Dell PowerEdge R730xd 10,000 Mailbox Resiliency Microsoft Exchange 2013 Storage Solution

Tested with ESRP – Storage Version 4.0
Tested Date: February 2015

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1   Overview

This document provides information about Dell's storage solution for Microsoft Exchange Server. This solution is based on the *Microsoft Exchange Solution Reviewed Program (ESRP) – Storage program v4.0*. For any questions or comments regarding the contents of this document, see Additional Information.

The ESRP – Storage program was developed by Microsoft Corporation to provide a common storage testing framework for vendors to provide storage solutions for Microsoft Exchange Server. For more information about the Microsoft ESRP — Storage program, see http://technet.microsoft.com/en-us/exchange/ff182054.aspx.

This technical white paper discusses Dell's solution for 10,000 Exchange mailboxes with 3GB mailbox size supporting up to 150 messages per day in a three-copy DAG. The solution uses the Dell PowerEdge R730xd server for the Exchange mailbox server role and uses the internal storage of PowerEdge R730xd server for storing the Exchange mailbox databases and transaction logs.

1.1   Disclaimer

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The information in this document represents the current view of Dell 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 Dell and cannot guarantee the accuracy of any information presented after the date of publication.

2   Features

This technical white paper describes a tested and validated storage solution for a 10,000 mailbox Exchange 2013 site-resilient environment using Database Availability Group (DAG). A DAG is a high-availability (HA) mechanism in Microsoft Exchange 2013 that supports multiple copies (up to 16) of Exchange database. There can be only one active copy of a given Exchange 2013 database at any given time. Mail clients access the active copy, and changes to the active copy are synchronized to the passive copies (including the copies located at remote sites) in the form of transaction logs. All hosts within a DAG are configured to be identical in terms of storage resources for Exchange 2013 databases and logs. The active and passive copies do not share any storage resources and reside on their own dedicated storage resources.

This mailbox resiliency solution includes a single DAG and three copies of each database, spanning two sites: Local and Remote. The local site has both database copies—active and passive—while the remote site has only a passive copy of the database. The tested environment simulates up to 10,000 users with 3 GB Mailbox size and 150 messages a day or 0.121 IO operations per second (IOPS) per user including a 20% IO headroom.

In this solution, the PowerEdge R730xd server with 3.5-inch drives is configured for the Mailbox Server role. The 3.5-inch chassis of PowerEdge R730xd server has a distinct configuration mode where four 3.5-inch drives could be placed in the internal hard-drive tray of the chassis with twelve 3.5-inch drives in the front of the chassis. Thus, PowerEdge R730xd server provides extra storage compared to PowerEdge R720xd server. Each PowerEdge R730xd server hosts one active copy of an Exchange 2013 database and transaction logs and one passive copy of the peer node's databases at the local site. Passive copies of databases for the local site are hosted at the remote site. Following are the major features of the server/storage system:

- Capable of hosting up to sixteen 3.5-inch Large Form Factor (LFF) SAS/Nearline (NL) SAS/SATA drives of up to 6 TB[1] including the four drives in the internal hard-drive tray (not used in this solution) of the chassis, plus two additional 2.5-inch disk drives in the back of the system (The 3.5-inch LFF configuration of the PowerEdge R730xd is used as part of this solution.); or up to twenty-six 2.5-inch Small Form Factor (SFF) SAS/NL SAS/SATA drives of up to 1.2 TB[1] capacity (including the two 2.5-inch back-accessible disk drives) Or up to eighteen 1.8-inch hard drives of up to 960GB in addition to eight 3.5-inch Large Form Factor drives
- Host-based RAID options with Dell PowerEdge RAID Controller H730P Mini

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[1] This information is accurate as of the date written.

3 Solution Components

The solution employs Dell PowerEdge R730xd server/storage combination building blocks, which are capable of meeting the high performance requirements of messaging deployments. The solution is for up to 10,000 mailboxes of size 3GB each. The following subsections describe the hardware components that are part of this Exchange solution:

Figure 1   Dell PowerEdge R730xd 3.5-inch Server

3.1 Dell PowerEdge R730xd

Dell PowerEdge R730xd is a 2-socket, 2U, rack server with highly expandable memory, dense storage capacity and impressive I/O capabilities, PowerEdge R730xd server can readily handle data-intensive applications that require large storage capacity and I/O performance, such as email. It delivers the performance and availability required for mission-critical email and is a great hardware building block for midsize or large business.

