460.5 35059.933 34019.952 0.942 0.411 4.574 206.807 232561.904 7676.627

Instance1 712.4 1.001 1.143 934.8 460.6 35055.693 34039.821 0.948 0.411 4.573 206.553 232562.875 7679.227

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.195	5.750	10.406
Available MBytes	38553.084	38510.000	38586.000
Free System Page Table Entries	16500198.031	16499613.000	16500349.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	46742979.073	46538752.000	47112192.000

Pool Paged Bytes

113218126.029 113016832.000 113487872.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:13:47 PM -- Preparing for testing ...

1/31/2016 6:13:51 PM -- Attaching databases ...

1/31/2016 6:13:51 PM -- Preparations for testing are complete.

1/31/2016 6:13:51 PM -- Starting transaction dispatch ..

1/31/2016 6:13:51 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:13:51 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:13:55 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:13:55 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:13:55 PM -- Attaining prerequisites:

1/31/2016 6:14:17 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1027056000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:14:18 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:14:18 PM -- Automatic tuning is starting ...

1/31/2016 6:14:50 PM -- Instance1712.1 has 0.03 for read latency slope.

1/31/2016 6:14:50 PM -- Instance1712.2 has 0.00 for read latency slope.

1/31/2016 6:14:50 PM -- Instance1712.3 has 0.00 for read latency slope.

1/31/2016 6:14:50 PM -- Instance1712.4 has 0.00 for read latency slope.

1/31/2016 6:16:55 PM -- 1504 batch transactions/sec and 8 sessions have 5895 IOPS.

1/31/2016 6:16:55 PM -- 8 sessions have actual 5895 IOPS (target IOPS: 5000)

1/31/2016 6:16:55 PM -- Instance1712.1 has 1.1 for I/O Database Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.2 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.3 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.4 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:55 PM -- Instance1712.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:56 PM -- Performance logging has ended.

1/31/2016 6:16:56 PM -- Automatic tuning succeeded.

1/31/2016 6:16:56 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:16:56 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:16:56 PM -- Attaining prerequisites:

1/31/2016 6:16:56 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1055343000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:16:57 PM -- Performance logging has ended.

1/31/2016 8:16:57 PM -- JetInterop batch transaction stats: 162781, 162781, 162781 and 162781.

1/31/2016 8:16:57 PM -- Dispatching transactions ends.

1/31/2016 8:16:58 PM -- Shutting down databases ...

1/31/2016 8:16:59 PM -- Instance1712.1 (complete), Instance1712.2 (complete), Instance1712.3 (complete) and Instance1712.4 (complete)

1/31/2016 8:16:59 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_Performance\Performance_2016_1_31_18_16_56.blg has 479 samples.

1/31/2016 8:16:59 PM -- Creating test report ...

1/31/2016 8:17:00 PM -- Instance1712.1 has 1.2 for I/O Database Reads Average Latency.

1/31/2016 8:17:00 PM -- Instance1712.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:17:00 PM -- Instance1712.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:17:00 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:17:00 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:17:00 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX7 Performance\Performance 2016 1 31 18 16 56.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance1656.1	1308810.59	04:27:36	81.51
Instance1656.2	1308794.59	04:30:37	80.61
Instance1656.3	1308810.59	04:30:36	80.61
Instance1656.4	1308810.59	04:30:38	80.60
Avg			80.83
Sum			323.32

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance1656.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1656.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1656.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1656.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	cy (msec)				Bytes	(msec)	(msec)				
Instance1 656.1	4.688	0.000	325.866	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1 656.2	4.685	0.000	322.038	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1 656.3	4.683	0.000	322.016	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance1 656.4	4.682	0.000	322.073	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.721	2.089	4.451
Available MBytes	39592.140	39588.000	39600.000
Free System Page Table Entries	16500473.848	16500225.000	16500572.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	78412688.325	78405632.000	78524416.000
Pool Paged Bytes	180449204.288	179871744.000	180580352.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:47:43 PM -- Preparing for testing ...
 1/25/2016 3:47:48 PM -- Attaching databases ...
 1/25/2016 3:47:48 PM -- Preparations for testing are complete.
 1/25/2016 3:47:52 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:47:52 PM -- Backing up databases ...
 1/25/2016 8:18:31 PM -- Performance logging has ended.
 1/25/2016 8:18:31 PM -- Instance1656.1 (100% processed), Instance1656.2 (100% processed),
 Instance1656.3 (100% processed) and Instance1656.4 (100% processed)
 1/25/2016 8:18:31 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_DatabaseBackup\DatabaseBackup_2016_1_25_15_47_48.blg](#) has 541 samples.
 1/25/2016 8:18:31 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41882194	0	0	0	1308818 MB/16533 sec
F:\Jetstress002001.edb	41881682	0	0	0	1308802 MB/15183 sec
G:\Jetstress003001.edb	41882194	0	0	0	1308818 MB/16247 sec
H:\Jetstress004001.edb	41882194	0	0	0	1308818 MB/16521 sec
(Sum)	167528264	0	0	0	5235258 MB/16532 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.057	0.000	1260.767	0.000	65536.000
F:	0.049	0.000	1378.177	0.000	65536.000
G:	0.052	0.000	1289.109	0.000	65536.000
H:	0.051	0.000	1266.185	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.778	4.357	7.116
Available MBytes	39719.902	39692.000	39743.000
Free System Page Table Entries	16500323.275	16499781.000	16500490.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62930668.451	62861312.000	63291392.000
Pool Paged Bytes	155898444.335	155197440.000	156831744.000

Test Log 1/21/2016 7:29:49 AM -- Preparing for testing ...

1/21/2016 7:29:54 AM -- Attaching databases ...

1/21/2016 7:29:54 AM -- Preparations for testing are complete.

1/21/2016 7:29:54 AM -- Starting transaction dispatch ..

1/21/2016 7:29:54 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:54 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:29:58 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:29:58 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:29:58 AM -- Attaining prerequisites:

1/21/2016 7:30:26 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 978694100.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:27 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:27 AM -- Automatic tuning is starting ...
1/21/2016 7:30:58 AM -- Instance1656.1 has 0.03 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.2 has 0.01 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.3 has 0.02 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.4 has 0.01 for read latency slope.
1/21/2016 7:33:04 AM -- 1963 batch transactions/sec and 8 sessions have 6852 IOPS.
1/21/2016 7:33:04 AM -- 8 sessions have actual 6852 IOPS (target IOPS: 5000)
1/21/2016 7:33:04 AM -- Instance1656.1 has 1.1 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Performance logging has ended.
1/21/2016 7:33:04 AM -- Automatic tuning succeeded.
1/21/2016 7:33:05 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:05 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:05 AM -- Attaining prerequisites:
1/21/2016 7:33:05 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1062453000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:06 AM -- Performance logging has ended.
1/22/2016 7:33:06 AM -- JetInterop batch transaction stats: 2144934, 2144934, 2144934 and 2144934.
1/22/2016 7:33:06 AM -- Dispatching transactions ends.
1/22/2016 7:33:06 AM -- Shutting down databases ...
1/22/2016 7:33:07 AM -- Instance1656.1 (complete), Instance1656.2 (complete), Instance1656.3 (complete)
and Instance1656.4 (complete)
1/22/2016 7:33:07 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.blg has
5754 samples.
1/22/2016 7:33:07 AM -- Creating test report ...
1/22/2016 7:33:27 AM -- Instance1656.1 has 1.3 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:27 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:27 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.xml has
5753 samples queried.
1/22/2016 7:33:28 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.html
was saved.
1/22/2016 7:33:28 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:28 AM -- Verifying database checksums ...
1/22/2016 12:09:01 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100%
processed)
1/22/2016 12:09:01 PM -- Performance logging has ended.

1/22/2016 12:09:01 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_28.blg](#) has 550 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance1656.1	501	65.4147804
Instance1656.2	504	65.9250016
Instance1656.3	501	65.9250016
Instance1656.4	505	66.4315421
Avg	502	65.924
Sum	2011	263.6963257

Database Configuration

Instance1656.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1656.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1656.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1656.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1 656.1	1.391	0.793	4354.212	31.033	37890.932	32768.000	1.931	0.000	38.799	0.000	209784.575	0.000
------------------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	-------

Instance1 656.2	1.411	0.771	4285.579	30.969	37837.506	32768.000	1.994	0.000	38.719	0.000	209788.696	0.000
------------------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	-------

Instance1 656.3	1.410	0.753	4307.400	30.744	37850.420	32768.000	1.960	0.000	38.430	0.000	209715.200	0.000
------------------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	-------

Instance1 656.4	1.420	0.748	4251.453	30.744	37786.494	32768.000	1.997	0.000	38.430	0.000	209715.071	0.000
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Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
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Instance1656.1	9.000	261584.576
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Instance1656.2	8.968	262144.000
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Instance1656.3	8.968	262144.000
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Instance1656.4

8.968

262144.000

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
-----------------------------------	---	--	-------------------------	--------------------------	----------------------------------	-----------------------------------	--------------------------------------	---------------------------------------	--------------------	---------------------	-----------------------------	------------------------------

Instance1656.1	1.391	0.793	4363.211	31.033	38352.321	32768.000	1.931	0.000	38.799	0.000	209784.575	0.000
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Instance1656.2	1.411	0.771	4294.547	30.969	38305.889	32768.000	1.994	0.000	38.719	0.000	209788.696	0.000
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Instance1656.3	1.410	0.753	4316.367	30.744	38316.408	32768.000	1.960	0.000	38.430	0.000	209715.200	0.000
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Instance1656.4	1.420	0.748	4260.421	30.744	38258.736	32768.000	1.997	0.000	38.430	0.000	209715.071	0.000
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Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	22.640	16.653	29.516
Available MBytes	38474.188	38411.000	39293.000

Free System Page Table Entries 16499840.750 16499699.000 16499947.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 80651520.000 80637952.000 80662528.000

Pool Paged Bytes 182956032.000 182956032.000 182956032.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:11:19 PM -- Preparing for testing ...
2/1/2016 6:11:23 PM -- Attaching databases ...
2/1/2016 6:11:23 PM -- Preparations for testing are complete.
2/1/2016 6:11:23 PM -- Starting transaction dispatch ..
2/1/2016 6:11:23 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:23 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:27 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:27 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:27 PM -- Attaining prerequisites:
2/1/2016 6:11:50 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1046221000.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:50 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:50 PM -- Automatic tuning is starting ...
2/1/2016 6:12:21 PM -- Instance1656.1 has 0.00 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1656.2 has 0.01 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1656.3 has 0.01 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1656.4 has 0.01 for read latency slope.
2/1/2016 6:14:27 PM -- 1343 batch transactions/sec and 8 sessions have 5132 IOPS.
2/1/2016 6:14:27 PM -- 8 sessions have actual 5132 IOPS (target IOPS: 5000)
2/1/2016 6:14:27 PM -- Instance1656.1 has 1.6 for I/O Database Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:27 PM -- Instance1656.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:28 PM -- Performance logging has ended.
2/1/2016 6:14:28 PM -- Automatic tuning succeeded.
2/1/2016 6:14:28 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:28 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:14:28 PM -- Generating log files ...
2/1/2016 6:28:24 PM -- I:\ (100.2% generated), J:\ (100.8% generated), K:\ (100.2% generated) and L:\

(101.0% generated)
 2/1/2016 6:28:25 PM -- Performance logging has ended.
 2/1/2016 6:28:25 PM -- JetInterop batch transaction stats: 21760, 21760, 21760 and 21760.
 2/1/2016 6:28:25 PM -- Dispatching transactions ends.
 2/1/2016 6:28:25 PM -- Shutting down databases ...
 2/1/2016 6:28:26 PM -- Instance1656.1 (complete), Instance1656.2 (complete), Instance1656.3 (complete) and Instance1656.4 (complete)
 2/1/2016 6:28:26 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_SoftRecovery\Performance_2016_2_1_18_14_28.blg has 55 samples.
 2/1/2016 6:28:26 PM -- Creating test report ...
 2/1/2016 6:28:27 PM -- Instance1656.1 has 1.4 for I/O Database Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.1 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.2 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.2 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.3 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.3 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.4 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:27 PM -- Instance1656.4 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:27 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 2/1/2016 6:28:27 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 2/1/2016 6:28:27 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_SoftRecovery\Performance_2016_2_1_18_14_28.xml has 54 samples queried.
 2/1/2016 6:28:27 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_SoftRecovery\Performance_2016_2_1_18_14_28.html was saved.
 2/1/2016 6:28:27 PM -- Performance logging started (interval: 2000 ms).
 2/1/2016 6:28:27 PM -- Recovering databases ...
 2/1/2016 6:29:34 PM -- Performance logging has ended.
 2/1/2016 6:29:34 PM -- Instance1656.1 (65.4147804), Instance1656.2 (65.9250016), Instance1656.3 (65.9250016) and Instance1656.4 (66.4315421)
 2/1/2016 6:29:34 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX7_SoftRecovery\SoftRecovery_2016_2_1_18_28_27.blg has 32 samples.
 2/1/2016 6:29:34 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0007

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:49 AM

Test End Time 1/22/2016 7:33:07 AM

Collection Start Time 1/21/2016 7:33:20 AM

Collection End Time 1/22/2016 7:33:01 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_26.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6206.338

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368753422336

Final Database Size (bytes) 5489566154752

Database Files (Count) 4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance1656.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1656.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1656.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1656.4 Log path: L:\

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1 656.1	1.273	4.249	1037.555	515.764	32837.526	34148.580	0.000	0.415	0.000	228.900	0.000	7769.844
Instance1 656.2	0.888	1.599	1035.525	516.099	32840.482	34147.588	0.000	0.414	0.000	229.764	0.000	7756.305
Instance1 656.3	0.860	1.285	1034.441	515.557	32840.425	34148.917	0.000	0.414	0.000	229.733	0.000	7759.304
Instance1 656.4	0.885	1.278	1035.210	516.187	32839.919	34150.768	0.000	0.414	0.000	229.781	0.000	7760.130

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1656.1	8.563	261834.647
Instance1656.2	9.056	261841.056

Instance1656.3 9.101 261849.097

Instance1656.4 9.086 261830.673

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
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Instance1656.1 5.170 232561.780

Instance1656.2 5.166 232562.057

Instance1656.3 5.169 232561.903

Instance1656.4 5.171 232561.728

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1656.1 1.273 4.249 1046.118 515.764 34711.960 34148.580 0.967 0.415 5.170 228.900 232561.780 7769.844

Instance1656.2 0.888 1.599 1044.581 516.099 34825.842 34147.588 0.965 0.414 5.166 229.764 232562.057 7756.305

Instance1 0.860 1.285 1043. 515.5 34837. 34148. 0.96 0.41 5.169 229.7 232561 7759.
656.3 542 57 694 917 5 4 33 .903 304

Instance1 0.885 1.278 1044. 516.1 34832. 34150. 0.96 0.41 5.171 229.7 232561 7760.
656.4 296 87 214 768 4 4 81 .728 130

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.552	3.535	12.354
Available MBytes	38676.265	38562.000	38703.000
Free System Page Table Entries	16500417.050	16500057.000	16500549.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62410792.576	61329408.000	63336448.000
Pool Paged Bytes	152340688.573	151773184.000	206655488.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:49 AM -- Preparing for testing ...
 1/21/2016 7:29:54 AM -- Attaching databases ...
 1/21/2016 7:29:54 AM -- Preparations for testing are complete.
 1/21/2016 7:29:54 AM -- Starting transaction dispatch ..
 1/21/2016 7:29:54 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
 1/21/2016 7:29:54 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
 1/21/2016 7:29:58 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
 1/21/2016 7:29:58 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
 1/21/2016 7:29:58 AM -- Attaining prerequisites:
 1/21/2016 7:30:26 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 978694100.0 (lower bound: 966367600.0, upper bound: none)
 1/21/2016 7:30:27 AM -- Performance logging started (interval: 5000 ms).
 1/21/2016 7:30:27 AM -- Automatic tuning is starting ...

1/21/2016 7:30:58 AM -- Instance1656.1 has 0.03 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.2 has 0.01 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.3 has 0.02 for read latency slope.
1/21/2016 7:30:58 AM -- Instance1656.4 has 0.01 for read latency slope.
1/21/2016 7:33:04 AM -- 1963 batch transactions/sec and 8 sessions have 6852 IOPS.
1/21/2016 7:33:04 AM -- 8 sessions have actual 6852 IOPS (target IOPS: 5000)
1/21/2016 7:33:04 AM -- Instance1656.1 has 1.1 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:04 AM -- Instance1656.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:04 AM -- Performance logging has ended.
1/21/2016 7:33:04 AM -- Automatic tuning succeeded.
1/21/2016 7:33:05 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:05 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:05 AM -- Attaining prerequisites:
1/21/2016 7:33:05 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1062453000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:06 AM -- Performance logging has ended.
1/22/2016 7:33:06 AM -- JetInterop batch transaction stats: 2144934, 2144934, 2144934 and 2144934.
1/22/2016 7:33:06 AM -- Dispatching transactions ends.
1/22/2016 7:33:06 AM -- Shutting down databases ...
1/22/2016 7:33:07 AM -- Instance1656.1 (complete), Instance1656.2 (complete), Instance1656.3 (complete)
and Instance1656.4 (complete)
1/22/2016 7:33:07 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.blg has
5754 samples.
1/22/2016 7:33:07 AM -- Creating test report ...
1/22/2016 7:33:27 AM -- Instance1656.1 has 1.3 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1656.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:27 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:27 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_4.xml has
5753 samples queried.

Appendix E – WIN-ME-0010

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0010

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:12:52 PM

Test End Time 1/31/2016 8:16:26 PM

Collection Start Time 1/31/2016 6:16:38 PM

Collection End Time 1/31/2016 8:16:16 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_Performance\Tuning_2016_1_31_18_13_44.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_Performance\Performance_2016_1_31_18_16_23.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5351.198

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5500932718592

Final Database Size (bytes) 5510084689920

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance1200.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1200.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1200.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1200.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1200.1 1.254 3.145 894.548 443.264 32841.921 34094.377 0.000 0.415 0.000 199.183 0.000 7770.125

Instance1200.2 1.012 1.373 892.817 443.195 32841.495 34095.523 0.000 0.415 0.000 199.667 0.000 7759.731

Instance1200.3 0.998 1.157 895.091 445.393 32843.327 34083.312 0.000 0.415 0.000 200.495 0.000 7748.041

Instance1	1.017	1.125	893.7	443.15	32845.	34092.	0.00	0.41	0.000	199.43	0.00	7738.
200.4			38	2	124	081	0	5		2	0	783

Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1200.1	8.790	261836.284
Instance1200.2	9.098	261955.359
Instance1200.3	9.123	261888.863
Instance1200.4	9.119	261776.709

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance1200.1	4.498	232561.778
Instance1200.2	4.494	232561.237
Instance1200.3	4.503	232562.614
Instance1200.4	4.470	232560.284

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Avera ge Latency (msec)	Datab ase Writes Avera ge Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Avera ge Bytes	Datab ase Writes Avera ge Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Averag e Bytes	Log Write s Avera ge Bytes
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Instance1 200.1 1.254 3.145 903.3 443.2 35070. 34094. 0.95 0.41 4.498 199.1 232561 7770. 37 64 061 377 2 5 83 .778 125

Instance1 200.2 1.012 1.373 901.9 443.1 35152. 34095. 0.95 0.41 4.494 199.6 232561 7759. 15 95 602 523 2 5 67 .237 731

Instance1 200.3 0.998 1.157 904.2 445.3 35154. 34083. 0.96 0.41 4.503 200.4 232562 7748. 14 93 363 312 0 5 95 .614 041

Instance1 200.4 1.017 1.125 902.8 443.1 35157. 34092. 0.95 0.41 4.470 199.4 232560 7738. 56 52 249 081 0 5 32 .284 783

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	7.931	5.645	10.796
Available MBytes	38550.188	38512.000	38581.000
Free System Page Table Entries	16500188.468	16499602.000	16500366.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	47037053.061	46751744.000	47415296.000

Pool Paged Bytes

113247131.524 113070080.000 113487872.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:12:52 PM -- Preparing for testing ...

1/31/2016 6:12:57 PM -- Attaching databases ...

1/31/2016 6:12:57 PM -- Preparations for testing are complete.

1/31/2016 6:12:57 PM -- Starting transaction dispatch ..

1/31/2016 6:12:57 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:12:57 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:13:01 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:13:01 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:13:01 PM -- Attaining prerequisites:

1/31/2016 6:13:44 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1061278000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:13:45 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:13:45 PM -- Automatic tuning is starting ...

1/31/2016 6:14:16 PM -- Instance1200.1 has 0.01 for read latency slope.

1/31/2016 6:14:16 PM -- Instance1200.2 has 0.00 for read latency slope.

1/31/2016 6:14:16 PM -- Instance1200.3 has 0.01 for read latency slope.

1/31/2016 6:14:16 PM -- Instance1200.4 has 0.01 for read latency slope.

1/31/2016 6:16:22 PM -- 1495 batch transactions/sec and 8 sessions have 5817 IOPS.

1/31/2016 6:16:22 PM -- 8 sessions have actual 5817 IOPS (target IOPS: 5000)

1/31/2016 6:16:22 PM -- Instance1200.1 has 1.1 for I/O Database Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.2 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.3 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.4 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:22 PM -- Instance1200.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:23 PM -- Performance logging has ended.

1/31/2016 6:16:23 PM -- Automatic tuning succeeded.

1/31/2016 6:16:23 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:16:23 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:16:23 PM -- Attaining prerequisites:

1/31/2016 6:16:23 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1056236000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:16:24 PM -- Performance logging has ended.

1/31/2016 8:16:24 PM -- JetInterop batch transaction stats: 158163, 158162, 158162 and 158162.

1/31/2016 8:16:24 PM -- Dispatching transactions ends.

1/31/2016 8:16:24 PM -- Shutting down databases ...

1/31/2016 8:16:26 PM -- Instance1200.1 (complete), Instance1200.2 (complete), Instance1200.3 (complete) and Instance1200.4 (complete)

1/31/2016 8:16:26 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_Performance\Performance_2016_1_31_18_16_23.blg has 479 samples.

1/31/2016 8:16:26 PM -- Creating test report ...

1/31/2016 8:16:28 PM -- Instance1200.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 8:16:28 PM -- Instance1200.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:28 PM -- Instance1200.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:28 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:16:28 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:16:28 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_Performance\Performance_2016_1_31_18_16_23.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance1420.1	1308674.59	04:30:04	80.76
Instance1420.2	1308626.59	04:32:00	80.18
Instance1420.3	1308618.59	04:30:59	80.48
Instance1420.4	1308642.59	04:31:00	80.48
Avg			80.48
Sum			321.90

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance1420.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1420.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1420.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1420.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Latency	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	cy (msec)				Bytes	(msec)	(msec)				
Instance1 420.1	4.743	0.000	322.72	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			5		.000		0	0			0	0
Instance1 420.2	4.743	0.000	320.28	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			5		.000		0	0			0	0
Instance1 420.3	4.747	0.000	321.63	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			8		.000		0	0			0	0
Instance1 420.4	4.746	0.000	321.65	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			9		.000		0	0			0	0

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.514	1.157	4.478
Available MBytes	39684.589	39681.000	39696.000
Free System Page Table Entries	16500417.532	16500117.000	16500522.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	75313106.740	75280384.000	75345920.000
Pool Paged Bytes	176992444.582	176881664.000	177147904.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:47:48 PM -- Preparing for testing ...
 1/25/2016 3:47:52 PM -- Attaching databases ...
 1/25/2016 3:47:52 PM -- Preparations for testing are complete.
 1/25/2016 3:47:57 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:47:57 PM -- Backing up databases ...
 1/25/2016 8:19:58 PM -- Performance logging has ended.
 1/25/2016 8:19:58 PM -- Instance1420.1 (100% processed), Instance1420.2 (100% processed),
 Instance1420.3 (100% processed) and Instance1420.4 (100% processed)
 1/25/2016 8:19:58 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_DatabaseBackup\DatabaseBackup_2016_1_25_15_47_52.blg](#) has 543 samples.
 1/25/2016 8:19:58 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41877842	0	0	0	1308682 MB/16547 sec
F:\Jetstress002001.edb	41876306	0	0	0	1308634 MB/15397 sec
G:\Jetstress003001.edb	41876050	0	0	0	1308626 MB/16449 sec
H:\Jetstress004001.edb	41876818	0	0	0	1308650 MB/16600 sec
(Sum)	167507016	0	0	0	5234594 MB/16600 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.056	0.000	1263.543	0.000	65536.000
F:	0.050	0.000	1359.388	0.000	65536.000
G:	0.053	0.000	1273.163	0.000	65536.000
H:	0.052	0.000	1260.305	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.701	4.454	9.052
Available MBytes	39718.268	39691.000	39741.000
Free System Page Table Entries	16500088.506	16499642.000	16500272.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62665540.976	62566400.000	62939136.000
Pool Paged Bytes	154796743.060	154144768.000	155594752.000

Test Log 1/21/2016 7:29:47 AM -- Preparing for testing ...

1/21/2016 7:29:52 AM -- Attaching databases ...

1/21/2016 7:29:52 AM -- Preparations for testing are complete.

1/21/2016 7:29:52 AM -- Starting transaction dispatch ..

1/21/2016 7:29:52 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:52 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:29:56 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:29:56 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:29:56 AM -- Attaining prerequisites:

1/21/2016 7:30:24 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1052045000.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:25 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:25 AM -- Automatic tuning is starting ...
1/21/2016 7:30:56 AM -- Instance1804.1 has 0.03 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.2 has 0.01 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.3 has 0.01 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.4 has 0.01 for read latency slope.
1/21/2016 7:33:02 AM -- 1892 batch transactions/sec and 8 sessions have 6531 IOPS.
1/21/2016 7:33:02 AM -- 8 sessions have actual 6531 IOPS (target IOPS: 5000)
1/21/2016 7:33:02 AM -- Instance1804.1 has 1.3 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Performance logging has ended.
1/21/2016 7:33:02 AM -- Automatic tuning succeeded.
1/21/2016 7:33:03 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:33:03 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:03 AM -- Attaining prerequisites:
1/21/2016 7:33:03 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1058136000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:04 AM -- Performance logging has ended.
1/22/2016 7:33:04 AM -- JetInterop batch transaction stats: 2131231, 2131230, 2131230 and 2131230.
1/22/2016 7:33:04 AM -- Dispatching transactions ends.
1/22/2016 7:33:04 AM -- Shutting down databases ...
1/22/2016 7:33:06 AM -- Instance1804.1 (complete), Instance1804.2 (complete), Instance1804.3 (complete) and Instance1804.4 (complete)
1/22/2016 7:33:06 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.blg has 5754 samples.
1/22/2016 7:33:06 AM -- Creating test report ...
1/22/2016 7:33:27 AM -- Instance1804.1 has 1.3 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:27 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:27 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.xml has 5753 samples queried.
1/22/2016 7:33:28 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.html was saved.
1/22/2016 7:33:28 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:28 AM -- Verifying database checksums ...
1/22/2016 12:10:08 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100% processed)
1/22/2016 12:10:09 PM -- Performance logging has ended.

1/22/2016 12:10:09 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_28.blq](#) has 553 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance1420.1	501	63.9956402
Instance1420.2	515	65.0282183
Instance1420.3	504	64.5070689
Instance1420.4	504	64.766539
Avg	506	64.574
Sum	2024	258.2974664

Database Configuration

Instance1420.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1420.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1420.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1420.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1 420.1	1.404	0.815	4429.476	31.824	37776.992	32768.000	1.920	0.000	39.780	0.000	209716.438	0.000
Instance1 420.2	1.401	0.838	4341.808	32.011	37730.205	32768.000	1.988	0.000	40.013	0.000	209725.817	0.000
Instance1 420.3	1.393	0.790	4425.249	31.819	37781.673	32768.000	1.933	0.000	39.917	0.032	209792.459	132.129
Instance1 420.4	1.410	0.825	4392.947	31.690	37717.107	32768.000	1.947	0.000	39.612	0.000	209715.645	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1420.1	8.998	262144.000
Instance1420.2	8.995	261668.335
Instance1420.3	8.979	261192.671

Instance1420.4

8.995

262144.000

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1 420.1	1.404	0.815	4438.474	31.824	38231.845	32768.000	1.920	0.000	39.780	0.000	209716.438	0.000
-----------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	-------

Instance1 420.2	1.401	0.838	4350.803	32.011	38193.180	32768.000	1.988	0.000	40.013	0.000	209725.817	0.000
-----------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	-------

Instance1 420.3	1.393	0.790	4434.228	31.819	38234.067	32768.000	1.933	0.000	39.917	0.032	209792.459	132.129
-----------------	-------	-------	----------	--------	-----------	-----------	-------	-------	--------	-------	------------	---------

Instance1 420.4	1.410	0.825	4401.942	31.690	38175.701	32768.000	1.947	0.000	39.612	0.000	209715.645	0.000
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Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	23.450	12.058	33.668
Available MBytes	38553.750	38478.000	39389.000

Free System Page Table Entries 16499760.656 16499599.000 16499859.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 77892608.000 77885440.000 77905920.000

Pool Paged Bytes 179325440.000 179298304.000 179343360.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:11:14 PM -- Preparing for testing ...
2/1/2016 6:11:18 PM -- Attaching databases ...
2/1/2016 6:11:18 PM -- Preparations for testing are complete.
2/1/2016 6:11:18 PM -- Starting transaction dispatch ..
2/1/2016 6:11:18 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:18 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:22 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:22 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:22 PM -- Attaining prerequisites:
2/1/2016 6:11:49 PM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 998506500.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:49 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:49 PM -- Automatic tuning is starting ...
2/1/2016 6:12:21 PM -- Instance1420.1 has 0.01 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1420.2 has 0.01 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1420.3 has 0.03 for read latency slope.
2/1/2016 6:12:21 PM -- Instance1420.4 has 0.02 for read latency slope.
2/1/2016 6:14:26 PM -- 1391 batch transactions/sec and 8 sessions have 5367 IOPS.
2/1/2016 6:14:26 PM -- 8 sessions have actual 5367 IOPS (target IOPS: 5000)
2/1/2016 6:14:26 PM -- Instance1420.1 has 1.5 for I/O Database Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:26 PM -- Instance1420.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:27 PM -- Performance logging has ended.
2/1/2016 6:14:27 PM -- Automatic tuning succeeded.
2/1/2016 6:14:27 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:27 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:14:27 PM -- Generating log files ...
2/1/2016 6:28:09 PM -- I:\ (100.2% generated), J:\ (103.0% generated), K:\ (100.8% generated) and L:\

(100.8% generated)
 2/1/2016 6:28:09 PM -- Performance logging has ended.
 2/1/2016 6:28:09 PM -- JetInterop batch transaction stats: 21865, 21865, 21865 and 21865.
 2/1/2016 6:28:09 PM -- Dispatching transactions ends.
 2/1/2016 6:28:09 PM -- Shutting down databases ...
 2/1/2016 6:28:11 PM -- Instance1420.1 (complete), Instance1420.2 (complete), Instance1420.3 (complete) and Instance1420.4 (complete)
 2/1/2016 6:28:11 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_SoftRecovery\Performance_2016_2_1_18_14_27.blg has 54 samples.
 2/1/2016 6:28:11 PM -- Creating test report ...
 2/1/2016 6:28:11 PM -- Instance1420.1 has 1.3 for I/O Database Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.1 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.1 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.2 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.2 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.2 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.3 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.3 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.3 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.4 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.4 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:28:11 PM -- Instance1420.4 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:28:11 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 2/1/2016 6:28:11 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 2/1/2016 6:28:11 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_SoftRecovery\Performance_2016_2_1_18_14_27.xml has 53 samples queried.
 2/1/2016 6:28:11 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_SoftRecovery\Performance_2016_2_1_18_14_27.html was saved.
 2/1/2016 6:28:12 PM -- Performance logging started (interval: 2000 ms).
 2/1/2016 6:28:12 PM -- Recovering databases ...
 2/1/2016 6:29:17 PM -- Performance logging has ended.
 2/1/2016 6:29:17 PM -- Instance1420.1 (63.9956402), Instance1420.2 (65.0282183), Instance1420.3 (64.5070689) and Instance1420.4 (64.766539)
 2/1/2016 6:29:17 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX10_SoftRecovery\SoftRecovery_2016_2_1_18_28_11.blg has 32 samples.
 2/1/2016 6:29:17 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0010

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:47 AM

Test End Time 1/22/2016 7:33:06 AM

Collection Start Time 1/21/2016 7:33:18 AM

Collection End Time 1/22/2016 7:32:58 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_24.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6154.672

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368719867904

Final Database Size (bytes) 5488869900288

Database Files (Count) 4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance1804.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1804.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1804.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1804.4 Log path: L:\

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1 804.1	1.267	4.197	1027.974	510.758	32833.738	34153.661	0.000	0.431	0.000	227.087	0.000	7777.566
Instance1 804.2	0.897	1.625	1026.734	511.975	32837.729	34153.252	0.000	0.431	0.000	227.970	0.000	7766.741
Instance1 804.3	0.875	1.344	1026.652	512.003	32837.138	34151.492	0.000	0.431	0.000	227.945	0.000	7763.195
Instance1 804.4	0.895	1.311	1026.717	511.859	32836.769	34148.937	0.000	0.431	0.000	228.035	0.000	7763.303

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1804.1	8.583	261838.274
Instance1804.2	9.060	261851.177

Instance1804.3 9.096 261845.443

Instance1804.4 9.085 261829.176

Log Replication I/O Performance

MSExchange Database ==> Instances I/O Log Reads/sec I/O Log Reads Average Bytes

Instance1804.1 5.141 232561.549

Instance1804.2 5.138 232561.720

Instance1804.3 5.135 232561.294

Instance1804.4 5.137 232561.730

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1804.1 1.267 4.197 1036.557 510.758 34729.861 34153.661 1.000 0.431 5.141 227.087 232561.549 7777.566

Instance1804.2 0.897 1.625 1035.794 511.975 34840.797 34153.252 1.000 0.431 5.138 227.970 232561.720 7766.741

Instance1 0.875 1.344 1035. 512.0 34848. 34151. 1.00 0.43 5.135 227.9 232561 7763.
804.3 749 03 368 492 1 1 45 .294 195

Instance1 0.895 1.311 1035. 511.8 34845. 34148. 1.00 0.43 5.137 228.0 232561 7763.
804.4 802 59 234 937 2 1 35 .730 303

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.574	4.107	14.071
Available MBytes	38672.687	38545.000	38700.000
Free System Page Table Entries	16500188.502	16499808.000	16500336.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62189217.057	60989440.000	63078400.000
Pool Paged Bytes	151671000.403	151302144.000	156553216.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:47 AM -- Preparing for testing ...
 1/21/2016 7:29:52 AM -- Attaching databases ...
 1/21/2016 7:29:52 AM -- Preparations for testing are complete.
 1/21/2016 7:29:52 AM -- Starting transaction dispatch ..
 1/21/2016 7:29:52 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
 1/21/2016 7:29:52 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
 1/21/2016 7:29:56 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
 1/21/2016 7:29:56 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
 1/21/2016 7:29:56 AM -- Attaining prerequisites:
 1/21/2016 7:30:24 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1052045000.0 (lower bound: 966367600.0, upper bound: none)
 1/21/2016 7:30:25 AM -- Performance logging started (interval: 5000 ms).
 1/21/2016 7:30:25 AM -- Automatic tuning is starting ...

1/21/2016 7:30:56 AM -- Instance1804.1 has 0.03 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.2 has 0.01 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.3 has 0.01 for read latency slope.
1/21/2016 7:30:56 AM -- Instance1804.4 has 0.01 for read latency slope.
1/21/2016 7:33:02 AM -- 1892 batch transactions/sec and 8 sessions have 6531 IOPS.
1/21/2016 7:33:02 AM -- 8 sessions have actual 6531 IOPS (target IOPS: 5000)
1/21/2016 7:33:02 AM -- Instance1804.1 has 1.3 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:02 AM -- Instance1804.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:02 AM -- Performance logging has ended.
1/21/2016 7:33:02 AM -- Automatic tuning succeeded.
1/21/2016 7:33:03 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:03 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:03 AM -- Attaining prerequisites:
1/21/2016 7:33:03 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1058136000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:04 AM -- Performance logging has ended.
1/22/2016 7:33:04 AM -- JetInterop batch transaction stats: 2131231, 2131230, 2131230 and 2131230.
1/22/2016 7:33:04 AM -- Dispatching transactions ends.
1/22/2016 7:33:04 AM -- Shutting down databases ...
1/22/2016 7:33:06 AM -- Instance1804.1 (complete), Instance1804.2 (complete), Instance1804.3 (complete)
and Instance1804.4 (complete)
1/22/2016 7:33:06 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.blg has
5754 samples.
1/22/2016 7:33:06 AM -- Creating test report ...
1/22/2016 7:33:27 AM -- Instance1804.1 has 1.3 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:27 AM -- Instance1804.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:27 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:27 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:27 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_2.xml has
5753 samples queried.

Appendix F – WIN-ME-0013

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0013

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:12:47 PM

Test End Time 1/31/2016 8:16:07 PM

Collection Start Time 1/31/2016 6:16:19 PM

Collection End Time 1/31/2016 8:15:57 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_Performance\Tuning_2016_1_31_18_13_26.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_Performance\Performance_2016_1_31_18_16_4.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5993.922

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5502157455360

Final Database Size (bytes) 5512131510272

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance2084.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2084.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2084.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2084.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2084.1	1.108	2.449	1004.009	497.257	32820.405	34021.401	0.000	0.370	0.000	222.638	0.000	7682.383
Instance2084.2	0.915	1.174	1001.417	496.207	32821.906	34024.437	0.000	0.370	0.000	222.519	0.000	7676.012
Instance2084.3	0.896	1.015	1001.028	496.744	32820.286	34025.925	0.000	0.370	0.000	222.563	0.000	7689.754

Instance2084.4	0.899	1.015	1000.899	496.362	32821.742	34011.736	0.000	0.370	0.000	222.748	0.000	7676.996
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2084.1	8.866	261878.146
Instance2084.2	9.111	261862.421
Instance2084.3	9.134	261869.841
Instance2084.4	9.134	261772.031

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance2084.1	4.935	232560.348
Instance2084.2	4.918	232561.821
Instance2084.3	4.936	232558.938
Instance2084.4	4.929	232562.190

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance2 084.1 1.108 2.449 1012.875 497.257 34825.461 34021.401 0.839 0.370 4.935 222.638 232560.348 7682.383

Instance2 084.2 0.915 1.174 1010.528 496.207 34886.951 34024.437 0.838 0.370 4.918 222.519 232561.821 7676.012

Instance2 084.3 0.896 1.015 1010.161 496.744 34891.281 34025.925 0.842 0.370 4.936 222.563 232558.938 7689.754

Instance2 084.4 0.899 1.015 1010.033 496.362 34892.291 34011.736 0.842 0.370 4.929 222.748 232562.190 7676.996

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.530	5.957	10.484
Available MBytes	38699.113	38676.000	38719.000
Free System Page Table Entries	16500346.115	16500073.000	16500505.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	44385461.712	44347392.000	44507136.000

Pool Paged Bytes

110639638.447 110612480.000 110686208.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:12:47 PM -- Preparing for testing ...