The internal RAID controller enables a range of RAID levels for improved storage reliability, while the optional CacheCade feature caches the most frequently accessed data, boosting database performance. Following are the major features of the server or storage system:

- Intel Xeon processor E5-2600 product family
- Dual processor sockets
- With 24 slots, up to 768GB of Memory for RDIMMS and 1536GB for LRDIMMs
- Up to 96TB Maximum Raw Internal Storage
- Choice of chassis configuration with sixteen 3.5-inch LFF disk drives, twenty-four 2.5-inch SFF disk drives or eighteen 1.8-inch disk drives along with eight 3.5-inch LFF disk drives
- Front loading drive bays plus two 2.5-inch SFF back-accessible drives
- Integrated RAID support through PERC S130, H330, PERC H730, PERC H730P & External JBOD RAID support through PERC H830
- Six PCIe 3.0 expansion slots
- Choice of NIC technologies

- Dell OpenManage Essentials and Dell Management Console, Dell OpenManage Power Center and Dell OpenManage Connections

The PowerEdge R730xd chassis configured with the 3.5-inch large form factor drives is used as part of this solution. For more information, see Dell PowerEdge R730xd Server product page.

3.2 PowerEdge RAID Controller H730P Mini

PowerEdge RAID Controller (PERC) H730P Mini is used in the PowerEdge R730xd server that hosts the Exchange Server. PERC H730P Mini is the internal host-based RAID Controller cards from the PERC Series 8 family. These PERC cards, built on the LSI SAS-3 3108 dual-core PowerPC RAID-on-Chip (ROC), offer unmatched I/O performance for databases, applications, and streaming digital media environments.

Table 1 shows the technical specifications of PERC H730P Mini. For more information, see Dell PowerEdge RAID Controller product page.

Table 1   Dell PowerEdge RAID Controller H730P Mini Technical Specifications

Feature	Specification
Solution	Eight port internal SATA+SAS solution supporting up to 32 hard disk drives (HDDs) and solid-state drives (SSDs)
Physical dimension	167.6mm (6.6in) x 64.4mm (2.5-inch) (MD2 low profile)
Connectors	Two internal mini-SAS HD SFF8643
Device support	Up to 32 SAS or SATA devices
Host bus type	8-lane, PCI Express 3.0 compliant
Data transfer rate	Up to 12 Gb/s per port
SAS controller	LSISAS3108 dual-core PowerPC ROC
Cache size	2 GB
RAID management	Dell OpenManage Storage Services & Additional management through UEFI (HII) & CEM
Optional SSD optimization	Dell FastPath software: delivers high passive performance on SSD arrays

For more information about recommended hardware specifications, see Section 4.3.

4   Solution Description

In this solution, the PowerEdge R730xd server with 3.5-inch LFF drives is used as the Mailbox Server. PowerEdge R730xd server provides SAS-based internal storage with RAID. The solution uses twelve 3.5-inch LFF 7.2KRPM NL-SAS disks and back-accessible 2.5-inch disks drives in the following layout:

- Two back-accessible disk drives (in RAID 1 container) for the operating system plus application files and Exchange Transport database
- Ten disk drives (in five RAID 1 containers) for the Exchange database and its transaction logs
- One disk drive marked for Restore LUN
- One disk drive configured as a Global Hot-spare

The solution has a 3-copy DAG Layout with Exchange Servers distributed between two sites: Local and Remote. Each server node has 5-RAID 1 LUNs hosting one active and one passive database per LUN. Each of these databases hosts 500 users with 3GB mailbox size each. Thus, a single server can accommodate 2,500 users during normal operating conditions. Four such servers placed in the local site provide Exchange Mailbox Services for 10,000 users. The mailbox user profile that was tested had 150 messages per day or 0.121 IOPS per user, which included a 20% IO overhead.