1/31/2016 6:12:54 PM -- Attaching databases ...

1/31/2016 6:12:54 PM -- Preparations for testing are complete.

1/31/2016 6:12:54 PM -- Starting transaction dispatch ..

1/31/2016 6:12:54 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:12:54 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:12:58 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:12:58 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:12:58 PM -- Attaining prerequisites:

1/31/2016 6:13:26 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1005896000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:13:26 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:13:26 PM -- Automatic tuning is starting ...

1/31/2016 6:13:58 PM -- Instance2084.1 has 0.01 for read latency slope.

1/31/2016 6:13:58 PM -- Instance2084.2 has 0.00 for read latency slope.

1/31/2016 6:13:58 PM -- Instance2084.3 has 0.01 for read latency slope.

1/31/2016 6:13:58 PM -- Instance2084.4 has 0.01 for read latency slope.

1/31/2016 6:16:03 PM -- 1442 batch transactions/sec and 8 sessions have 5719 IOPS.

1/31/2016 6:16:03 PM -- 8 sessions have actual 5719 IOPS (target IOPS: 5000)

1/31/2016 6:16:03 PM -- Instance2084.1 has 1.2 for I/O Database Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.2 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.3 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.4 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:16:03 PM -- Instance2084.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:16:04 PM -- Performance logging has ended.

1/31/2016 6:16:04 PM -- Automatic tuning succeeded.

1/31/2016 6:16:04 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:16:04 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:16:04 PM -- Attaining prerequisites:

1/31/2016 6:16:04 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1056784000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:16:05 PM -- Performance logging has ended.

1/31/2016 8:16:05 PM -- JetInterop batch transaction stats: 175147, 175147, 175147 and 175147.

1/31/2016 8:16:05 PM -- Dispatching transactions ends.

1/31/2016 8:16:05 PM -- Shutting down databases ...

1/31/2016 8:16:07 PM -- Instance2084.1 (complete), Instance2084.2 (complete), Instance2084.3 (complete) and Instance2084.4 (complete)

1/31/2016 8:16:07 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_Performance\Performance_2016_1_31_18_16_4.blg has 479 samples.

1/31/2016 8:16:07 PM -- Creating test report ...

1/31/2016 8:16:08 PM -- Instance2084.1 has 1.1 for I/O Database Reads Average Latency.

1/31/2016 8:16:08 PM -- Instance2084.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.2 has 0.9 for I/O Database Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.3 has 0.9 for I/O Database Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.4 has 0.9 for I/O Database Reads Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:16:08 PM -- Instance2084.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:16:08 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:16:08 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:16:08 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_Performance\Performance_2016_1_31_18_16_4.xml has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance2900.1	1307890.59	04:36:27	78.85
Instance2900.2	1307914.59	04:36:50	78.74
Instance2900.3	1307898.59	04:36:50	78.74
Instance2900.4	1307890.59	04:34:10	79.50
Avg			78.96
Sum			315.83

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance2900.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2900.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2900.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2900.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	cy (msec)				Bytes	(msec)	(msec)				
Instance2 900.1	4.785	0.000	314.77	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			1		.000		0	0			0	0
Instance2 900.2	4.784	0.000	314.21	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			5		.000		0	0			0	0
Instance2 900.3	4.788	0.000	314.17	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			7		.000		0	0			0	0
Instance2 900.4	4.793	0.000	317.99	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			5		.000		0	0			0	0

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.329	2.265	7.368
Available MBytes	39681.076	39603.000	39692.000
Free System Page Table Entries	16500496.787	16500124.000	16500611.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	75740017.418	75730944.000	75956224.000
Pool Paged Bytes	177067717.208	176447488.000	181944320.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:47:52 PM -- Preparing for testing ...
 1/25/2016 3:47:56 PM -- Attaching databases ...
 1/25/2016 3:47:56 PM -- Preparations for testing are complete.
 1/25/2016 3:48:01 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:48:01 PM -- Backing up databases ...
 1/25/2016 8:24:52 PM -- Performance logging has ended.
 1/25/2016 8:24:52 PM -- Instance2900.1 (100% processed), Instance2900.2 (100% processed),
 Instance2900.3 (100% processed) and Instance2900.4 (100% processed)
 1/25/2016 8:24:52 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_DatabaseBackup\DatabaseBackup_2016_1_25_15_47_56.blg](#) has 553 samples.
 1/25/2016 8:24:52 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41852754	0	0	0	1307898 MB/16439 sec
F:\Jetstress002001.edb	41853522	0	0	0	1307922 MB/15297 sec
G:\Jetstress003001.edb	41853010	0	0	0	1307906 MB/16594 sec
H:\Jetstress004001.edb	41852754	0	0	0	1307898 MB/16534 sec
(Sum)	167412040	0	0	0	5231626 MB/16593 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.056	0.000	1272.400	0.000	65536.000
F:	0.050	0.000	1368.345	0.000	65536.000
G:	0.054	0.000	1253.122	0.000	65536.000
H:	0.051	0.000	1262.378	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.726	4.183	10.073
Available MBytes	39717.045	39565.000	39743.000
Free System Page Table Entries	16500171.569	16499666.000	16500336.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62992614.029	62906368.000	63647744.000
Pool Paged Bytes	155179764.870	154361856.000	160944128.000

Test Log 1/21/2016 7:29:53 AM -- Preparing for testing ...

1/21/2016 7:29:58 AM -- Attaching databases ...

1/21/2016 7:29:58 AM -- Preparations for testing are complete.

1/21/2016 7:29:58 AM -- Starting transaction dispatch ..

1/21/2016 7:29:58 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:58 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:30:02 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:30:02 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:30:02 AM -- Attaining prerequisites:

1/21/2016 7:30:31 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 982339600.0

(lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:32 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:32 AM -- Automatic tuning is starting ...
1/21/2016 7:31:03 AM -- Instance736.1 has 0.02 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.2 has 0.01 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.3 has 0.01 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.4 has 0.03 for read latency slope.
1/21/2016 7:33:09 AM -- 1824 batch transactions/sec and 8 sessions have 6334 IOPS.
1/21/2016 7:33:09 AM -- 8 sessions have actual 6334 IOPS (target IOPS: 5000)
1/21/2016 7:33:09 AM -- Instance736.1 has 1.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Performance logging has ended.
1/21/2016 7:33:09 AM -- Automatic tuning succeeded.
1/21/2016 7:33:10 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:10 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:10 AM -- Attaining prerequisites:
1/21/2016 7:33:10 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1057485000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:11 AM -- Performance logging has ended.
1/22/2016 7:33:11 AM -- JetInterop batch transaction stats: 2078344, 2078344, 2078344 and 2078343.
1/22/2016 7:33:11 AM -- Dispatching transactions ends.
1/22/2016 7:33:11 AM -- Shutting down databases ...
1/22/2016 7:33:13 AM -- Instance736.1 (complete), Instance736.2 (complete), Instance736.3 (complete) and
Instance736.4 (complete)
1/22/2016 7:33:13 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.blg has
5754 samples.
1/22/2016 7:33:13 AM -- Creating test report ...
1/22/2016 7:33:34 AM -- Instance736.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:34 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:34 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.xml has
5753 samples queried.
1/22/2016 7:33:34 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.html
was saved.
1/22/2016 7:33:35 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:35 AM -- Verifying database checksums ...
1/22/2016 12:10:08 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100%
processed)
1/22/2016 12:10:09 PM -- Performance logging has ended.

1/22/2016 12:10:09 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_34.blg](#) has 552 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance2900.1	505	68.5846042
Instance2900.2	503	69.3445296
Instance2900.3	501	69.8568488
Instance2900.4	507	69.8568488
Avg	504	69.411
Sum	2016	277.6428314

Database Configuration

Instance2900.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2900.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2900.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2900.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2900.1	1.478	0.936	4092.274	29.413	37861.615	32768.000	2.031	0.000	36.766	0.000	209715.200	0.000
Instance2900.2	1.510	0.928	4018.757	29.112	37851.799	32768.000	2.044	0.000	36.390	0.000	209703.975	0.000
Instance2900.3	1.513	0.942	3991.006	28.782	37668.430	32768.000	2.106	0.000	36.014	0.000	209742.769	0.000
Instance2900.4	1.497	0.950	4012.532	29.293	37759.687	32768.000	2.059	0.000	36.616	0.000	209711.319	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2900.1	9.008	261673.646
Instance2900.2	8.993	262088.835
Instance2900.3	9.023	261673.646

Instance2900.4

9.023

261673.646

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2900.1	1.478	0.936	4101.282	29.413	38353.209	32768.000	2.031	0.000	36.766	0.000	209715.200	0.000
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Instance2900.2	1.510	0.928	4027.751	29.112	38352.484	32768.000	2.044	0.000	36.390	0.000	209703.975	0.000
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Instance2900.3	1.513	0.942	4000.030	28.782	38173.747	32768.000	2.106	0.000	36.014	0.000	209742.769	0.000
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Instance2900.4	1.497	0.950	4021.555	29.293	38262.094	32768.000	2.059	0.000	36.616	0.000	209711.319	0.000
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Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	21.777	15.569	30.753
Available MBytes	38529.206	38479.000	39345.000

Free System Page Table Entries 16499820.912 16499738.000 16499894.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 78266970.353 78258176.000 78286848.000

Pool Paged Bytes 179100491.294 179081216.000 179134464.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:11:09 PM -- Preparing for testing ...
2/1/2016 6:11:13 PM -- Attaching databases ...
2/1/2016 6:11:13 PM -- Preparations for testing are complete.
2/1/2016 6:11:13 PM -- Starting transaction dispatch ..
2/1/2016 6:11:13 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:13 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:17 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:17 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:17 PM -- Attaining prerequisites:
2/1/2016 6:11:44 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1002877000.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:44 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:44 PM -- Automatic tuning is starting ...
2/1/2016 6:12:16 PM -- Instance2900.1 has 0.01 for read latency slope.
2/1/2016 6:12:16 PM -- Instance2900.2 has 0.02 for read latency slope.
2/1/2016 6:12:16 PM -- Instance2900.3 has 0.01 for read latency slope.
2/1/2016 6:12:16 PM -- Instance2900.4 has 0.01 for read latency slope.
2/1/2016 6:14:21 PM -- 1332 batch transactions/sec and 8 sessions have 5070 IOPS.
2/1/2016 6:14:21 PM -- 8 sessions have actual 5070 IOPS (target IOPS: 5000)
2/1/2016 6:14:21 PM -- Instance2900.1 has 1.5 for I/O Database Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.3 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:21 PM -- Instance2900.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:21 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:53 PM -- Instance2900.1 has 0.06 for read latency slope.
2/1/2016 6:14:53 PM -- Instance2900.2 has 0.01 for read latency slope.
2/1/2016 6:14:53 PM -- Instance2900.3 has 0.02 for read latency slope.
2/1/2016 6:14:53 PM -- Instance2900.4 has 0.00 for read latency slope.
2/1/2016 6:16:58 PM -- 1506 batch transactions/sec and 10 sessions have 5973 IOPS.

2/1/2016 6:16:58 PM -- 10 sessions have actual 5973 IOPS (target IOPS: 5000)
2/1/2016 6:16:58 PM -- Instance2900.1 has 1.9 for I/O Database Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.2 has 1.2 for I/O Database Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:16:58 PM -- Instance2900.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:16:59 PM -- Performance logging has ended.
2/1/2016 6:16:59 PM -- Automatic tuning succeeded.
2/1/2016 6:16:59 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:16:59 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:16:59 PM -- Generating log files ...
2/1/2016 6:27:07 PM -- I:\ (101.0% generated), J:\ (100.6% generated), K:\ (100.2% generated) and L:\
(101.4% generated)
2/1/2016 6:27:07 PM -- Performance logging has ended.
2/1/2016 6:27:07 PM -- JetInterop batch transaction stats: 21751, 21751, 21751 and 21750.
2/1/2016 6:27:07 PM -- Dispatching transactions ends.
2/1/2016 6:27:07 PM -- Shutting down databases ...
2/1/2016 6:27:09 PM -- Instance2900.1 (complete), Instance2900.2 (complete), Instance2900.3 (complete)
and Instance2900.4 (complete)
2/1/2016 6:27:09 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_SoftRecovery\Performance_2016_2_1_18_16_59.blg has 40 samples.
2/1/2016 6:27:09 PM -- Creating test report ...
2/1/2016 6:27:09 PM -- Instance2900.1 has 1.8 for I/O Database Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.1 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.2 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.3 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:27:09 PM -- Instance2900.4 has 0.4 for I/O Log Reads Average Latency.
2/1/2016 6:27:09 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/1/2016 6:27:09 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/1/2016 6:27:09 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_SoftRecovery\Performance_2016_2_1_18_16_59.xml has 39 samples queried.
2/1/2016 6:27:09 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_SoftRecovery\Performance_2016_2_1_18_16_59.html was saved.
2/1/2016 6:27:10 PM -- Performance logging started (interval: 2000 ms).
2/1/2016 6:27:10 PM -- Recovering databases ...
2/1/2016 6:28:20 PM -- Performance logging has ended.
2/1/2016 6:28:20 PM -- Instance2900.1 (68.5846042), Instance2900.2 (69.3445296), Instance2900.3
(69.8568488) and Instance2900.4 (69.8568488)
2/1/2016 6:28:20 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX13_SoftRecovery\SoftRecovery_2016_2_1_18_27_9.blg has 34 samples.
2/1/2016 6:28:20 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0013

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:53 AM

Test End Time 1/22/2016 7:33:13 AM

Collection Start Time 1/21/2016 7:33:25 AM

Collection End Time 1/22/2016 7:33:05 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_31.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5997.374

Target Transactional I/O per Second	5000
Initial Database Size (bytes)	5368753422336
Final Database Size (bytes)	5485757726720
Database Files (Count)	4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance736.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance736.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance736.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance736.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 736.1	1.392	5.014	1003.742	498.741	32836.411	34160.704	0.000	0.434	0.000	221.263	0.000	7775.419
Instance 736.2	0.915	1.745	999.480	497.989	32837.441	34160.514	0.000	0.434	0.000	222.354	0.000	7762.234
Instance 736.3	0.879	1.367	999.547	498.443	32838.609	34158.373	0.000	0.434	0.000	222.339	0.000	7762.772
Instance 736.4	0.910	1.354	1000.347	499.084	32837.733	34159.393	0.000	0.434	0.000	222.305	0.000	7767.618

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance736.1	8.448	261834.461
Instance736.2	9.036	261850.836
Instance736.3	9.090	261841.630
Instance736.4	9.073	261831.173

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance736.1	5.005	232561.372
Instance736.2	5.006	232561.480
Instance736.3	5.005	232561.050
Instance736.4	5.010	232561.800

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance736.1												
Instance736.2												
Instance736.3												
Instance736.4												

))					c)	c)				
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Instance 736.1 1.392 5.014 1012.190 498.741 34747.650 34160.704 1.000 0.434 5.0053 221.263 232561.372 7775.419

Instance 736.2 0.915 1.745 1008.516 497.989 34889.243 34160.514 0.999 0.434 5.0064 222.354 232561.480 7762.234

Instance 736.3 0.879 1.367 1008.638 498.443 34902.530 34158.373 0.997 0.434 5.0059 222.339 232561.050 7762.772

Instance 736.4 0.910 1.354 1009.421 499.084 34896.080 34159.393 0.997 0.434 5.0105 222.305 232561.800 7767.618

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.505	3.613	15.840
Available MBytes	38677.565	38569.000	38706.000
Free System Page Table Entries	16500265.989	16499895.000	16500390.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62458435.448	61149184.000	63168512.000
Pool Paged Bytes	151662279.497	151298048.000	156454912.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:53 AM -- Preparing for testing ...

1/21/2016 7:29:58 AM -- Attaching databases ...
1/21/2016 7:29:58 AM -- Preparations for testing are complete.
1/21/2016 7:29:58 AM -- Starting transaction dispatch ..
1/21/2016 7:29:58 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
1/21/2016 7:29:58 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
1/21/2016 7:30:02 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
1/21/2016 7:30:02 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
1/21/2016 7:30:02 AM -- Attaining prerequisites:
1/21/2016 7:30:31 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 982339600.0 (lower bound: 966367600.0, upper bound: none)
1/21/2016 7:30:32 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:32 AM -- Automatic tuning is starting ...
1/21/2016 7:31:03 AM -- Instance736.1 has 0.02 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.2 has 0.01 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.3 has 0.01 for read latency slope.
1/21/2016 7:31:03 AM -- Instance736.4 has 0.03 for read latency slope.
1/21/2016 7:33:09 AM -- 1824 batch transactions/sec and 8 sessions have 6334 IOPS.
1/21/2016 7:33:09 AM -- 8 sessions have actual 6334 IOPS (target IOPS: 5000)
1/21/2016 7:33:09 AM -- Instance736.1 has 1.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:09 AM -- Instance736.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:09 AM -- Performance logging has ended.
1/21/2016 7:33:09 AM -- Automatic tuning succeeded.
1/21/2016 7:33:10 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:33:10 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:10 AM -- Attaining prerequisites:
1/21/2016 7:33:10 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1057485000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:11 AM -- Performance logging has ended.
1/22/2016 7:33:11 AM -- JetInterop batch transaction stats: 2078344, 2078344, 2078344 and 2078343.
1/22/2016 7:33:11 AM -- Dispatching transactions ends.
1/22/2016 7:33:11 AM -- Shutting down databases ...
1/22/2016 7:33:13 AM -- Instance736.1 (complete), Instance736.2 (complete), Instance736.3 (complete) and Instance736.4 (complete)
1/22/2016 7:33:13 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.blg has 5754 samples.
1/22/2016 7:33:13 AM -- Creating test report ...
1/22/2016 7:33:34 AM -- Instance736.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:34 AM -- Instance736.4 has 0.4 for I/O Log Reads Average Latency.

1/22/2016 7:33:34 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:34 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:34 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_9.xml has
5753 samples queried.