Figure 2 represents the distribution of database copies across the DAG members. It shows a 3-copy DAG site resilient solution with Exchange Servers hosted at both local and remote site. The local site has one active and one passive copy of each database. The remote site holds one passive copy of each database. If a server fails in the local site, the databases are activated on the surviving hosts to provide mailbox service continuity. In case of a local site failure, the databases are activated in the remote site to provide the Exchange Server service.

Figure 2   Database Availability Group architectural diagram
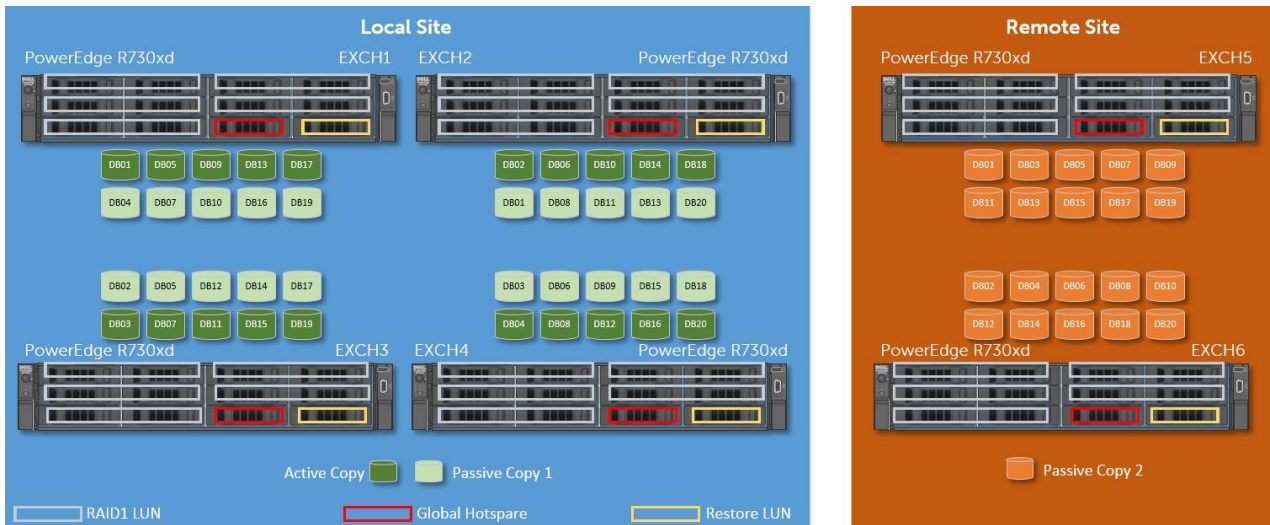
4.1   Failure and Recovery Scenarios

Figure 2 shows the logical diagram of the solution on the local site and remote site. There are four servers on the local site and two servers on the remote site. A single server failure on the local site activates the passive copies of the impacted databases. If there is a complete site failure, then the remote passive copies get activated, and the users connect to their databases on the remote site. This is shown in Figure 3. The condition considered and simulated here is a worst-case failure wherein the local site is completely unavailable and all the databases are activated on the remote site. Thus, each host is designed in a way that any two servers are capable of holding the entire load. Each server is capable of handling the load for 5,000 users. Therefore, with two servers, all 10,000 users can be managed without compromising on the performance.