Appendix G – WIN-ME-0016

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0016

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:12:03 PM

Test End Time 1/31/2016 8:15:16 PM

Collection Start Time 1/31/2016 6:15:28 PM

Collection End Time 1/31/2016 8:15:05 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_Performance\Tuning_2016_1_31_18_12_34.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_Performance\Performance_2016_1_31_18_15_12.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5373.34

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5503508021248

Final Database Size (bytes) 5512584495104

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance1232.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1232.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1232.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1232.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1 232.1	1.283	3.187	896.960	444.415	32834.844	34065.906	0.000	0.416	0.000	200.056	0.000	7725.513
Instance1 232.2	1.022	1.378	896.730	446.314	32835.066	34049.822	0.000	0.415	0.000	201.019	0.000	7710.770
Instance1 232.3	1.001	1.194	896.236	445.142	32835.612	34052.527	0.000	0.416	0.000	200.392	0.000	7730.416

Instance1	1.015	1.160	899.7	447.81	32832.	34058.	0.00	0.41	0.000	201.57	0.00	7691.
232.4			25	9	595	173	0	5		1	0	829

Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1232.1	8.771	261859.099
Instance1232.2	9.100	261862.404
Instance1232.3	9.117	261924.079
Instance1232.4	9.113	261810.972

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance1232.1	4.475	232561.778
Instance1232.2	4.478	232561.830
Instance1232.3	4.482	232561.422
Instance1232.4	4.475	232562.759

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance1 232.1	1.283	3.187	905.731	444.415	35052.665	34065.906	0.954	0.416	4.475	200.056	232561.778	7725.513
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Instance1 232.2	1.022	1.378	905.829	446.314	35135.846	34049.822	0.959	0.415	4.478	201.019	232561.830	7710.770
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Instance1 232.3	1.001	1.194	905.353	445.142	35142.624	34052.527	0.947	0.416	4.482	200.392	232561.422	7730.416
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Instance1 232.4	1.015	1.160	908.837	447.819	35128.464	34058.173	0.951	0.415	4.475	201.571	232562.759	7691.829
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Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	7.950	3.382	11.265
Available MBytes	38543.267	38507.000	38575.000
Free System Page Table Entries	16500171.273	16499660.000	16500346.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	46828806.948	46612480.000	47194112.000

Pool Paged Bytes

113057646.630 112852992.000 113328128.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:12:03 PM -- Preparing for testing ...

1/31/2016 6:12:07 PM -- Attaching databases ...

1/31/2016 6:12:07 PM -- Preparations for testing are complete.

1/31/2016 6:12:07 PM -- Starting transaction dispatch ..

1/31/2016 6:12:07 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:12:07 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:12:12 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:12:12 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:12:12 PM -- Attaining prerequisites:

1/31/2016 6:12:34 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1040892000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:12:35 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:12:35 PM -- Automatic tuning is starting ...

1/31/2016 6:13:06 PM -- Instance1232.1 has 0.05 for read latency slope.

1/31/2016 6:13:06 PM -- Instance1232.2 has 0.00 for read latency slope.

1/31/2016 6:13:06 PM -- Instance1232.3 has 0.00 for read latency slope.

1/31/2016 6:13:06 PM -- Instance1232.4 has 0.00 for read latency slope.

1/31/2016 6:15:12 PM -- 1403 batch transactions/sec and 8 sessions have 5434 IOPS.

1/31/2016 6:15:12 PM -- 8 sessions have actual 5434 IOPS (target IOPS: 5000)

1/31/2016 6:15:12 PM -- Instance1232.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.2 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.3 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.4 has 1.1 for I/O Database Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:12 PM -- Instance1232.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:12 PM -- Performance logging has ended.

1/31/2016 6:15:12 PM -- Automatic tuning succeeded.

1/31/2016 6:15:13 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:15:13 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:15:13 PM -- Attaining prerequisites:

1/31/2016 6:15:13 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1058546000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:15:14 PM -- Performance logging has ended.

1/31/2016 8:15:14 PM -- JetInterop batch transaction stats: 158644, 158644, 158644 and 158643.

1/31/2016 8:15:14 PM -- Dispatching transactions ends.

1/31/2016 8:15:14 PM -- Shutting down databases ...

1/31/2016 8:15:16 PM -- Instance1232.1 (complete), Instance1232.2 (complete), Instance1232.3 (complete) and Instance1232.4 (complete)

1/31/2016 8:15:16 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_Performance\Performance_2016_1_31_18_15_12.blg](#) has 479 samples.

1/31/2016 8:15:16 PM -- Creating test report ...

1/31/2016 8:15:18 PM -- Instance1232.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 8:15:18 PM -- Instance1232.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:18 PM -- Instance1232.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:18 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:15:18 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:15:18 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_Performance\Performance_2016_1_31_18_15_12.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance532.1	1309258.59	04:29:02	81.11
Instance532.2	1309202.59	04:30:38	80.62
Instance532.3	1309178.59	04:29:48	80.87
Instance532.4	1309250.59	04:29:47	80.88
Avg			80.87
Sum			323.48

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance532.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance532.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance532.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance532.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	(msec)					(msec)	(msec)				
Instance 532.1	4.727	0.000	324.306	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 532.2	4.726	0.000	322.376	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 532.3	4.716	0.000	323.479	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 532.4	4.717	0.000	323.432	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	3.434	1.295	4.278
Available MBytes	39717.298	39715.000	39727.000
Free System Page Table Entries	16500591.894	16500339.000	16500706.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	67205848.178	67198976.000	67301376.000
Pool Paged Bytes	155237262.222	154628096.000	155389952.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:48:11 PM -- Preparing for testing ...
 1/25/2016 3:48:15 PM -- Attaching databases ...
 1/25/2016 3:48:15 PM -- Preparations for testing are complete.
 1/25/2016 3:48:20 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:48:20 PM -- Backing up databases ...
 1/25/2016 8:18:59 PM -- Performance logging has ended.
 1/25/2016 8:18:59 PM -- Instance532.1 (100% processed), Instance532.2 (100% processed), Instance532.3 (100% processed) and Instance532.4 (100% processed)
 1/25/2016 8:18:59 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_DatabaseBackup\DatabaseBackup_2016_1_25_15_48_15.blg](#) has 540 samples.
 1/25/2016 8:18:59 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41896530	0	0	0	1309266 MB/16538 sec
F:\Jetstress002001.edb	41894738	0	0	0	1309210 MB/15128 sec
G:\Jetstress003001.edb	41893970	0	0	0	1309186 MB/16298 sec
H:\Jetstress004001.edb	41896274	0	0	0	1309258 MB/16536 sec
(Sum)	167581512	0	0	0	5236922 MB/16538 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.056	0.000	1266.029	0.000	65536.000
F:	0.049	0.000	1383.315	0.000	65536.000
G:	0.052	0.000	1284.518	0.000	65536.000
H:	0.052	0.000	1262.248	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	5.114	3.605	6.980
Available MBytes	39744.223	39684.000	39784.000
Free System Page Table Entries	16500178.428	16499444.000	16500413.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	54160003.020	53927936.000	54542336.000
Pool Paged Bytes	127889749.953	126676992.000	129458176.000

Test Log 1/21/2016 7:29:55 AM -- Preparing for testing ...

1/21/2016 7:29:59 AM -- Attaching databases ...

1/21/2016 7:29:59 AM -- Preparations for testing are complete.

1/21/2016 7:29:59 AM -- Starting transaction dispatch ..

1/21/2016 7:29:59 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:59 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:30:04 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:30:04 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:30:04 AM -- Attaining prerequisites:

1/21/2016 7:30:20 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1038954000.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:21 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:21 AM -- Automatic tuning is starting ...
1/21/2016 7:30:52 AM -- Instance2488.1 has 0.00 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.2 has 0.01 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.3 has 0.01 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.4 has 0.01 for read latency slope.
1/21/2016 7:32:58 AM -- 2035 batch transactions/sec and 8 sessions have 7156 IOPS.
1/21/2016 7:32:58 AM -- 8 sessions have actual 7156 IOPS (target IOPS: 5000)
1/21/2016 7:32:58 AM -- Instance2488.1 has 1.1 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Performance logging has ended.
1/21/2016 7:32:58 AM -- Automatic tuning succeeded.
1/21/2016 7:32:58 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:32:58 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:58 AM -- Attaining prerequisites:
1/21/2016 7:32:58 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1061716000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:59 AM -- Performance logging has ended.
1/22/2016 7:32:59 AM -- JetInterop batch transaction stats: 2175969, 2175969, 2175969 and 2175969.
1/22/2016 7:32:59 AM -- Dispatching transactions ends.
1/22/2016 7:32:59 AM -- Shutting down databases ...
1/22/2016 7:33:01 AM -- Instance2488.1 (complete), Instance2488.2 (complete), Instance2488.3 (complete)
and Instance2488.4 (complete)
1/22/2016 7:33:01 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.blg has
5754 samples.
1/22/2016 7:33:01 AM -- Creating test report ...
1/22/2016 7:33:18 AM -- Instance2488.1 has 1.2 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:18 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:18 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.xml
has 5753 samples queried.
1/22/2016 7:33:19 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.html
was saved.
1/22/2016 7:33:19 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:19 AM -- Verifying database checksums ...
1/22/2016 12:08:57 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100%
processed)
1/22/2016 12:08:57 PM -- Performance logging has ended.

1/22/2016 12:08:57 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_19.blg](#) has 551 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance532.1	502	70.3553232
Instance532.2	501	71.398132
Instance532.3	504	70.3553232
Instance532.4	503	70.6177744
Avg	502	70.682
Sum	2010	282.7265528

Database Configuration

Instance532.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance532.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance532.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance532.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instance	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 532.1	1.488	0.874	3997.204	28.830	37790.862	32768.000	2.089	0.000	36.037	0.000	209717.744	0.000
Instance 532.2	1.522	0.885	3931.595	28.393	37719.947	32768.000	2.042	0.000	35.491	0.000	209713.540	0.000
Instance 532.3	1.501	0.857	3948.935	28.743	37763.861	32768.000	2.063	0.015	36.062	0.029	209784.590	120.471
Instance 532.4	1.505	0.881	3980.095	28.744	37678.303	32768.000	2.066	0.015	36.062	0.029	209783.151	120.471

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance532.1	8.968	262144.000
Instance532.2	8.983	261687.480
Instance532.3	8.939	262144.000

Instance532.4

8.968

261687.480

Total I/O Performance

MSExchange Database ==> Instance	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 532.1	1.488	0.874	4006.172	28.830	38293.083	32768.000	2.089	0.000	36.037	0.000	209717.744	0.000
Instance 532.2	1.522	0.885	3940.578	28.393	38230.483	32768.000	2.042	0.000	35.491	0.000	209713.540	0.000
Instance 532.3	1.501	0.857	3957.874	28.743	38270.612	32768.000	2.063	0.015	36.062	0.029	209784.590	120.471
Instance 532.4	1.505	0.881	3989.063	28.744	38181.903	32768.000	2.066	0.015	36.062	0.029	209783.151	120.471

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	20.935	15.372	26.059
Available MBytes	38565.714	38508.000	39407.000

Free System Page Table Entries 16499918.029 16499795.000 16500062.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 69631180.800 69623808.000 69656576.000

Pool Paged Bytes 157621335.771 157597696.000 157655040.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:11:03 PM -- Preparing for testing ...
2/1/2016 6:11:07 PM -- Attaching databases ...
2/1/2016 6:11:07 PM -- Preparations for testing are complete.
2/1/2016 6:11:07 PM -- Starting transaction dispatch ..
2/1/2016 6:11:07 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:07 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:12 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:12 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:12 PM -- Attaining prerequisites:
2/1/2016 6:11:39 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 971239400.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:39 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:39 PM -- Automatic tuning is starting ...
2/1/2016 6:12:11 PM -- Instance532.1 has 0.00 for read latency slope.
2/1/2016 6:12:11 PM -- Instance532.2 has 0.00 for read latency slope.
2/1/2016 6:12:11 PM -- Instance532.3 has 0.01 for read latency slope.
2/1/2016 6:12:11 PM -- Instance532.4 has 0.00 for read latency slope.
2/1/2016 6:14:16 PM -- 1378 batch transactions/sec and 8 sessions have 5312 IOPS.
2/1/2016 6:14:16 PM -- 8 sessions have actual 5312 IOPS (target IOPS: 5000)
2/1/2016 6:14:17 PM -- Instance532.1 has 1.4 for I/O Database Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.3 has 0.9 for I/O Database Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:17 PM -- Instance532.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:17 PM -- Instance532.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:17 PM -- Instance532.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:17 PM -- Instance532.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:17 PM -- Instance532.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:17 PM -- Performance logging has ended.
2/1/2016 6:14:17 PM -- Automatic tuning succeeded.
2/1/2016 6:14:17 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:17 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:14:17 PM -- Generating log files ...
2/1/2016 6:27:37 PM -- I:\ (100.2% generated), J:\ (100.2% generated), K:\ (100.8% generated) and L:\

(100.4% generated)
 2/1/2016 6:27:37 PM -- Performance logging has ended.
 2/1/2016 6:27:37 PM -- JetInterop batch transaction stats: 21561, 21561, 21560 and 21560.
 2/1/2016 6:27:37 PM -- Dispatching transactions ends.
 2/1/2016 6:27:37 PM -- Shutting down databases ...
 2/1/2016 6:27:38 PM -- Instance532.1 (complete), Instance532.2 (complete), Instance532.3 (complete) and Instance532.4 (complete)
 2/1/2016 6:27:38 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_SoftRecovery\Performance_2016_2_1_18_14_17.blg has 53 samples.
 2/1/2016 6:27:38 PM -- Creating test report ...
 2/1/2016 6:27:39 PM -- Instance532.1 has 1.3 for I/O Database Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.1 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.1 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.2 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.2 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.2 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.3 has 0.9 for I/O Database Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.3 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.3 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.4 has 1.0 for I/O Database Reads Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.4 has 0.4 for I/O Log Writes Average Latency.
 2/1/2016 6:27:39 PM -- Instance532.4 has 0.4 for I/O Log Reads Average Latency.
 2/1/2016 6:27:39 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 2/1/2016 6:27:39 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 2/1/2016 6:27:39 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_SoftRecovery\Performance_2016_2_1_18_14_17.xml has 52 samples queried.
 2/1/2016 6:27:39 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_SoftRecovery\Performance_2016_2_1_18_14_17.html was saved.
 2/1/2016 6:27:39 PM -- Performance logging started (interval: 2000 ms).
 2/1/2016 6:27:39 PM -- Recovering databases ...
 2/1/2016 6:28:51 PM -- Performance logging has ended.
 2/1/2016 6:28:51 PM -- Instance532.1 (70.3553232), Instance532.2 (71.398132), Instance532.3 (70.3553232) and Instance532.4 (70.6177744)
 2/1/2016 6:28:51 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX16_SoftRecovery\SoftRecovery_2016_2_1_18_27_39.blg has 35 samples.
 2/1/2016 6:28:51 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0016

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:55 AM

Test End Time 1/22/2016 7:33:01 AM

Collection Start Time 1/21/2016 7:33:14 AM

Collection End Time 1/22/2016 7:32:55 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_20.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6297.406

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368786976768

Final Database Size (bytes) 5491310985216

Database Files (Count) 4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance2488.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2488.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2488.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2488.4 Log path: L:\

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2 488.1	1.223	3.942	1052.701	522.755	32835.151	34144.001	0.000	0.415	0.000	232.180	0.000	7769.254
Instance2 488.2	0.879	1.545	1051.062	523.018	32838.222	34144.124	0.000	0.414	0.000	232.795	0.000	7756.522
Instance2 488.3	0.851	1.268	1051.005	523.226	32838.766	34144.499	0.000	0.415	0.000	232.693	0.000	7762.717
Instance2 488.4	0.873	1.255	1050.462	523.177	32838.865	34142.060	0.000	0.415	0.000	232.892	0.000	7761.730

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2488.1	8.618	261850.994
Instance2488.2	9.064	261850.982

Instance2488.3 9.105 261845.807

Instance2488.4 9.092 261856.777

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
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Instance2488.1 5.244 232561.270

Instance2488.2 5.236 232561.208

Instance2488.3 5.239 232561.363

Instance2488.4 5.244 232561.789

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2488.1 1.223 3.942 1061.318 522.755 34694.724 34144.001 0.967 0.415 5.244 232.180 232561.270 7769.254

Instance2488.2 0.879 1.545 1060.126 523.018 34796.185 34144.124 0.966 0.414 5.236 232.795 232561.208 7756.522

Instance2 0.851 1.268 1060. 523.2 34805. 34144. 0.96 0.41 5.239 232.6 232561 7762.
488.3 110 26 607 499 7 5 93 .363 717

Instance2 0.873 1.255 1059. 523.1 34803. 34142. 0.96 0.41 5.244 232.8 232561 7761.
488.4 553 77 984 060 7 5 92 .789 730

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.713	4.003	17.115
Available MBytes	38716.156	38611.000	38743.000
Free System Page Table Entries	16500334.800	16499860.000	16500455.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	53586527.922	52563968.000	54435840.000
Pool Paged Bytes	123948101.406	123465728.000	128573440.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:55 AM -- Preparing for testing ...
 1/21/2016 7:29:59 AM -- Attaching databases ...
 1/21/2016 7:29:59 AM -- Preparations for testing are complete.
 1/21/2016 7:29:59 AM -- Starting transaction dispatch ..
 1/21/2016 7:29:59 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
 1/21/2016 7:29:59 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
 1/21/2016 7:30:04 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
 1/21/2016 7:30:04 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
 1/21/2016 7:30:04 AM -- Attaining prerequisites:
 1/21/2016 7:30:20 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1038954000.0 (lower bound: 966367600.0, upper bound: none)
 1/21/2016 7:30:21 AM -- Performance logging started (interval: 5000 ms).
 1/21/2016 7:30:21 AM -- Automatic tuning is starting ...

1/21/2016 7:30:52 AM -- Instance2488.1 has 0.00 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.2 has 0.01 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.3 has 0.01 for read latency slope.
1/21/2016 7:30:52 AM -- Instance2488.4 has 0.01 for read latency slope.
1/21/2016 7:32:58 AM -- 2035 batch transactions/sec and 8 sessions have 7156 IOPS.
1/21/2016 7:32:58 AM -- 8 sessions have actual 7156 IOPS (target IOPS: 5000)
1/21/2016 7:32:58 AM -- Instance2488.1 has 1.1 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:32:58 AM -- Instance2488.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:32:58 AM -- Performance logging has ended.
1/21/2016 7:32:58 AM -- Automatic tuning succeeded.
1/21/2016 7:32:58 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:32:58 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:32:58 AM -- Attaining prerequisites:
1/21/2016 7:32:58 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1061716000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:32:59 AM -- Performance logging has ended.
1/22/2016 7:32:59 AM -- JetInterop batch transaction stats: 2175969, 2175969, 2175969 and 2175969.
1/22/2016 7:32:59 AM -- Dispatching transactions ends.
1/22/2016 7:32:59 AM -- Shutting down databases ...
1/22/2016 7:33:01 AM -- Instance2488.1 (complete), Instance2488.2 (complete), Instance2488.3 (complete)
and Instance2488.4 (complete)
1/22/2016 7:33:01 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.blg has
5754 samples.
1/22/2016 7:33:01 AM -- Creating test report ...
1/22/2016 7:33:18 AM -- Instance2488.1 has 1.2 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:18 AM -- Instance2488.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:18 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:18 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:18 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_32_58.xml
has 5753 samples queried.

Appendix H – WIN-ME-0019

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0019

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:12:09 PM

Test End Time 1/31/2016 8:15:22 PM

Collection Start Time 1/31/2016 6:15:34 PM

Collection End Time 1/31/2016 8:15:12 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_Performance\Tuning_2016_1_31_18_12_40.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_Performance\Performance_2016_1_31_18_15_19.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5497.138

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5499766702080

Final Database Size (bytes) 5508960616448

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance1560.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1560.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1560.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1560.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1560.1 1.151 2.425 918.4 456.74 32817. 34041. 0.00 0.42 0.000 204.57 0.00 7689.270

Instance1560.2 1.010 1.289 917.9 456.40 32818. 34041. 0.00 0.42 0.000 204.52 0.00 7689.483

Instance1560.3 1.010 1.175 916.5 455.06 32819. 34041. 0.00 0.42 0.000 204.23 0.00 7697.260

Instance1560.4	1.015	1.119	918.806	457.179	32815.743	34039.365	0.000	0.420	0.000	205.053	0.000	7673.937
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1560.1	8.928	261792.468
Instance1560.2	9.126	261805.581
Instance1560.3	9.133	261818.620
Instance1560.4	9.131	261808.350

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance1560.1	4.542	232562.198
Instance1560.2	4.538	232559.468
Instance1560.3	4.539	232560.800
Instance1560.4	4.535	232561.778

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Average Latency (msec)	Datab ase Writes Average Latency (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Average Bytes	Datab ase Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance1 560.1 1.151 2.425 927.3 456.7 35021.616 34041.544 0.96 0.42 4.542 204.5 232562.198 7689.270

Instance1 560.2 1.010 1.289 927.0 456.4 35072.192 34041.321 0.96 0.42 4.538 204.5 232559.468 7689.483

Instance1 560.3 1.010 1.175 925.6 455.0 35079.102 34041.290 0.96 0.42 4.539 204.2 232560.800 7697.260

Instance1 560.4 1.015 1.119 927.9 457.1 35069.136 34039.365 0.96 0.42 4.535 205.0 232561.778 7673.937

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.240	6.140	11.369
Available MBytes	38546.004	38509.000	38574.000
Free System Page Table Entries	16500112.741	16499501.000	16500277.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	47425215.332	47177728.000	47714304.000

Pool Paged Bytes

114808254.797 114745344.000 114892800.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/31/2016 6:12:09 PM -- Preparing for testing ...

1/31/2016 6:12:14 PM -- Attaching databases ...

1/31/2016 6:12:14 PM -- Preparations for testing are complete.

1/31/2016 6:12:14 PM -- Starting transaction dispatch ..

1/31/2016 6:12:14 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/31/2016 6:12:14 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/31/2016 6:12:18 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).

1/31/2016 6:12:18 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).

1/31/2016 6:12:18 PM -- Attaining prerequisites:

1/31/2016 6:12:40 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1049485000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 6:12:41 PM -- Performance logging started (interval: 5000 ms).

1/31/2016 6:12:41 PM -- Automatic tuning is starting ...

1/31/2016 6:13:12 PM -- Instance1560.1 has 0.01 for read latency slope.

1/31/2016 6:13:12 PM -- Instance1560.2 has 0.00 for read latency slope.

1/31/2016 6:13:12 PM -- Instance1560.3 has 0.00 for read latency slope.

1/31/2016 6:13:12 PM -- Instance1560.4 has 0.02 for read latency slope.

1/31/2016 6:15:18 PM -- 1442 batch transactions/sec and 8 sessions have 5606 IOPS.

1/31/2016 6:15:18 PM -- 8 sessions have actual 5606 IOPS (target IOPS: 5000)

1/31/2016 6:15:18 PM -- Instance1560.1 has 1.3 for I/O Database Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.2 has 1.0 for I/O Database Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.3 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.4 has 0.9 for I/O Database Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.1 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.1 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.2 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.2 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.3 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.3 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.4 has 0.4 for I/O Log Writes Average Latency.

1/31/2016 6:15:18 PM -- Instance1560.4 has 0.0 for I/O Log Reads Average Latency.

1/31/2016 6:15:19 PM -- Performance logging has ended.

1/31/2016 6:15:19 PM -- Automatic tuning succeeded.

1/31/2016 6:15:19 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/31/2016 6:15:19 PM -- Performance logging started (interval: 15000 ms).

1/31/2016 6:15:19 PM -- Attaining prerequisites:

1/31/2016 6:15:19 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 1057292000.0 (lower bound: 966367600.0, upper bound: none)

1/31/2016 8:15:20 PM -- Performance logging has ended.

1/31/2016 8:15:20 PM -- JetInterop batch transaction stats: 161678, 161678, 161678 and 161677.

1/31/2016 8:15:20 PM -- Dispatching transactions ends.

1/31/2016 8:15:20 PM -- Shutting down databases ...

1/31/2016 8:15:22 PM -- Instance1560.1 (complete), Instance1560.2 (complete), Instance1560.3 (complete) and Instance1560.4 (complete)

1/31/2016 8:15:22 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_Performance\Performance_2016_1_31_18_15_19.blg has 479 samples.

1/31/2016 8:15:22 PM -- Creating test report ...

1/31/2016 8:15:24 PM -- Instance1560.1 has 1.2 for I/O Database Reads Average Latency.

1/31/2016 8:15:24 PM -- Instance1560.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:15:24 PM -- Instance1560.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:15:24 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:15:24 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:15:24 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_Performance\Performance_2016_1_31_18_15_19.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance1804.1	1307930.59	04:36:44	78.77
Instance1804.2	1307898.59	04:34:57	79.28
Instance1804.3	1307978.59	04:35:58	78.99
Instance1804.4	1307914.59	04:35:58	78.99
Avg			79.01
Sum			316.03

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance1804.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1804.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1804.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1804.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Latency	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	cy (msec)				Bytes	(msec)	(msec)				
Instance1 804.1	4.788	0.000	314.63	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			6		.000		0	0			0	0
Instance1 804.2	4.795	0.000	316.76	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			2		.000		0	0			0	0
Instance1 804.3	4.783	0.000	315.54	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			4		.000		0	0			0	0
Instance1 804.4	4.783	0.000	315.53	0.000	262144	0.000	0.00	0.00	0.000	0.000	0.00	0.00
			4		.000		0	0			0	0

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	2.931	2.064	4.192
Available MBytes	39685.928	39681.000	39696.000
Free System Page Table Entries	16500543.237	16500288.000	16500671.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	76285029.844	76275712.000	76312576.000
Pool Paged Bytes	176784663.609	176697344.000	176906240.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:48:17 PM -- Preparing for testing ...
 1/25/2016 3:48:21 PM -- Attaching databases ...
 1/25/2016 3:48:21 PM -- Preparations for testing are complete.
 1/25/2016 3:48:26 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:48:26 PM -- Backing up databases ...
 1/25/2016 8:25:11 PM -- Performance logging has ended.
 1/25/2016 8:25:11 PM -- Instance1804.1 (100% processed), Instance1804.2 (100% processed),
 Instance1804.3 (100% processed) and Instance1804.4 (100% processed)
 1/25/2016 8:25:11 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_DatabaseBackup\DatabaseBackup_2016_1_25_15_48_21.blg](#) has 553 samples.
 1/25/2016 8:25:11 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41854034	0	0	0	1307938 MB/16616 sec
F:\Jetstress002001.edb	41853010	0	0	0	1307906 MB/15075 sec
G:\Jetstress003001.edb	41855570	0	0	0	1307986 MB/16483 sec
H:\Jetstress004001.edb	41853522	0	0	0	1307922 MB/16619 sec
(Sum)	167416136	0	0	0	5231754 MB/16619 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.058	0.000	1252.765	0.000	65536.000
F:	0.049	0.000	1387.965	0.000	65536.000
G:	0.053	0.000	1269.619	0.000	65536.000
H:	0.052	0.000	1249.625	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	4.885	3.578	8.516
Available MBytes	39714.637	39686.000	39740.000
Free System Page Table Entries	16500243.622	16499680.000	16500405.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	63358550.105	63295488.000	63668224.000
Pool Paged Bytes	154669241.172	153939968.000	158834688.000

Test Log 1/21/2016 7:29:45 AM -- Preparing for testing ...

1/21/2016 7:29:50 AM -- Attaching databases ...

1/21/2016 7:29:50 AM -- Preparations for testing are complete.

1/21/2016 7:29:50 AM -- Starting transaction dispatch ..

1/21/2016 7:29:50 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:50 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:29:54 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:29:54 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:29:54 AM -- Attaining prerequisites:

1/21/2016 7:30:22 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 971923500.0

(lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:23 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:23 AM -- Automatic tuning is starting ...
1/21/2016 7:30:55 AM -- Instance2912.1 has 0.02 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.2 has 0.00 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.3 has 0.01 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.4 has 0.01 for read latency slope.
1/21/2016 7:33:00 AM -- 1703 batch transactions/sec and 8 sessions have 5965 IOPS.
1/21/2016 7:33:00 AM -- 8 sessions have actual 5965 IOPS (target IOPS: 5000)
1/21/2016 7:33:00 AM -- Instance2912.1 has 1.3 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.9 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:01 AM -- Performance logging has ended.
1/21/2016 7:33:01 AM -- Automatic tuning succeeded.
1/21/2016 7:33:01 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/21/2016 7:33:01 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:01 AM -- Attaining prerequisites:
1/21/2016 7:33:01 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1058804000.0 (lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:02 AM -- Performance logging has ended.
1/22/2016 7:33:02 AM -- JetInterop batch transaction stats: 2079634, 2079634, 2079634 and 2079634.
1/22/2016 7:33:02 AM -- Dispatching transactions ends.
1/22/2016 7:33:02 AM -- Shutting down databases ...
1/22/2016 7:33:03 AM -- Instance2912.1 (complete), Instance2912.2 (complete), Instance2912.3 (complete) and Instance2912.4 (complete)
1/22/2016 7:33:03 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.blg has 5754 samples.
1/22/2016 7:33:03 AM -- Creating test report ...
1/22/2016 7:33:24 AM -- Instance2912.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:24 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:24 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.xml has 5753 samples queried.
1/22/2016 7:33:25 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.html was saved.
1/22/2016 7:33:25 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:25 AM -- Verifying database checksums ...
1/22/2016 12:10:24 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100% processed)
1/22/2016 12:10:25 PM -- Performance logging has ended.

1/22/2016 12:10:25 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_25.blq](#) has 553 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance1804.1	507	66.0904631
Instance1804.2	501	65.8286124
Instance1804.3	505	66.3495564
Instance1804.4	501	65.5732452
Avg	503	65.96
Sum	2014	263.8418771

Database Configuration

Instance1804.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance1804.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance1804.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance1804.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance1804.1	1.401	0.759	4255.725	30.976	37760.446	32768.000	2.028	0.000	38.680	0.000	209696.783	0.000
Instance1804.2	1.413	0.756	4302.302	30.687	37845.976	32768.000	2.008	0.000	38.359	0.000	209716.457	0.000
Instance1804.3	1.419	0.755	4278.298	30.624	37873.117	32768.000	2.003	0.000	38.280	0.000	209723.334	0.000
Instance1804.4	1.411	0.750	4273.427	30.913	37818.397	32768.000	1.981	0.000	38.617	0.000	209731.314	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance1804.1	8.985	261668.335
Instance1804.2	8.969	262144.000
Instance1804.3	8.969	262144.000

Instance1804.4

8.969

262144.000

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance1804.1	1.401	0.759	4264.710	30.976	38232.160	32768.000	2.028	0.000	38.680	0.000	209696.783	0.000
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Instance1804.2	1.413	0.756	4311.270	30.687	38312.576	32768.000	2.008	0.000	38.359	0.000	209716.457	0.000
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Instance1804.3	1.419	0.755	4287.267	30.624	38342.273	32768.000	2.003	0.000	38.280	0.000	209723.334	0.000
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Instance1804.4	1.411	0.750	4282.396	30.913	38288.202	32768.000	1.981	0.000	38.617	0.000	209731.314	0.000
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Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	23.124	17.947	27.089
Available MBytes	38541.938	38479.000	39372.000

Free System Page Table Entries 16499892.969 16499776.000 16499979.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 78492800.000 78487552.000 78503936.000

Pool Paged Bytes 179097728.000 179089408.000 179105792.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:10:58 PM -- Preparing for testing ...
2/1/2016 6:11:02 PM -- Attaching databases ...
2/1/2016 6:11:02 PM -- Preparations for testing are complete.
2/1/2016 6:11:02 PM -- Starting transaction dispatch ..
2/1/2016 6:11:02 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:11:02 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:11:06 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:11:06 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:11:06 PM -- Attaining prerequisites:
2/1/2016 6:11:34 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 973381600.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:34 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:34 PM -- Automatic tuning is starting ...
2/1/2016 6:12:06 PM -- Instance1804.1 has 0.03 for read latency slope.
2/1/2016 6:12:06 PM -- Instance1804.2 has 0.01 for read latency slope.
2/1/2016 6:12:06 PM -- Instance1804.3 has 0.00 for read latency slope.
2/1/2016 6:12:06 PM -- Instance1804.4 has 0.00 for read latency slope.
2/1/2016 6:14:11 PM -- 1394 batch transactions/sec and 8 sessions have 5399 IOPS.
2/1/2016 6:14:11 PM -- 8 sessions have actual 5399 IOPS (target IOPS: 5000)
2/1/2016 6:14:11 PM -- Instance1804.1 has 1.3 for I/O Database Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.2 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.4 has 0.9 for I/O Database Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.1 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.2 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.3 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.4 has 0.4 for I/O Log Writes Average Latency.
2/1/2016 6:14:11 PM -- Instance1804.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:12 PM -- Performance logging has ended.
2/1/2016 6:14:12 PM -- Automatic tuning succeeded.
2/1/2016 6:14:12 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:12 PM -- Performance logging started (interval: 15000 ms).
2/1/2016 6:14:12 PM -- Generating log files ...
2/1/2016 6:29:05 PM -- I:\ (101.2% generated), J:\ (100.2% generated), K:\ (101.0% generated) and L:\

(100.2% generated)
2/1/2016 6:29:06 PM -- Performance logging has ended.
2/1/2016 6:29:06 PM -- JetInterop batch transaction stats: 21835, 21835, 21835 and 21834.
2/1/2016 6:29:06 PM -- Dispatching transactions ends.
2/1/2016 6:29:06 PM -- Shutting down databases ...
2/1/2016 6:29:07 PM -- Instance1804.1 (complete), Instance1804.2 (complete), Instance1804.3 (complete) and Instance1804.4 (complete)
2/1/2016 6:29:07 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_SoftRecovery\Performance_2016_2_1_18_14_12.blg has 59 samples.
2/1/2016 6:29:07 PM -- Creating test report ...
2/1/2016 6:29:08 PM -- Instance1804.1 has 1.5 for I/O Database Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.1 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.1 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.2 has 1.1 for I/O Database Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.2 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.2 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.3 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.3 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.3 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.4 has 1.0 for I/O Database Reads Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.4 has 0.5 for I/O Log Writes Average Latency.
2/1/2016 6:29:08 PM -- Instance1804.4 has 0.5 for I/O Log Reads Average Latency.
2/1/2016 6:29:08 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/1/2016 6:29:08 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/1/2016 6:29:08 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_SoftRecovery\Performance_2016_2_1_18_14_12.xml has 58 samples queried.
2/1/2016 6:29:08 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_SoftRecovery\Performance_2016_2_1_18_14_12.html was saved.
2/1/2016 6:29:08 PM -- Performance logging started (interval: 2000 ms).
2/1/2016 6:29:08 PM -- Recovering databases ...
2/1/2016 6:30:15 PM -- Performance logging has ended.
2/1/2016 6:30:15 PM -- Instance1804.1 (66.0904631), Instance1804.2 (65.8286124), Instance1804.3 (66.3495564) and Instance1804.4 (65.5732452)
2/1/2016 6:30:15 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX19_SoftRecovery\SoftRecovery_2016_2_1_18_29_8.blg has 32 samples.
2/1/2016 6:30:15 PM -- Creating test report ...

Stress Test Result Report

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0019

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:45 AM

Test End Time 1/22/2016 7:33:03 AM

Collection Start Time 1/21/2016 7:33:16 AM

Collection End Time 1/22/2016 7:32:58 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_22.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5997.373

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368753422336

Final Database Size (bytes) 5485891944448

Database Files (Count) 4

Jetstress System Parameters

Thread Count	8
Minimum Database Cache	128.0 MB
Maximum Database Cache	1024.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%
Run Background Database Maintenance	True
Number of Copies per Database	2

Database Configuration

Instance2912.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2912.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance2912.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance2912.4 Log path: L:\

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance2 912.1	1.390	5.051	1001.862	497.330	32838.235	34169.403	0.000	0.432	0.000	221.036	0.000	7790.607
Instance2 912.2	0.920	1.750	1000.519	498.708	32840.288	34161.593	0.000	0.431	0.000	222.183	0.000	7768.805
Instance2 912.3	0.876	1.336	999.994	498.922	32840.892	34163.219	0.000	0.431	0.000	222.794	0.000	7765.625
Instance2 912.4	0.904	1.312	1000.920	499.118	32841.268	34158.706	0.000	0.431	0.000	222.405	0.000	7766.935

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2912.1	8.445	261839.055
Instance2912.2	9.036	261823.919

Instance2912.3 9.095 261839.587

Instance2912.4 9.080 261837.104

Log Replication I/O Performance

MSExchange Database ==> Instances I/O Log Reads/sec I/O Log Reads Average Bytes

Instance2912.1 5.015 232561.258

Instance2912.2 5.008 232561.911

Instance2912.3 5.019 232562.056

Instance2912.4 5.011 232561.698

Total I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2912.1 1.390 5.051 1010.307 497.330 34752.465 34169.403 0.997 0.432 5.015 221.036 232561.258 7790.607

Instance2912.2 0.920 1.750 1009.555 498.708 34889.763 34161.593 0.996 0.431 5.008 222.183 232561.911 7768.805

Instance2 0.876 1.336 1009. 498.9 34904. 34163. 0.99 0.43 5.019 222.7 232562 7765.
912.3 089 22 818 219 5 1 94 .056 625

Instance2 0.904 1.312 1010. 499.1 34900. 34158. 0.99 0.43 5.011 222.4 232561 7766.
912.4 000 18 023 706 8 1 05 .698 935

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.277	3.458	11.211
Available MBytes	38673.755	38557.000	38700.000
Free System Page Table Entries	16500332.455	16499997.000	16500464.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62906450.575	61575168.000	63434752.000
Pool Paged Bytes	151426157.269	151216128.000	163282944.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/21/2016 7:29:45 AM -- Preparing for testing ...
 1/21/2016 7:29:50 AM -- Attaching databases ...
 1/21/2016 7:29:50 AM -- Preparations for testing are complete.
 1/21/2016 7:29:50 AM -- Starting transaction dispatch ..
 1/21/2016 7:29:50 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
 1/21/2016 7:29:50 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
 1/21/2016 7:29:54 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
 1/21/2016 7:29:54 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
 1/21/2016 7:29:54 AM -- Attaining prerequisites:
 1/21/2016 7:30:22 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 971923500.0 (lower bound: 966367600.0, upper bound: none)
 1/21/2016 7:30:23 AM -- Performance logging started (interval: 5000 ms).
 1/21/2016 7:30:23 AM -- Automatic tuning is starting ...