Figure 3   With all four Servers being unavailable in the Local Site
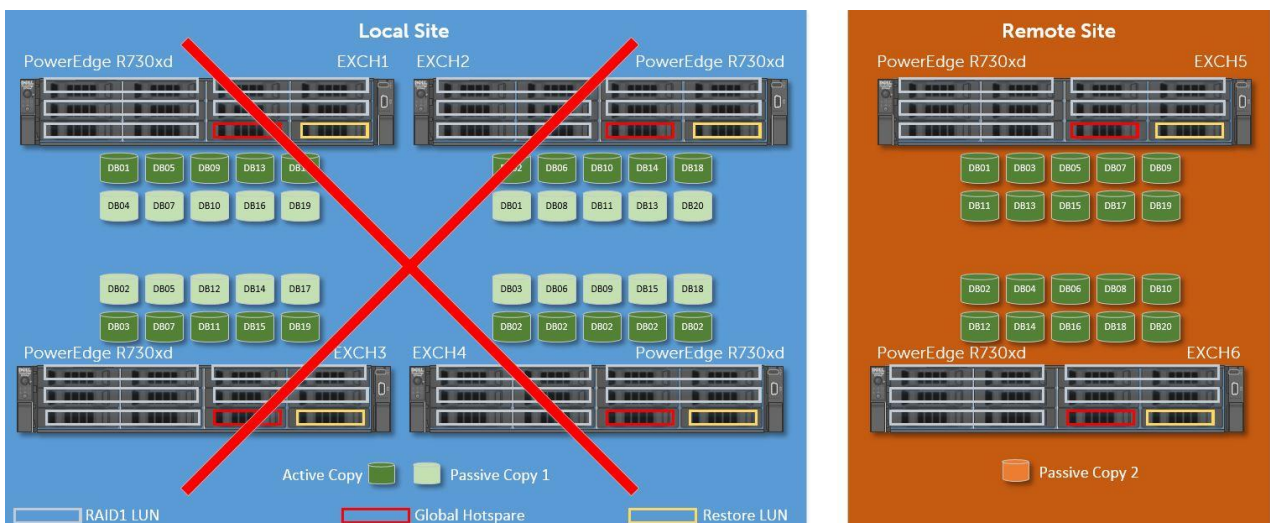
Figure 4 represents the database distribution across servers. The Microsoft Exchange 2013 Server Role Requirements Calculator can be used to derive the database distribution including the active and passive copies across servers located both in local and remote sites. The database distribution follows a particular pattern to ensure that, if a server fails, the passive copies are activated on the remaining host such that the load on each of the host machine is evenly distributed.

Figure 4   Database/Transaction Log Layout across servers in DAG

Vol	Database Name	Active Server	Local Site				Remote Site	
			EXCH1	EXCH2	EXCH3	EXCH4	EXCH5	EXCH6
Vol 1	DB01	EXCH1	1	2			3	
	DB02	EXCH2		1	2			3
	DB03	EXCH3			1	2	3	
	DB04	EXCH4	2			1		3
Vol 2	DB05	EXCH1	1		2		3	
	DB06	EXCH2		1		2		3
	DB07	EXCH3	2		1		3	
	DB08	EXCH4		2		1		3
Vol 3	DB09	EXCH1	1			2	3	
	DB10	EXCH2	2	1				3
	DB11	EXCH3		2	1		3	
	DB12	EXCH4			2	1		3
Vol 4	DB13	EXCH1	1	2			3	
	DB14	EXCH2		1	2			3
	DB15	EXCH3			1	2	3	
	DB16	EXCH4	2			1		3
Vol 5	DB17	EXCH1	1		2		3	
	DB18	EXCH2		1		2		3
	DB19	EXCH3	2		1		3	
	DB20	EXCH4		2		1		3

1	2	3
Active Copy	Passive Copy 1	Passive Copy 2

4.2   Storage Sizing

The Storage sizing process includes the type of RAID, type of disk drives and number of disk drives both from capacity and IOPS perspective. Selecting the right storage is crucial in achieving a balance between cost and performance. The storage design also depends on the actual size of mailbox on the disk drive, content indexing space, and log space required.

Microsoft Exchange 2013 Server Role Requirements Calculator can be used to derive the required IOPS for a particular user profile. Figure 5 shows the Mailbox Calculator output for 10,000 users with 150 messages per

day profile. The recommended IOPS per server is 603. Microsoft Exchange Jetstress tools verify if the storage subsystem meets the targeted IOPS requirement. For more information, see Section 5.