1/21/2016 7:30:55 AM -- Instance2912.1 has 0.02 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.2 has 0.00 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.3 has 0.01 for read latency slope.
1/21/2016 7:30:55 AM -- Instance2912.4 has 0.01 for read latency slope.
1/21/2016 7:33:00 AM -- 1703 batch transactions/sec and 8 sessions have 5965 IOPS.
1/21/2016 7:33:00 AM -- 8 sessions have actual 5965 IOPS (target IOPS: 5000)
1/21/2016 7:33:00 AM -- Instance2912.1 has 1.3 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.9 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:00 AM -- Instance2912.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:01 AM -- Performance logging has ended.
1/21/2016 7:33:01 AM -- Automatic tuning succeeded.
1/21/2016 7:33:01 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:01 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:01 AM -- Attaining prerequisites:
1/21/2016 7:33:01 AM -- \\MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1058804000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:02 AM -- Performance logging has ended.
1/22/2016 7:33:02 AM -- JetInterop batch transaction stats: 2079634, 2079634, 2079634 and 2079634.
1/22/2016 7:33:02 AM -- Dispatching transactions ends.
1/22/2016 7:33:02 AM -- Shutting down databases ...
1/22/2016 7:33:03 AM -- Instance2912.1 (complete), Instance2912.2 (complete), Instance2912.3 (complete)
and Instance2912.4 (complete)
1/22/2016 7:33:03 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.blg has
5754 samples.
1/22/2016 7:33:03 AM -- Creating test report ...
1/22/2016 7:33:24 AM -- Instance2912.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:24 AM -- Instance2912.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:24 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:24 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:24 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_1.xml has
5753 samples queried.

Appendix I – WIN-ME-0022

Performance

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0022

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/31/2016 6:10:08 PM

Test End Time 1/31/2016 8:13:25 PM

Collection Start Time 1/31/2016 6:13:38 PM

Collection End Time 1/31/2016 8:13:15 PM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_Performance\Tuning_2016_1_31_18_10_44.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_Performance\Performance_2016_1_31_18_13_22.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 5341.399

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5507601661952

Final Database Size (bytes) 5516569083904

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance3172.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance3172.2 Log path: J\
Database: F:\Jetstress002001.edb

Instance3172.3 Log path: K\
Database: G:\Jetstress003001.edb

Instance3172.4 Log path: L\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance3 172.1 1.198 2.543 892.451 443.445 32832.035 34042.784 0.000 0.406 0.000 199.642 0.000 7689.194

Instance3 172.2 1.022 1.276 892.946 443.140 32827.327 34041.693 0.000 0.406 0.000 199.539 0.000 7669.158

Instance3 172.3 1.019 1.137 892.087 443.015 32829.703 34038.406 0.000 0.405 0.000 199.549 0.000 7685.890

Instance3172.4	1.028	1.109	891.381	442.935	32826.943	34049.609	0.000	0.407	0.000	200.358	0.000	7694.226
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance3172.1	8.892	261815.347
Instance3172.2	9.117	261818.035
Instance3172.3	9.129	261813.919
Instance3172.4	9.126	261833.944

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance3172.1	4.429	232560.954
Instance3172.2	4.406	232559.548
Instance3172.3	4.421	232561.778
Instance3172.4	4.448	232562.366

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Databse Reads Average Latency (msec)	Databse Writes Average Latency (msec)	Databse Reads /sec	Databse Writes /sec	Databse Reads Average Bytes	Databse Writes Average Bytes	Log Reads Average Latency (msec)	Log Writes Average Latency (msec)	Log Reads /sec	Log Writes /sec	Reads Average Bytes	Log Writes Average Bytes
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Instance3 172.1 1.198 2.543 901.3 443.4 35091.120 34042.784 0.93 0.40 4.429 199.6 232560.954 7689.194

Instance3 172.2 1.022 1.276 902.0 443.1 35141.799 34041.693 0.93 0.40 4.406 199.5 232559.548 7669.158

Instance3 172.3 1.019 1.137 901.2 443.0 35149.329 34038.406 0.93 0.40 4.421 199.5 232561.778 7685.890

Instance3 172.4 1.028 1.109 900.5 442.9 35147.882 34049.609 0.93 0.40 4.448 200.3 232562.366 7694.226

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	7.943	3.200	9.860
Available MBytes	38639.353	38605.000	38668.000
Free System Page Table Entries	16500207.353	16499692.000	16500389.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	44661373.061	44408832.000	44888064.000

Pool Paged Bytes

110887690.154 110743552.000 111374336.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 1/31/2016 6:10:08 PM -- Preparing for testing ...
1/31/2016 6:10:12 PM -- Attaching databases ...
1/31/2016 6:10:12 PM -- Preparations for testing are complete.
1/31/2016 6:10:12 PM -- Starting transaction dispatch ..
1/31/2016 6:10:12 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
1/31/2016 6:10:12 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
1/31/2016 6:10:17 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
1/31/2016 6:10:17 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
1/31/2016 6:10:17 PM -- Attaining prerequisites:
1/31/2016 6:10:44 PM -- \\MSExchange Database(JetstressWin)\Database Cache Size, Last: 985673700.0 (lower bound: 966367600.0, upper bound: none)
1/31/2016 6:10:45 PM -- Performance logging started (interval: 5000 ms).
1/31/2016 6:10:45 PM -- Automatic tuning is starting ...
1/31/2016 6:11:16 PM -- Instance3172.1 has 0.00 for read latency slope.
1/31/2016 6:11:16 PM -- Instance3172.2 has 0.00 for read latency slope.
1/31/2016 6:11:16 PM -- Instance3172.3 has 0.00 for read latency slope.
1/31/2016 6:11:16 PM -- Instance3172.4 has 0.01 for read latency slope.
1/31/2016 6:13:22 PM -- 1384 batch transactions/sec and 8 sessions have 5363 IOPS.
1/31/2016 6:13:22 PM -- 8 sessions have actual 5363 IOPS (target IOPS: 5000)
1/31/2016 6:13:22 PM -- Instance3172.1 has 1.2 for I/O Database Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.2 has 1.0 for I/O Database Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.3 has 1.0 for I/O Database Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.4 has 1.0 for I/O Database Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.1 has 0.4 for I/O Log Writes Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.1 has 0.0 for I/O Log Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.2 has 0.4 for I/O Log Writes Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.2 has 0.0 for I/O Log Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.3 has 0.4 for I/O Log Writes Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.3 has 0.0 for I/O Log Reads Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.4 has 0.4 for I/O Log Writes Average Latency.
1/31/2016 6:13:22 PM -- Instance3172.4 has 0.0 for I/O Log Reads Average Latency.
1/31/2016 6:13:22 PM -- Performance logging has ended.
1/31/2016 6:13:22 PM -- Automatic tuning succeeded.
1/31/2016 6:13:23 PM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
1/31/2016 6:13:23 PM -- Performance logging started (interval: 15000 ms).
1/31/2016 6:13:23 PM -- Attaining prerequisites:
1/31/2016 6:13:23 PM -- \\MSExchange Database(JetstressWin)\Database Cache Size, Last: 1060246000.0 (lower bound: 966367600.0, upper bound: none)
1/31/2016 8:13:24 PM -- Performance logging has ended.
1/31/2016 8:13:24 PM -- JetInterop batch transaction stats: 157678, 157678, 157678 and 157677.
1/31/2016 8:13:24 PM -- Dispatching transactions ends.
1/31/2016 8:13:24 PM -- Shutting down databases ...
1/31/2016 8:13:25 PM -- Instance3172.1 (complete), Instance3172.2 (complete), Instance3172.3 (complete) and Instance3172.4 (complete)
1/31/2016 8:13:25 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_Performance\Performance_2016_1_31_18_13_22.blg has 479 samples.
1/31/2016 8:13:25 PM -- Creating test report ...
1/31/2016 8:13:27 PM -- Instance3172.1 has 1.2 for I/O Database Reads Average Latency.

1/31/2016 8:13:27 PM -- Instance3172.1 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.1 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.2 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.2 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.2 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.3 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.3 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.3 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.4 has 1.0 for I/O Database Reads Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.4 has 0.4 for I/O Log Writes Average Latency.
 1/31/2016 8:13:27 PM -- Instance3172.4 has 0.4 for I/O Log Reads Average Latency.
 1/31/2016 8:13:27 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
 1/31/2016 8:13:27 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
 1/31/2016 8:13:27 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_Performance\Performance_2016_1_31_18_13_22.xml](#) has 478 samples queried.

Database Backup

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance648.1	1308202.59	04:37:05	78.69
Instance648.2	1308250.59	04:36:57	78.73
Instance648.3	1308242.59	04:37:12	78.66
Instance648.4	1308266.59	04:36:56	78.73
Avg			78.70
Sum			314.80

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Database Configuration

Instance648.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance648.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance648.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance648.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency	I/O Database Writes Average Latency	I/O Database Reads/sec	I/O Database Writes/sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency	I/O Log Writes Average Latency	I/O Log Reads/sec	I/O Log Writes/sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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	(msec)	(msec)					(msec)	(msec)				
Instance 648.1	4.904	0.000	313.390	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 648.2	4.882	0.000	313.904	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 648.3	4.893	0.000	314.169	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance 648.4	4.878	0.000	314.172	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	2.967	2.208	7.285
Available MBytes	39681.249	39679.000	39692.000
Free System Page Table Entries	16500490.487	16500199.000	16500611.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	75790188.130	75780096.000	75890688.000
Pool Paged Bytes	177332955.957	176783360.000	177434624.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log 1/25/2016 3:48:20 PM -- Preparing for testing ...
 1/25/2016 3:48:24 PM -- Attaching databases ...
 1/25/2016 3:48:24 PM -- Preparations for testing are complete.
 1/25/2016 3:48:29 PM -- Performance logging started (interval: 30000 ms).
 1/25/2016 3:48:29 PM -- Backing up databases ...
 1/25/2016 8:25:42 PM -- Performance logging has ended.
 1/25/2016 8:25:42 PM -- Instance648.1 (100% processed), Instance648.2 (100% processed), Instance648.3 (100% processed) and Instance648.4 (100% processed)
 1/25/2016 8:25:42 PM -- [C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_DatabaseBackup\DatabaseBackup_2016_1_25_15_48_24.blg](#) has 554 samples.
 1/25/2016 8:25:42 PM -- Creating test report ...

Database Checksum

Checksum Statistics - All

Database	Seen pages	Bad pages	Correctable pages	Wrong page-number pages	File length / seconds taken
E:\Jetstress001001.edb	41862738	0	0	0	1308210 MB/26349 sec
F:\Jetstress002001.edb	41864274	0	0	0	1308258 MB/21015 sec
G:\Jetstress003001.edb	41864018	0	0	0	1308250 MB/24313 sec
H:\Jetstress004001.edb	41864786	0	0	0	1308274 MB/26815 sec
(Sum)	167455816	0	0	0	5232994 MB/26814 sec

Disk Subsystem Performance (of checksum)

LogicalDisk	Avg. Disk sec/Read	Avg. Disk sec/Write	Disk Reads/sec	Disk Writes/sec	Avg. Disk Bytes/Read

E:	0.113	0.000	794.002	0.000	65536.000
F:	0.097	0.000	995.683	0.000	65536.000
G:	0.106	0.000	860.714	0.000	65536.000
H:	0.105	0.000	780.151	0.000	65536.000

Memory System Performance (of checksum)

Counter	Average	Minimum	Maximum
% Processor Time	2.647	0.083	6.230
Available MBytes	39706.698	39673.000	39745.000
Free System Page Table Entries	16500152.606	16499633.000	16500385.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62540126.889	62443520.000	62779392.000
Pool Paged Bytes	155538834.490	154447872.000	156454912.000

Test Log 1/21/2016 7:29:51 AM -- Preparing for testing ...

1/21/2016 7:29:55 AM -- Attaching databases ...

1/21/2016 7:29:55 AM -- Preparations for testing are complete.

1/21/2016 7:29:55 AM -- Starting transaction dispatch ..

1/21/2016 7:29:55 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:55 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:30:00 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:30:00 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:30:00 AM -- Attaining prerequisites:

1/21/2016 7:30:28 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1016553000.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:29 AM -- Performance logging started (interval: 5000 ms).
1/21/2016 7:30:29 AM -- Automatic tuning is starting ...
1/21/2016 7:31:00 AM -- Instance2512.1 has 0.02 for read latency slope.
1/21/2016 7:31:00 AM -- Instance2512.2 has 0.00 for read latency slope.
1/21/2016 7:31:00 AM -- Instance2512.3 has 0.07 for read latency slope.
1/21/2016 7:31:00 AM -- Instance2512.4 has 0.01 for read latency slope.
1/21/2016 7:33:06 AM -- 1842 batch transactions/sec and 8 sessions have 6367 IOPS.
1/21/2016 7:33:06 AM -- 8 sessions have actual 6367 IOPS (target IOPS: 5000)
1/21/2016 7:33:06 AM -- Instance2512.1 has 1.1 for I/O Database Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.2 has 0.8 for I/O Database Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.3 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.4 has 0.7 for I/O Database Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.1 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.1 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.2 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.2 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.3 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.3 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.4 has 0.4 for I/O Log Writes Average Latency.
1/21/2016 7:33:06 AM -- Instance2512.4 has 0.0 for I/O Log Reads Average Latency.
1/21/2016 7:33:06 AM -- Performance logging has ended.
1/21/2016 7:33:06 AM -- Automatic tuning succeeded.
1/21/2016 7:33:07 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
1/21/2016 7:33:07 AM -- Performance logging started (interval: 15000 ms).
1/21/2016 7:33:07 AM -- Attaining prerequisites:
1/21/2016 7:33:07 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1057219000.0
(lower bound: 966367600.0, upper bound: none)
1/22/2016 7:33:08 AM -- Performance logging has ended.
1/22/2016 7:33:08 AM -- JetInterop batch transaction stats: 2105173, 2105172, 2105172 and 2105172.
1/22/2016 7:33:08 AM -- Dispatching transactions ends.
1/22/2016 7:33:08 AM -- Shutting down databases ...
1/22/2016 7:33:09 AM -- Instance2512.1 (complete), Instance2512.2 (complete), Instance2512.3 (complete)
and Instance2512.4 (complete)
1/22/2016 7:33:09 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.blg has
5754 samples.
1/22/2016 7:33:09 AM -- Creating test report ...
1/22/2016 7:33:29 AM -- Instance2512.1 has 1.4 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:29 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:29 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.xml has
5753 samples queried.
1/22/2016 7:33:29 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.html
was saved.
1/22/2016 7:33:29 AM -- Performance logging started (interval: 30000 ms).
1/22/2016 7:33:29 AM -- Verifying database checksums ...
1/22/2016 3:00:24 PM -- E: (100% processed), F: (100% processed), G: (100% processed) and H: (100%
processed)
1/22/2016 3:00:24 PM -- Performance logging has ended.

1/22/2016 3:00:24 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\DBChecksum_2016_1_22_7_33_29.blg has 893 samples.

SoftRecovery

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance648.1	718	420.4591924
Instance648.2	715	424.8780075
Instance648.3	716	439.6482493
Instance648.4	711	407.8469686
Avg	715	423.208
Sum	2860	1692.8324178

Database Configuration

Instance648.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance648.2 Log path: J:\
Database: F:\Jetstress002001.edb

Instance648.3 Log path: K:\
Database: G:\Jetstress003001.edb

Instance648.4 Log path: L:\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instance	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 648.1	11.913	2.536	1387.079	6.794	39635.378	32451.401	1.283	0.000	8.496	0.000	206673.740	0.000
Instance 648.2	12.046	1.702	1367.847	6.667	39850.747	32611.215	1.698	0.000	8.334	0.000	208721.552	0.000
Instance 648.3	12.306	2.933	1302.227	6.431	39676.737	32163.982	1.940	0.000	8.039	0.000	204916.868	0.000
Instance 648.4	10.969	2.109	1416.665	6.942	39679.955	32441.950	2.012	0.000	8.678	0.000	207628.482	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance648.1	3.955	261856.183
Instance648.2	4.015	261785.807
Instance648.3	3.931	261718.442

Instance648.4

4.021

261834.253

Total I/O Performance

MSExchange Database ==> Instance s	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
Instance 648.1	11.913	2.536	1391.035	6.794	40267.249	32451.401	1.283	0.000	8.496	0.000	206673.740	0.000
Instance 648.2	12.046	1.702	1371.862	6.667	40500.254	32611.215	1.698	0.000	8.334	0.000	208721.552	0.000
Instance 648.3	12.306	2.933	1306.158	6.431	40344.990	32163.982	1.940	0.000	8.039	0.000	204916.868	0.000
Instance 648.4	10.969	2.109	1420.686	6.942	40308.789	32441.950	2.012	0.000	8.678	0.000	207628.482	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	6.517	0.585	16.243
Available MBytes	38506.532	38472.000	39349.000

Free System Page Table Entries 16499942.344 16499668.000 16500129.000

Transition Pages RePurposed/sec 0.000 0.000 0.000

Pool Nonpaged Bytes 78691581.651 78651392.000 78774272.000

Pool Paged Bytes 179119301.284 178618368.000 179273728.000

Database Page Fault Stalls/sec 0.000 0.000 0.000

Test Log 2/1/2016 6:10:50 PM -- Preparing for testing ...
2/1/2016 6:10:54 PM -- Attaching databases ...
2/1/2016 6:10:54 PM -- Preparations for testing are complete.
2/1/2016 6:10:54 PM -- Starting transaction dispatch ..
2/1/2016 6:10:54 PM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)
2/1/2016 6:10:54 PM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)
2/1/2016 6:10:58 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/1/2016 6:10:58 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/1/2016 6:10:58 PM -- Attaining prerequisites:
2/1/2016 6:11:36 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 989229100.0 (lower bound: 966367600.0, upper bound: none)
2/1/2016 6:11:36 PM -- Performance logging started (interval: 5000 ms).
2/1/2016 6:11:36 PM -- Automatic tuning is starting ...
2/1/2016 6:12:08 PM -- Instance648.1 has 0.09 for read latency slope.
2/1/2016 6:12:08 PM -- Instance648.2 has 0.04 for read latency slope.
2/1/2016 6:12:08 PM -- Instance648.3 has 0.10 for read latency slope.
2/1/2016 6:12:08 PM -- Instance648.4 has 0.13 for read latency slope.
2/1/2016 6:14:14 PM -- 484 batch transactions/sec and 8 sessions have 1330 IOPS.
2/1/2016 6:14:14 PM -- 8 sessions have actual 1330 IOPS (target IOPS: 5000)
2/1/2016 6:14:14 PM -- Instance648.1 has 5.8 for I/O Database Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.2 has 3.8 for I/O Database Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.3 has 3.3 for I/O Database Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.4 has 2.8 for I/O Database Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.1 has 1.0 for I/O Log Writes Average Latency.
2/1/2016 6:14:14 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.2 has 0.7 for I/O Log Writes Average Latency.
2/1/2016 6:14:14 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.3 has 1.7 for I/O Log Writes Average Latency.
2/1/2016 6:14:14 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:14 PM -- Instance648.4 has 1.1 for I/O Log Writes Average Latency.
2/1/2016 6:14:14 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:14:14 PM -- Operation mix: Sessions 38, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:14:45 PM -- Instance648.1 has 0.46 for read latency slope.
2/1/2016 6:14:45 PM -- Instance648.2 has 0.60 for read latency slope.
2/1/2016 6:14:45 PM -- Instance648.3 has 0.51 for read latency slope.
2/1/2016 6:14:45 PM -- Instance648.4 has 0.41 for read latency slope.
2/1/2016 6:15:17 PM -- Instance648.1 has 0.16 for read latency slope.

2/1/2016 6:15:17 PM -- Instance648.2 has 0.26 for read latency slope.
2/1/2016 6:15:17 PM -- Instance648.3 has 0.38 for read latency slope.
2/1/2016 6:15:17 PM -- Instance648.4 has 0.05 for read latency slope.
2/1/2016 6:17:23 PM -- 624 batch transactions/sec and 38 sessions have 2377 IOPS.
2/1/2016 6:17:23 PM -- 38 sessions have actual 2377 IOPS (target IOPS: 5000)
2/1/2016 6:17:23 PM -- Instance648.1 has 27.7 for I/O Database Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.2 has 28.5 for I/O Database Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.3 has 19.2 for I/O Database Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.4 has 16.7 for I/O Database Reads Average Latency.
2/1/2016 6:17:23 PM -- The process has average database read latencies higher than 20.000 msec.
2/1/2016 6:17:23 PM -- Instance648.1 has 3.6 for I/O Log Writes Average Latency.
2/1/2016 6:17:23 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.2 has 3.8 for I/O Log Writes Average Latency.
2/1/2016 6:17:23 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.3 has 3.5 for I/O Log Writes Average Latency.
2/1/2016 6:17:23 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:23 PM -- Instance648.4 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:17:23 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:17:23 PM -- Operation mix: Sessions 23, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:17:55 PM -- Instance648.1 has 0.12 for read latency slope.
2/1/2016 6:17:55 PM -- Instance648.2 has 1.16 for read latency slope.
2/1/2016 6:17:55 PM -- Instance648.3 has 0.03 for read latency slope.
2/1/2016 6:17:55 PM -- Instance648.4 has 0.10 for read latency slope.
2/1/2016 6:18:26 PM -- Instance648.1 has 0.29 for read latency slope.
2/1/2016 6:18:26 PM -- Instance648.2 has 0.31 for read latency slope.
2/1/2016 6:18:26 PM -- Instance648.3 has 0.21 for read latency slope.
2/1/2016 6:18:26 PM -- Instance648.4 has 0.46 for read latency slope.
2/1/2016 6:20:32 PM -- 545 batch transactions/sec and 23 sessions have 2161 IOPS.
2/1/2016 6:20:32 PM -- 23 sessions have actual 2161 IOPS (target IOPS: 5000)
2/1/2016 6:20:32 PM -- Instance648.1 has 15.7 for I/O Database Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.2 has 19.4 for I/O Database Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.3 has 13.8 for I/O Database Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.4 has 12.5 for I/O Database Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.1 has 1 maximum database read latency errors.
2/1/2016 6:20:32 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 6:20:32 PM -- Instance648.1 has 2.9 for I/O Log Writes Average Latency.
2/1/2016 6:20:32 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.2 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:20:32 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.3 has 3.3 for I/O Log Writes Average Latency.
2/1/2016 6:20:32 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:20:32 PM -- Instance648.4 has 3.4 for I/O Log Writes Average Latency.
2/1/2016 6:20:32 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:20:32 PM -- Operation mix: Sessions 15, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:21:03 PM -- Instance648.1 has 0.05 for read latency slope.
2/1/2016 6:21:03 PM -- Instance648.2 has 0.72 for read latency slope.
2/1/2016 6:21:03 PM -- Instance648.3 has 0.12 for read latency slope.
2/1/2016 6:21:03 PM -- Instance648.4 has 0.03 for read latency slope.
2/1/2016 6:21:35 PM -- Instance648.1 has 0.00 for read latency slope.
2/1/2016 6:21:35 PM -- Instance648.2 has 0.19 for read latency slope.
2/1/2016 6:21:35 PM -- Instance648.3 has 0.21 for read latency slope.
2/1/2016 6:21:35 PM -- Instance648.4 has 0.14 for read latency slope.
2/1/2016 6:23:41 PM -- 483 batch transactions/sec and 15 sessions have 1808 IOPS.
2/1/2016 6:23:41 PM -- 15 sessions have actual 1808 IOPS (target IOPS: 5000)
2/1/2016 6:23:41 PM -- Instance648.1 has 11.8 for I/O Database Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.2 has 12.0 for I/O Database Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.3 has 11.3 for I/O Database Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.4 has 8.9 for I/O Database Reads Average Latency.

2/1/2016 6:23:41 PM -- Instance648.1 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 6:23:41 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.2 has 3.3 for I/O Log Writes Average Latency.
2/1/2016 6:23:41 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.3 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:23:41 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:23:41 PM -- Instance648.4 has 3.1 for I/O Log Writes Average Latency.
2/1/2016 6:23:41 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:23:41 PM -- Operation mix: Sessions 22, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:24:12 PM -- Instance648.1 has 0.07 for read latency slope.
2/1/2016 6:24:12 PM -- Instance648.2 has 0.25 for read latency slope.
2/1/2016 6:24:12 PM -- Instance648.3 has 0.90 for read latency slope.
2/1/2016 6:24:12 PM -- Instance648.4 has 0.69 for read latency slope.
2/1/2016 6:24:43 PM -- Instance648.1 has 0.09 for read latency slope.
2/1/2016 6:24:43 PM -- Instance648.2 has 0.14 for read latency slope.
2/1/2016 6:24:43 PM -- Instance648.3 has 0.50 for read latency slope.
2/1/2016 6:24:43 PM -- Instance648.4 has 0.01 for read latency slope.
2/1/2016 6:25:15 PM -- Instance648.1 has 0.09 for read latency slope.
2/1/2016 6:25:15 PM -- Instance648.2 has 0.15 for read latency slope.
2/1/2016 6:25:15 PM -- Instance648.3 has 0.30 for read latency slope.
2/1/2016 6:25:15 PM -- Instance648.4 has 0.12 for read latency slope.
2/1/2016 6:27:21 PM -- 514 batch transactions/sec and 22 sessions have 1955 IOPS.
2/1/2016 6:27:21 PM -- 22 sessions have actual 1955 IOPS (target IOPS: 5000)
2/1/2016 6:27:21 PM -- Instance648.1 has 15.0 for I/O Database Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.2 has 14.4 for I/O Database Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.3 has 10.9 for I/O Database Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.4 has 9.1 for I/O Database Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.1 has 1 maximum database read latency errors.
2/1/2016 6:27:21 PM -- Instance648.1 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 6:27:21 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.2 has 2.7 for I/O Log Writes Average Latency.
2/1/2016 6:27:21 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.3 has 2.7 for I/O Log Writes Average Latency.
2/1/2016 6:27:21 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:27:21 PM -- Instance648.4 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 6:27:21 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:27:21 PM -- Operation mix: Sessions 18, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:27:52 PM -- Instance648.1 has 0.82 for read latency slope.
2/1/2016 6:27:52 PM -- Instance648.2 has 0.55 for read latency slope.
2/1/2016 6:27:52 PM -- Instance648.3 has 0.38 for read latency slope.
2/1/2016 6:27:52 PM -- Instance648.4 has 0.04 for read latency slope.
2/1/2016 6:28:24 PM -- Instance648.1 has 0.01 for read latency slope.
2/1/2016 6:28:24 PM -- Instance648.2 has 0.47 for read latency slope.
2/1/2016 6:28:24 PM -- Instance648.3 has 0.12 for read latency slope.
2/1/2016 6:28:24 PM -- Instance648.4 has 0.30 for read latency slope.
2/1/2016 6:30:30 PM -- 490 batch transactions/sec and 18 sessions have 1866 IOPS.
2/1/2016 6:30:30 PM -- 18 sessions have actual 1866 IOPS (target IOPS: 5000)
2/1/2016 6:30:30 PM -- Instance648.1 has 13.4 for I/O Database Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.2 has 14.3 for I/O Database Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.3 has 13.1 for I/O Database Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.4 has 10.3 for I/O Database Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 6:30:30 PM -- Instance648.1 has 3.7 for I/O Log Writes Average Latency.
2/1/2016 6:30:30 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.2 has 3.2 for I/O Log Writes Average Latency.
2/1/2016 6:30:30 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:30:30 PM -- Instance648.3 has 3.1 for I/O Log Writes Average Latency.
2/1/2016 6:30:30 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.

2/1/2016 6:30:30 PM -- Instance648.4 has 3.7 for I/O Log Writes Average Latency.
2/1/2016 6:30:30 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:30:30 PM -- Operation mix: Sessions 16, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:31:01 PM -- Instance648.1 has 0.19 for read latency slope.
2/1/2016 6:31:01 PM -- Instance648.2 has 0.22 for read latency slope.
2/1/2016 6:31:01 PM -- Instance648.3 has 0.16 for read latency slope.
2/1/2016 6:31:01 PM -- Instance648.4 has 0.14 for read latency slope.
2/1/2016 6:33:07 PM -- 475 batch transactions/sec and 16 sessions have 1848 IOPS.
2/1/2016 6:33:07 PM -- 16 sessions have actual 1848 IOPS (target IOPS: 5000)
2/1/2016 6:33:07 PM -- Instance648.1 has 10.9 for I/O Database Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.2 has 11.0 for I/O Database Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.3 has 7.4 for I/O Database Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.4 has 6.7 for I/O Database Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 6:33:07 PM -- Instance648.1 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 6:33:07 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.2 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:33:07 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.3 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 6:33:07 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:33:07 PM -- Instance648.4 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:33:07 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:33:07 PM -- Operation mix: Sessions 14, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:33:38 PM -- Instance648.1 has 0.13 for read latency slope.
2/1/2016 6:33:38 PM -- Instance648.2 has 0.22 for read latency slope.
2/1/2016 6:33:38 PM -- Instance648.3 has 0.06 for read latency slope.
2/1/2016 6:33:38 PM -- Instance648.4 has 0.18 for read latency slope.
2/1/2016 6:35:44 PM -- 485 batch transactions/sec and 14 sessions have 1891 IOPS.
2/1/2016 6:35:44 PM -- 14 sessions have actual 1891 IOPS (target IOPS: 5000)
2/1/2016 6:35:44 PM -- Instance648.1 has 11.5 for I/O Database Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.2 has 8.8 for I/O Database Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.3 has 8.3 for I/O Database Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.4 has 6.2 for I/O Database Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.1 has 1 maximum database read latency errors.
2/1/2016 6:35:44 PM -- Instance648.1 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 6:35:44 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.2 has 2.0 for I/O Log Writes Average Latency.
2/1/2016 6:35:44 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.3 has 1.9 for I/O Log Writes Average Latency.
2/1/2016 6:35:44 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:35:44 PM -- Instance648.4 has 1.9 for I/O Log Writes Average Latency.
2/1/2016 6:35:44 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:35:44 PM -- Operation mix: Sessions 13, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:36:16 PM -- Instance648.1 has 0.04 for read latency slope.
2/1/2016 6:36:16 PM -- Instance648.2 has 0.10 for read latency slope.
2/1/2016 6:36:16 PM -- Instance648.3 has 0.11 for read latency slope.
2/1/2016 6:36:16 PM -- Instance648.4 has 0.95 for read latency slope.
2/1/2016 6:36:47 PM -- Instance648.1 has 0.11 for read latency slope.
2/1/2016 6:36:47 PM -- Instance648.2 has 0.35 for read latency slope.
2/1/2016 6:36:47 PM -- Instance648.3 has 0.24 for read latency slope.
2/1/2016 6:36:47 PM -- Instance648.4 has 0.17 for read latency slope.
2/1/2016 6:38:53 PM -- 538 batch transactions/sec and 13 sessions have 2023 IOPS.
2/1/2016 6:38:53 PM -- 13 sessions have actual 2023 IOPS (target IOPS: 5000)
2/1/2016 6:38:53 PM -- Instance648.1 has 8.7 for I/O Database Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.2 has 10.9 for I/O Database Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.3 has 9.7 for I/O Database Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.4 has 9.2 for I/O Database Reads Average Latency.

2/1/2016 6:38:53 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 6:38:53 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 6:38:53 PM -- Instance648.1 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:38:53 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.2 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:38:53 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.3 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:38:53 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:38:53 PM -- Instance648.4 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 6:38:53 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:38:53 PM -- Operation mix: Sessions 12, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:39:24 PM -- Instance648.1 has 0.07 for read latency slope.
2/1/2016 6:39:24 PM -- Instance648.2 has 0.07 for read latency slope.
2/1/2016 6:39:24 PM -- Instance648.3 has 0.56 for read latency slope.
2/1/2016 6:39:24 PM -- Instance648.4 has 0.16 for read latency slope.
2/1/2016 6:39:56 PM -- Instance648.1 has 0.34 for read latency slope.
2/1/2016 6:39:56 PM -- Instance648.2 has 0.11 for read latency slope.
2/1/2016 6:39:56 PM -- Instance648.3 has 0.16 for read latency slope.
2/1/2016 6:39:56 PM -- Instance648.4 has 0.00 for read latency slope.
2/1/2016 6:42:02 PM -- 543 batch transactions/sec and 12 sessions have 2066 IOPS.
2/1/2016 6:42:02 PM -- 12 sessions have actual 2066 IOPS (target IOPS: 5000)
2/1/2016 6:42:02 PM -- Instance648.1 has 9.4 for I/O Database Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.2 has 7.9 for I/O Database Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.3 has 8.0 for I/O Database Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.4 has 7.1 for I/O Database Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.1 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:42:02 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.2 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:42:02 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.3 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 6:42:02 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:42:02 PM -- Instance648.4 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 6:42:02 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:42:02 PM -- Operation mix: Sessions 9, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:42:33 PM -- Instance648.1 has 0.07 for read latency slope.
2/1/2016 6:42:33 PM -- Instance648.2 has 0.10 for read latency slope.
2/1/2016 6:42:33 PM -- Instance648.3 has 0.27 for read latency slope.
2/1/2016 6:42:33 PM -- Instance648.4 has 0.18 for read latency slope.
2/1/2016 6:44:39 PM -- 498 batch transactions/sec and 9 sessions have 1871 IOPS.
2/1/2016 6:44:39 PM -- 9 sessions have actual 1871 IOPS (target IOPS: 5000)
2/1/2016 6:44:39 PM -- Instance648.1 has 6.9 for I/O Database Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.2 has 8.5 for I/O Database Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.3 has 6.5 for I/O Database Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.4 has 5.4 for I/O Database Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.1 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:44:39 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.2 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:44:39 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.3 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 6:44:39 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:44:39 PM -- Instance648.4 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:44:39 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:44:39 PM -- Operation mix: Sessions 13, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:45:10 PM -- Instance648.1 has 0.46 for read latency slope.
2/1/2016 6:45:10 PM -- Instance648.2 has 0.06 for read latency slope.
2/1/2016 6:45:10 PM -- Instance648.3 has 0.76 for read latency slope.
2/1/2016 6:45:10 PM -- Instance648.4 has 0.06 for read latency slope.

2/1/2016 6:45:42 PM -- Instance648.1 has 0.14 for read latency slope.
2/1/2016 6:45:42 PM -- Instance648.2 has 0.12 for read latency slope.
2/1/2016 6:45:42 PM -- Instance648.3 has 0.03 for read latency slope.
2/1/2016 6:45:42 PM -- Instance648.4 has 0.23 for read latency slope.
2/1/2016 6:47:48 PM -- 537 batch transactions/sec and 13 sessions have 1994 IOPS.
2/1/2016 6:47:48 PM -- 13 sessions have actual 1994 IOPS (target IOPS: 5000)
2/1/2016 6:47:48 PM -- Instance648.1 has 12.0 for I/O Database Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.2 has 10.0 for I/O Database Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.3 has 8.1 for I/O Database Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.4 has 7.2 for I/O Database Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.1 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 6:47:48 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.2 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 6:47:48 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.3 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 6:47:48 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:47:48 PM -- Instance648.4 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 6:47:48 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:47:48 PM -- Operation mix: Sessions 11, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:48:19 PM -- Instance648.1 has 0.34 for read latency slope.
2/1/2016 6:48:19 PM -- Instance648.2 has 0.17 for read latency slope.
2/1/2016 6:48:19 PM -- Instance648.3 has 0.41 for read latency slope.
2/1/2016 6:48:19 PM -- Instance648.4 has 0.27 for read latency slope.
2/1/2016 6:50:25 PM -- 536 batch transactions/sec and 11 sessions have 2003 IOPS.
2/1/2016 6:50:25 PM -- 11 sessions have actual 2003 IOPS (target IOPS: 5000)
2/1/2016 6:50:25 PM -- Instance648.1 has 9.7 for I/O Database Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.2 has 8.9 for I/O Database Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.3 has 9.5 for I/O Database Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.4 has 7.3 for I/O Database Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 6:50:25 PM -- Instance648.3 has 1 maximum database read latency errors.
2/1/2016 6:50:25 PM -- Instance648.1 has 1.9 for I/O Log Writes Average Latency.
2/1/2016 6:50:25 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.2 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 6:50:25 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.3 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:50:25 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:50:25 PM -- Instance648.4 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 6:50:25 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:50:25 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%,
Lazy Commits 70%.
2/1/2016 6:50:56 PM -- Instance648.1 has 0.08 for read latency slope.
2/1/2016 6:50:56 PM -- Instance648.2 has 0.07 for read latency slope.
2/1/2016 6:50:56 PM -- Instance648.3 has 0.04 for read latency slope.
2/1/2016 6:50:56 PM -- Instance648.4 has 0.06 for read latency slope.
2/1/2016 6:53:02 PM -- 479 batch transactions/sec and 10 sessions have 1808 IOPS.
2/1/2016 6:53:02 PM -- 10 sessions have actual 1808 IOPS (target IOPS: 5000)
2/1/2016 6:53:02 PM -- Instance648.1 has 7.9 for I/O Database Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.2 has 10.8 for I/O Database Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.3 has 8.6 for I/O Database Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.4 has 7.2 for I/O Database Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 6:53:02 PM -- Instance648.1 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 6:53:02 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.2 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:53:02 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.3 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:53:02 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:53:02 PM -- Instance648.4 has 2.1 for I/O Log Writes Average Latency.