Figure 5   Recommended IOPS from the Microsoft Exchange 2013 Server Role Requirements Calculator

Host IO and Throughput Requirements	/ Database	/ Server	/ DAG	/ Environment
Total Database Required IOPS	60	603	3618	3618
Total Log Required IOPS	13	129	774	774
Database Read I/O Percentage	60%	--	--	--
Background Database Maintenance Throughput Requirements	1.0 MB/s	10 MB/s	60 MB/s	60 MB/s

4.3 Recommended Hardware Configuration

Based on the solution requirements described in the earlier sections, Table 2 and Table 3 provide more information about the server and storage configuration. The firmware and driver versions are also provided for the tested solution.

Table 2   Exchange Server Configuration

Microsoft Exchange Server System	Dell PowerEdge R730xd Server with 3.5" HDD Chassis
CPU	2 × Intel Xeon E5-2683 v3 processor with 14-cores
Memory	Up to 192 GB DDR4
NIC	Broadcom NetXtreme II
RAID Controller	Dell PowerEdge RAID Controller H730P Mini Firmware version: 25.2.1.0037 Storport Driver Version 6.3.9600.16384 Driver version 6.602.07.00
Internal Disks	2 x 1.2 TB SAS 2.5-inch 10K RPM disk drives (Operating System and Application)

Table 3   Storage Subsystem configuration

Storage System	Dell PowerEdge R730xd Internal 3.5-inch drives
Disks	12 x 6 TB 7.2K RPM NL-SAS 3.5-inch disk: • 10 x 6 TB 7.2K RPM NL-SAS 3.5-inch drive in 5 x RAID 1 (for DB and Log) • 1 x 6 TB 7.2K RPM NL-SAS 3.5-inch drive (for Restore LUN) • 1 x 6 TB 7.2K RPM NL-SAS 3.5-inch drive (for Global Hot-spare)

RAID Controller	Dell PowerEdge RAID Controller H730P Mini (Firmware version: 25.2.1.0037)

5 Targeted Customer Profile

This solution is intended for midsize to large organizations hosting up to 10,000 Exchange 2013 mailboxes. The configuration used for testing was as follows:

- Number of mailboxes: 10,000
- Number of sites: 2 (Local & Remote)
- Number of servers in each site: 4 in Local and 2 in Remote
- User IO profile: 150 messages sent and received or 0.121 IOPS per mailbox (This includes 20% IO overhead factor.)
- 3 GB Mailbox quota per mailbox
- 24x7 Background Database Maintenance enabled
- Data Availability Group (DAG) for Mailbox Resiliency (3 copies simulated-1 Active, 2 Passive)

5.1 Tested User Profile

The tested user profile had 0.121 IOPS per user with a 3 GB mailbox size. This equates to 150 messages (sent or received) per mailbox per day and accounts for an additional 20% I/O overhead. Additional applications such as certain mobile messaging applications can increase the IOPS profile of a user by three or four times.

5.2 Tested Deployment

The tested deployment simulated a failure scenario where up to four members of the local site were completely unavailable and the passive copies on the surviving DAG members at the remote site were activated to provide mailbox service continuity. Therefore, the IOPS simulated 5,000 mailboxes on the same Exchange 2013 Server. The target IOPS for the given profile was 603. The achieved IOPS was 923—much higher than the target—and the solution still maintained read and write latencies well within the recommended thresholds. The following tables summarize the testing environment:

Table 4   Simulated Exchange Configuration

Feature	Specification
Number of Exchange mailboxes simulated	10,000 (at 3 GB mailbox size each)
Number of Database Availability Groups (DAGs)	1
Number of Sites	2 (Local and Remote)

Feature	Specification
Number of servers/DAG	6 (4 Local and 2 Remote) (2 Tested)
Number of active mailboxes/server	2,500 (during normal operations) & 5,000 (during site failure)
Number of databases/server	10 (5 active, 5 passive)
Number of copies/database	3 (2 in Local and 1 in remote site)
Number of mailboxes/database	500
Simulated profile: IOPS/mailbox	0.121 (150 messages/day) This includes 20% IO overhead factor
Database/Log LUN size	5588GB
Number of LUNs per server	5
Number of DBs per LUN	2 (one active, one passive)
Background database maintenance (BDM)	Tested with BDM enabled
Total database size for performance testing	1860GB per DB 36.33TB total
% storage capacity used by Exchange database	36.33 TB / 54.57 TB 66.58%

Table 5   Storage and Server Hardware

Feature	Specification
Storage connectivity (Fiber Channel, SAS, SATA, iSCSI)	SAS
Storage model and OS/firmware revision	Dell PowerEdge R730xd with PERC H730P Mini Firmware 6.3.9600.16384
Storage cache	2 GB- PERC H730P Mini
Number of storage controllers	1
Number of storage ports	2 (Two internal mini-SAS HD SFF8643)
Maximum bandwidth of storage connectivity to host	12Gb/s per port
Switch type/model/firmware revision	NA
HBA model and firmware	H730P Mini Firmware 21.2.1.0037
Number of HBA's/host	1
Host server type	Dell PowerEdge R730xd 2 x Intel Xeon processor 192 GB RAM
Total number of disks tested in solution	20 (10 per server)
Maximum number of spindles can be hosted in the storage	12 x 3.5" and 2 x 2.5" per Dell PowerEdge R730xd server

Table 6   Storage and Server Software

Feature	Specification
HBA driver	PERC H730P SAS-RAID 6.602.7.0
HBA QueueTarget Setting	N/A
HBA QueueDepth Setting	N/A
Multi-Pathing	N/A

Host OS	Windows Server 2012 R2 Datacenter X64 Edition
ESE.dll file version	15.00.0995.021
Replication solution name/version	N/A

Table 7   Storage Disk Configuration (Mailbox Store Disks)

Feature	Specification
Disk type, speed and firmware revision	DELL 7.2K 3.5" RPM 6 TB NL-SAS Model – ST6000NM0034
Raw capacity per disk (TB)	6 TB
Number of physical disks in test	20 (10 per Server)
Total raw storage capacity (TB)	120 TB(60 TB per Server)
Raid level	RAID 1 pairs
Number of disks per LUN	2
Total formatted capacity	5588 GB per LUN 54.57 TB total
Storage capacity utilization	54.57/120=45.47% Formatted capacity/Total raw capacity
Database capacity utilization	36.33 TB / 54.57 TB=66.58% Database size / Total formatted capacity

5.3 Best Practices

Exchange Server 2007, 2010 and 2013 overcome the memory limitations of earlier Exchange versions by providing support as a 64-bit application. On Windows Server 2012 x64 Edition, about 4TB of addressable memory is available for kernel mode and user mode applications. Both the application and kernel have sufficient memory for operations, allowing the Extensible Storage Engine (ESE) in Exchange Server 2013 to utilize more memory to buffer data pages. The result is a reduction in the number of I/O, specifically the read operations required to the disk subsystem. The total number of database disk I/O operations for a given user load depends on the available system memory. For a given load, the total database disk I/O operations required per second (IOPS) decreases over a period with increase in system memory. This decrease in database IOPS is primarily caused by a decrease in database reads.

Even with the decrease in database IOPS using larger server memory, it is essential to size the Exchange Storage subsystem accurately to make sure that there are no I/O bottlenecks from an IOPS and disk latency perspective. The disk subsystem should be capable of supporting both the capacity and I/O throughput demands of the application. The following best practices are recommended to improve the I/O subsystem performance:

- For Exchange 2013 database, it is recommended that the size of elements within a RAID stripe be set to 512K for best performance.
- Windows NTFS allocation unit size for Exchange 2013 database partitions should be set to 64K for best performance. If log partitions are separated from the database, the default allocation unit size should be used. While formatting the windows partitions, GUID partition table (GPT) should be used.

- Average database read latencies (Avg. Disk sec/Read) should not exceed 20ms. Exchange Server 2013 storage latencies are most often related to the number of disk drives available for a given workload. Windows Performance Monitor may be used to monitor Exchange Server 2013 database counters.
- Sharing Exchange 2013 storage resources with other applications may negatively affect the performance of Exchange 2013 deployment. Therefore, sharing the spindles hosting the Exchange Database and log with any other application or operating system is not recommended.