2/1/2016 6:53:02 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:53:02 PM -- Operation mix: Sessions 9, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:53:33 PM -- Instance648.1 has 0.16 for read latency slope.
2/1/2016 6:53:33 PM -- Instance648.2 has 0.32 for read latency slope.
2/1/2016 6:53:33 PM -- Instance648.3 has 0.17 for read latency slope.
2/1/2016 6:53:33 PM -- Instance648.4 has 0.20 for read latency slope.
2/1/2016 6:55:39 PM -- 463 batch transactions/sec and 9 sessions have 1687 IOPS.
2/1/2016 6:55:39 PM -- 9 sessions have actual 1687 IOPS (target IOPS: 5000)
2/1/2016 6:55:39 PM -- Instance648.1 has 7.7 for I/O Database Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.2 has 7.9 for I/O Database Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.3 has 5.8 for I/O Database Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.4 has 6.3 for I/O Database Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.1 has 2.7 for I/O Log Writes Average Latency.
2/1/2016 6:55:39 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.2 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:55:39 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.3 has 2.1 for I/O Log Writes Average Latency.
2/1/2016 6:55:39 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:55:39 PM -- Instance648.4 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:55:39 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:55:39 PM -- Operation mix: Sessions 13, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:56:11 PM -- Instance648.1 has 0.05 for read latency slope.
2/1/2016 6:56:11 PM -- Instance648.2 has 0.23 for read latency slope.
2/1/2016 6:56:11 PM -- Instance648.3 has 0.34 for read latency slope.
2/1/2016 6:56:11 PM -- Instance648.4 has 0.17 for read latency slope.
2/1/2016 6:58:16 PM -- 539 batch transactions/sec and 13 sessions have 1982 IOPS.
2/1/2016 6:58:16 PM -- 13 sessions have actual 1982 IOPS (target IOPS: 5000)
2/1/2016 6:58:16 PM -- Instance648.1 has 10.5 for I/O Database Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.2 has 9.8 for I/O Database Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.3 has 10.2 for I/O Database Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.4 has 5.0 for I/O Database Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.3 has 1 maximum database read latency errors.
2/1/2016 6:58:16 PM -- Instance648.1 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 6:58:16 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.2 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 6:58:16 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.3 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 6:58:16 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:58:16 PM -- Instance648.4 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 6:58:16 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 6:58:16 PM -- Operation mix: Sessions 11, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 6:58:48 PM -- Instance648.1 has 0.01 for read latency slope.
2/1/2016 6:58:48 PM -- Instance648.2 has 0.39 for read latency slope.
2/1/2016 6:58:48 PM -- Instance648.3 has 0.08 for read latency slope.
2/1/2016 6:58:48 PM -- Instance648.4 has 0.06 for read latency slope.
2/1/2016 7:00:54 PM -- 548 batch transactions/sec and 11 sessions have 2091 IOPS.
2/1/2016 7:00:54 PM -- 11 sessions have actual 2091 IOPS (target IOPS: 5000)
2/1/2016 7:00:54 PM -- Instance648.1 has 8.1 for I/O Database Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.2 has 10.3 for I/O Database Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.3 has 6.3 for I/O Database Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.4 has 7.3 for I/O Database Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.2 has 2 maximum database read latency errors.
2/1/2016 7:00:54 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 7:00:54 PM -- Instance648.1 has 2.0 for I/O Log Writes Average Latency.
2/1/2016 7:00:54 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.2 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 7:00:54 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.

2/1/2016 7:00:54 PM -- Instance648.3 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 7:00:54 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:00:54 PM -- Instance648.4 has 2.5 for I/O Log Writes Average Latency.
2/1/2016 7:00:54 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:00:54 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 7:01:25 PM -- Instance648.1 has 0.04 for read latency slope.
2/1/2016 7:01:25 PM -- Instance648.2 has 0.02 for read latency slope.
2/1/2016 7:01:25 PM -- Instance648.3 has 0.26 for read latency slope.
2/1/2016 7:01:25 PM -- Instance648.4 has 0.14 for read latency slope.
2/1/2016 7:03:31 PM -- 467 batch transactions/sec and 10 sessions have 1640 IOPS.
2/1/2016 7:03:31 PM -- 10 sessions have actual 1640 IOPS (target IOPS: 5000)
2/1/2016 7:03:31 PM -- Instance648.1 has 9.6 for I/O Database Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.2 has 8.0 for I/O Database Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.3 has 7.0 for I/O Database Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.4 has 5.6 for I/O Database Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.1 has 2.8 for I/O Log Writes Average Latency.
2/1/2016 7:03:31 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.2 has 3.5 for I/O Log Writes Average Latency.
2/1/2016 7:03:31 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.3 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 7:03:31 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:03:31 PM -- Instance648.4 has 2.6 for I/O Log Writes Average Latency.
2/1/2016 7:03:31 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:03:31 PM -- Operation mix: Sessions 13, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 7:04:02 PM -- Instance648.1 has 0.08 for read latency slope.
2/1/2016 7:04:02 PM -- Instance648.2 has 0.13 for read latency slope.
2/1/2016 7:04:02 PM -- Instance648.3 has 0.05 for read latency slope.
2/1/2016 7:04:02 PM -- Instance648.4 has 0.02 for read latency slope.
2/1/2016 7:06:08 PM -- 529 batch transactions/sec and 13 sessions have 1981 IOPS.
2/1/2016 7:06:08 PM -- 13 sessions have actual 1981 IOPS (target IOPS: 5000)
2/1/2016 7:06:08 PM -- Instance648.1 has 9.4 for I/O Database Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.2 has 9.7 for I/O Database Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.3 has 9.7 for I/O Database Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.4 has 10.0 for I/O Database Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 7:06:08 PM -- Instance648.1 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 7:06:08 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.2 has 2.0 for I/O Log Writes Average Latency.
2/1/2016 7:06:08 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.3 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 7:06:08 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:06:08 PM -- Instance648.4 has 2.6 for I/O Log Writes Average Latency.
2/1/2016 7:06:08 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:06:08 PM -- Operation mix: Sessions 11, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 7:06:40 PM -- Instance648.1 has 0.44 for read latency slope.
2/1/2016 7:06:40 PM -- Instance648.2 has 0.28 for read latency slope.
2/1/2016 7:06:40 PM -- Instance648.3 has 0.32 for read latency slope.
2/1/2016 7:06:40 PM -- Instance648.4 has 0.04 for read latency slope.
2/1/2016 7:08:45 PM -- 514 batch transactions/sec and 11 sessions have 1896 IOPS.
2/1/2016 7:08:45 PM -- 11 sessions have actual 1896 IOPS (target IOPS: 5000)
2/1/2016 7:08:45 PM -- Instance648.1 has 10.8 for I/O Database Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.2 has 9.6 for I/O Database Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.3 has 7.2 for I/O Database Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.4 has 7.2 for I/O Database Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 7:08:45 PM -- Instance648.4 has 1 maximum database read latency errors.
2/1/2016 7:08:45 PM -- Instance648.1 has 2.4 for I/O Log Writes Average Latency.

2/1/2016 7:08:45 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.2 has 2.0 for I/O Log Writes Average Latency.
2/1/2016 7:08:45 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.3 has 2.4 for I/O Log Writes Average Latency.
2/1/2016 7:08:45 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:08:45 PM -- Instance648.4 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 7:08:45 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:08:45 PM -- Operation mix: Sessions 10, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 7:09:17 PM -- Instance648.1 has 0.22 for read latency slope.
2/1/2016 7:09:17 PM -- Instance648.2 has 0.02 for read latency slope.
2/1/2016 7:09:17 PM -- Instance648.3 has 0.41 for read latency slope.
2/1/2016 7:09:17 PM -- Instance648.4 has 0.09 for read latency slope.
2/1/2016 7:11:22 PM -- 506 batch transactions/sec and 10 sessions have 1881 IOPS.
2/1/2016 7:11:22 PM -- 10 sessions have actual 1881 IOPS (target IOPS: 5000)
2/1/2016 7:11:22 PM -- Instance648.1 has 7.8 for I/O Database Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.2 has 8.9 for I/O Database Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.3 has 4.6 for I/O Database Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.4 has 5.8 for I/O Database Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.2 has 1 maximum database read latency errors.
2/1/2016 7:11:22 PM -- Instance648.1 has 3.7 for I/O Log Writes Average Latency.
2/1/2016 7:11:22 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.2 has 3.0 for I/O Log Writes Average Latency.
2/1/2016 7:11:22 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.3 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 7:11:22 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:11:22 PM -- Instance648.4 has 2.0 for I/O Log Writes Average Latency.
2/1/2016 7:11:22 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:11:22 PM -- Operation mix: Sessions 9, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/1/2016 7:11:54 PM -- Instance648.1 has 0.52 for read latency slope.
2/1/2016 7:11:54 PM -- Instance648.2 has 0.15 for read latency slope.
2/1/2016 7:11:54 PM -- Instance648.3 has 0.31 for read latency slope.
2/1/2016 7:11:54 PM -- Instance648.4 has 0.72 for read latency slope.
2/1/2016 7:12:25 PM -- Instance648.1 has 0.24 for read latency slope.
2/1/2016 7:12:25 PM -- Instance648.2 has 0.35 for read latency slope.
2/1/2016 7:12:25 PM -- Instance648.3 has 0.21 for read latency slope.
2/1/2016 7:12:25 PM -- Instance648.4 has 0.07 for read latency slope.
2/1/2016 7:14:31 PM -- 463 batch transactions/sec and 9 sessions have 1700 IOPS.
2/1/2016 7:14:31 PM -- 9 sessions have actual 1700 IOPS (target IOPS: 5000)
2/1/2016 7:14:31 PM -- Instance648.1 has 7.7 for I/O Database Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.2 has 7.7 for I/O Database Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.3 has 6.6 for I/O Database Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.4 has 7.3 for I/O Database Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.1 has 2.3 for I/O Log Writes Average Latency.
2/1/2016 7:14:31 PM -- Instance648.1 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.2 has 1.7 for I/O Log Writes Average Latency.
2/1/2016 7:14:31 PM -- Instance648.2 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.3 has 1.9 for I/O Log Writes Average Latency.
2/1/2016 7:14:31 PM -- Instance648.3 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:14:31 PM -- Instance648.4 has 2.2 for I/O Log Writes Average Latency.
2/1/2016 7:14:31 PM -- Instance648.4 has 0.0 for I/O Log Reads Average Latency.
2/1/2016 7:14:31 PM -- Performance logging has ended.
2/1/2016 7:14:31 PM -- Automatic tuning failed. Consider suppressing tuning and using thread count if automatic tuning continues to fail.
2/1/2016 7:14:31 PM -- JetInterop batch transaction stats: 30882, 30882, 30882 and 30881.
2/1/2016 7:14:31 PM -- Dispatching transactions ends.
2/1/2016 7:14:32 PM -- Shutting down databases ...
2/1/2016 7:14:39 PM -- Instance648.1 (complete), Instance648.2 (complete), Instance648.3 (complete) and Instance648.4 (complete)

2/1/2016 7:14:39 PM -- Performance logging started (interval: 2000 ms).
2/1/2016 7:14:39 PM -- Recovering databases ...
2/1/2016 7:21:59 PM -- Performance logging has ended.
2/1/2016 7:21:59 PM -- Instance648.1 (420.4591924), Instance648.2 (424.8780075), Instance648.3 (439.6482493) and Instance648.4 (407.8469686)
2/1/2016 7:21:59 PM -- C:\Users\Administrator.PSME\Desktop\1-20-16\EX22_SoftRecovery\SoftRecovery_2016_2_1_19_14_39.blg has 218 samples.
2/1/2016 7:21:59 PM -- Creating test report ...

Stress

Test Summary

Overall Test Result **Pass**

Machine Name WIN-ME-0022

Test Description Pure Storage 40,000 user mailbox performance test.

Test Start Time 1/21/2016 7:29:51 AM

Test End Time 1/22/2016 7:33:09 AM

Collection Start Time 1/21/2016 7:33:22 AM

Collection End Time 1/22/2016 7:33:02 AM

Jetstress Version 15.00.0775.000

ESE Version 15.00.0516.026

Operating System Windows Server 2012 R2 Datacenter (6.2.9200.0)

Performance Log C:\Users\Administrator.PSME\Desktop\1-20-16\Tuning_2016_1_21_7_30_28.blg
C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second 6080.323

Target Transactional I/O per Second 5000

Initial Database Size (bytes) 5368753422336

Final Database Size (bytes) 5487192178688

Database Files (Count) 4

Jetstress System Parameters

Thread Count 8

Minimum Database Cache 128.0 MB

Maximum Database Cache 1024.0 MB

Insert Operations 40%

Delete Operations 20%

Replace Operations 5%

Read Operations 35%

Lazy Commits 70%

Run Background Database Maintenance True

Number of Copies per Database 2

Database Configuration

Instance2512.1 Log path: I:\
Database: E:\Jetstress001001.edb

Instance2512.2 Log path: J\
Database: F:\Jetstress002001.edb

Instance2512.3 Log path: K\
Database: G:\Jetstress003001.edb

Instance2512.4 Log path: L\
Database: H:\Jetstress004001.edb

Transactional I/O Performance

MSExchange Database ==> Instances	I/O Database Reads Average Latency (msec)	I/O Database Writes Average Latency (msec)	I/O Database Reads /sec	I/O Database Writes /sec	I/O Database Reads Average Bytes	I/O Database Writes Average Bytes	I/O Log Reads Average Latency (msec)	I/O Log Writes Average Latency (msec)	I/O Log Reads /sec	I/O Log Writes /sec	I/O Log Reads Average Bytes	I/O Log Writes Average Bytes
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Instance2512.1 1.351 4.763 1016.673 504.656 32842.247 34159.398 0.000 0.415 0.000 224.113 0.000 7771.509

Instance2512.2 0.899 1.641 1014.033 505.470 32844.444 34154.794 0.000 0.415 0.000 225.423 0.000 7755.913

Instance2512.3 0.868 1.292 1014.055 505.565 32844.507 34156.657 0.000 0.415 0.000 225.550 0.000 7756.370

Instance2512.4	0.889	1.270	1014.173	505.698	32844.814	34154.274	0.000	0.415	0.000	225.579	0.000	7757.693
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Background Database Maintenance I/O Performance

MSEExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance2512.1	8.473	261859.198
Instance2512.2	9.045	261858.884
Instance2512.3	9.098	261843.322
Instance2512.4	9.085	261838.132

Log Replication I/O Performance

MSEExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance2512.1	5.063	232561.725
Instance2512.2	5.067	232561.625
Instance2512.3	5.069	232561.631
Instance2512.4	5.072	232561.173

Total I/O Performance

MSExchan	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O Log	I/O
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ge Database ==> Instances	Datab ase Reads Avera ge Laten cy (msec)	Datab ase Write s Avera ge Laten cy (msec)	Datab ase Reads /sec	Datab ase Writes /sec	Datab ase Reads Avera ge Bytes	Datab ase Writes Avera ge Bytes	Log Read s Avera ge Laten cy (mse c)	Log Write s Avera ge Laten cy (mse c)	Log Reads /sec	Log Writes /sec	Reads Averag e Bytes	Log Write s Avera ge Bytes
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Instance2 512.1 1.351 4.763 1025.145 504.656 34735.049 34159.398 0.973 0.415 5.063 224.113 232561.725 7771.509

Instance2 512.2 0.899 1.641 1023.078 505.470 34869.147 34154.794 0.974 0.415 5.067 225.423 232561.625 7755.913

Instance2 512.3 0.868 1.292 1023.153 505.565 34880.847 34156.657 0.971 0.415 5.069 225.550 232561.631 7756.370

Instance2 512.4 0.889 1.270 1023.258 505.698 34877.865 34154.274 0.970 0.415 5.072 225.579 232561.173 7757.693

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	8.350	3.274	16.724
Available MBytes	38674.158	38412.000	38701.000
Free System Page Table Entries	16500254.267	16499804.000	16500398.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	62124805.072	61210624.000	63016960.000

Pool Paged Bytes

151850692.649 151457792.000 156602368.000

Database Page Fault Stalls/sec

0.000

0.000

0.000

Test Log 1/21/2016 7:29:51 AM -- Preparing for testing ...

1/21/2016 7:29:55 AM -- Attaching databases ...

1/21/2016 7:29:55 AM -- Preparations for testing are complete.

1/21/2016 7:29:55 AM -- Starting transaction dispatch ..

1/21/2016 7:29:55 AM -- Database cache settings: (minimum: 128.0 MB, maximum: 1.0 GB)

1/21/2016 7:29:55 AM -- Database flush thresholds: (start: 10.2 MB, stop: 20.5 MB)

1/21/2016 7:30:00 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).

1/21/2016 7:30:00 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).

1/21/2016 7:30:00 AM -- Attaining prerequisites:

1/21/2016 7:30:28 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1016553000.0 (lower bound: 966367600.0, upper bound: none)

1/21/2016 7:30:29 AM -- Performance logging started (interval: 5000 ms).

1/21/2016 7:30:29 AM -- Automatic tuning is starting ...

1/21/2016 7:31:00 AM -- Instance2512.1 has 0.02 for read latency slope.

1/21/2016 7:31:00 AM -- Instance2512.2 has 0.00 for read latency slope.

1/21/2016 7:31:00 AM -- Instance2512.3 has 0.07 for read latency slope.

1/21/2016 7:31:00 AM -- Instance2512.4 has 0.01 for read latency slope.

1/21/2016 7:33:06 AM -- 1842 batch transactions/sec and 8 sessions have 6367 IOPS.

1/21/2016 7:33:06 AM -- 8 sessions have actual 6367 IOPS (target IOPS: 5000)

1/21/2016 7:33:06 AM -- Instance2512.1 has 1.1 for I/O Database Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.2 has 0.8 for I/O Database Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.3 has 0.7 for I/O Database Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.4 has 0.7 for I/O Database Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.1 has 0.4 for I/O Log Writes Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.1 has 0.0 for I/O Log Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.2 has 0.4 for I/O Log Writes Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.2 has 0.0 for I/O Log Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.3 has 0.4 for I/O Log Writes Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.3 has 0.0 for I/O Log Reads Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.4 has 0.4 for I/O Log Writes Average Latency.

1/21/2016 7:33:06 AM -- Instance2512.4 has 0.0 for I/O Log Reads Average Latency.

1/21/2016 7:33:06 AM -- Performance logging has ended.

1/21/2016 7:33:06 AM -- Automatic tuning succeeded.

1/21/2016 7:33:07 AM -- Operation mix: Sessions 8, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.

1/21/2016 7:33:07 AM -- Performance logging started (interval: 15000 ms).

1/21/2016 7:33:07 AM -- Attaining prerequisites:

1/21/2016 7:33:07 AM -- \MSEExchange Database(JetstressWin)\Database Cache Size, Last: 1057219000.0 (lower bound: 966367600.0, upper bound: none)

1/22/2016 7:33:08 AM -- Performance logging has ended.

1/22/2016 7:33:08 AM -- JetInterop batch transaction stats: 2105173, 2105172, 2105172 and 2105172.

1/22/2016 7:33:08 AM -- Dispatching transactions ends.

1/22/2016 7:33:08 AM -- Shutting down databases ...

1/22/2016 7:33:09 AM -- Instance2512.1 (complete), Instance2512.2 (complete), Instance2512.3 (complete) and Instance2512.4 (complete)

1/22/2016 7:33:09 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.blg has 5754 samples.

1/22/2016 7:33:09 AM -- Creating test report ...

1/22/2016 7:33:29 AM -- Instance2512.1 has 1.4 for I/O Database Reads Average Latency.

1/22/2016 7:33:29 AM -- Instance2512.1 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.1 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.2 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.3 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.9 for I/O Database Reads Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.4 for I/O Log Writes Average Latency.
1/22/2016 7:33:29 AM -- Instance2512.4 has 0.4 for I/O Log Reads Average Latency.
1/22/2016 7:33:29 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
1/22/2016 7:33:29 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
1/22/2016 7:33:29 AM -- C:\Users\Administrator.PSME\Desktop\1-20-16\Stress_2016_1_21_7_33_6.xml has
5753 samples queried.



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