For Exchange 2013 best practices on storage design, see:
http://technet.microsoft.com/en-us/library/ee832792(v=exchg.150).aspx

5.4 Backup Strategy

To protect email data from potential disasters, having a well designed and implemented backup solution is critical. Depending on environmental requirements, different backup strategies may be implemented, such as backup to tape or LAN/SAN-based backup. In this solution, DAG is used to maintain a passive database copy on a separate storage system. This passive copy of the database may be used to back up to tape or disk drive.

The log replay test was used to measure the maximum rate at which the log files can be replayed on the passive copies. This is used to determine the restore times and also the database write throughput that can be achieved during a log recovery.

6 Test Result Summary

This section provides a high-level summary of the test data from Microsoft Exchange Jetstress as part of the ESRP requirements and the link to the detailed HTML reports, which are generated by the ESRP testing framework.

6.1 Reliability

Reliability tests run for 24 hours and the goal is to verify if the storage can handle a high I/O load for a long period. After the stress test, both log and database files are analyzed for integrity to make sure that there is no database/log corruption.

The following list provides an overview of any errors reported during testing.

- Any errors reported in the saved event log file? No
- Any errors reported in during the database and log checksum process? No

6.2 Storage Performance Test Result Report

The storage performance test is designed to exercise the storage with maximum sustainable Exchange I/O for four hours. The test shows how long it takes the storage to respond to an I/O under load. The data here is the sum of all of the logical disks I/O's and average of all the logical disks I/O latency in the four hour test duration. The achieved IOPS was around 923.

As part of the ESRP framework, the Stress Test was also performed. The duration of the test was 24 hours with a target IOPS of 0.121 per user or 603 IOPS per server. The achieved IOPS was around 921 per server. This was well above the target IOPS. The Stress Test Result Report

6.2.1 Individual Server Metrics

Table 8 shows the sum of I/O across Mailbox databases and the average latency across all databases on a per server basis.

Table 8   Individual Server Metrics
Server 1:

Database I/O	
Target Disk Transfers/sec	605
Database Disks Transfers/sec	927.143
Database Disks Reads/sec	643.395
Database Disks Writes/sec	283.749
Average Database Disk Read Latency (ms)	14.99

Database I/O	
Average Database Disk Write Latency (ms)	1.46
Transaction Log I/O	
Log Disks Writes/sec	65.687
Average Log Disk Write Latency (ms)	0.1035

Server 2:

Database I/O	
Target Disk Transfers/sec	605
Database Disks Transfers/sec	919.308
Database Disks Reads/sec	638.379
Database Disks Writes/sec	280.931
Average Database Disk Read Latency (ms)	15.15
Average Database Disk Write Latency (ms)	1.36
Transaction Log I/O	
Log Disks Writes/sec	65.884
Average Log Disk Write Latency (ms)	0.1413

6.2.1 Aggregate Performance across all servers/DAGs Metrics

Table 9 shows the aggregated results of I/O across servers in solution and the average latency across all servers in solution.

Table 9   Aggregated Performance Metrics across all Servers

Database I/O	
Database Disks Transfers/sec	1846.451
Database Disks Reads/sec	1281.774
Database Disks Writes/sec	564.68
Average Database Disk Read Latency (ms)	15.07
Average Database Disk Write Latency (ms)	1.41

Database I/O	
Transaction Log I/O	
Log Disks Writes/sec	131.571
Average Log Disk Write Latency (ms)	0.1224

6.3 Database Backup/Recovery Performance

There are two test reports in this section. The database backup test measures the sequential read rate of the database files, and the soft recovery test measures the recovery/replay performance (playing transaction logs in to the database).

6.3.1 Database Backup Test Result Report

6.3.2

The test is to measure the maximum rate at which databases could be backed up through VSS. The following table shows the average rate for a single database file:

Table 10   Database Backup Test Metrics

MB read/sec per database	190.73
MB read/sec total per server	1907.3

6.3.3 Soft Recovery test Result Report

The test is to measure the maximum rate at which the log files can be played on the passive copies. The following table shows the average rate for 505 log files played in a single storage group. Each log file is 1 MB in size.

Table 11   Soft Recovery Test metrics

Average number of log files played	505
Average time to play one Log file (sec)	2.738

7   Conclusion

This ESRP document presents a tested and validated Exchange solution for 10,000 mailboxes with 3GB mailbox size supporting up to 150 messages per day in a three-copy DAG. The solution uses the Dell PowerEdge R730xd server for the Exchange mailbox server role and uses the internal storage of PowerEdge R730xd for storing the Exchange mailbox databases and transactional logs.

Testing was carried out as part of the ESRP test framework using Microsoft Exchange Server 2013 Jetstress. The test results showed that the proposed solution is more than capable of delivering the IOPS and meeting the capacity requirements to support 10,000 mailboxes with the set mailbox profile.

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

The ESRP program is not designed to be a benchmarking program and the tests are not designed to obtain the maximum throughput for a given solution. Rather, the tests focus on obtaining recommendations from vendors for Exchange application. The data presented in this document should not be used for direct comparisons among solutions.

8   Additional Information

1. **Dell.com/support** is focused on meeting customer requirements with proven services.
2. **DellTechCenter.com** is an IT Community where you can connect with Dell Customers and Dell employees for sharing knowledge, best practices and information about Dell products and installations.
3. Referenced or recommended Dell publications:
    a. Dell Unified Communications and Collaboration website
    b. Dell PowerEdge R730xd
    c. Dell PowerEdge RAID Controller (PERC) H730P User Guide

A Performance Test Result Report

A.1 Server1

Microsoft Exchange Jetstress 2013

Performance Test Result Report

Test Summary

Overall Test Result	Pass
Machine Name	EXCH1
Test Description	EXchange Mailbox Profile Test Host: EXCH1 12*6TB 7.2KRPM NL-SAS 5 RAID1 Volumes for Exchange 1 RAID1 Volume for OS 1 RAID0 Volume for RestoreLUN, 1 HotSpares5000 users, 150 messages a day and 3GB Mailbox Size
Test Start Time	2/23/2015 2:56:01 PM
Test End Time	2/23/2015 7:00:14 PM
Collection Start Time	2/23/2015 2:59:55 PM
Collection End Time	2/23/2015 6:59:54 PM
Jetstress Version	15.00.0775.000
ESE Version	15.00.0995.021
Operating System	Windows Server 2012 R2 Datacenter (6.2.9200.0)
Performance Log	C:\Ajith\ESRP Runs\EXCH1\21T-4hrs\Performance_2015_2_23_14_56_22.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second	927.143
Target Transactional I/O per Second	605
Initial Database Size (bytes)	16218207551488
Final Database Size (bytes)	16222619959296
Database Files (Count)	10

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 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	3

Database Configuration

Instance7704.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance7704.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance7704.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance7704.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance7704.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance7704.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance7704.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance7704.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance7704.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance7704.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance7704.1	14.742	2.024	64.278	28.248	32920.606	34260.220	0.000	0.103	0.000	6.533	0.000	20484.593
Instance7704.2	15.386	2.042	64.387	28.549	32924.708	34243.047	0.000	0.108	0.000	6.635	0.000	20333.586
Instance7704.3	14.837	1.790	64.448	28.481	32916.266	34236.897	0.000	0.102	0.000	6.568	0.000	20300.485
Instance7704.4	15.266	1.797	64.498	28.532	32907.742	34250.887	0.000	0.101	0.000	6.581	0.000	20379.070
Instance7704.5	15.601	1.450	64.173	28.155	32914.477	34262.433	0.000	0.106	0.000	6.552	0.000	20392.964
Instance7704.6	15.120	1.465	64.389	28.425	32910.571	34243.412	0.000	0.104	0.000	6.554	0.000	20439.204
Instance7704.7	15.166	1.131	64.373	28.357	32899.841	34248.663	0.000	0.106	0.000	6.533	0.000	20433.310
Instance7704.8	15.650	1.131	64.243	28.296	32913.707	34257.245	0.000	0.103	0.000	6.562	0.000	20516.627
Instance7704.9	13.852	0.885	64.359	28.388	32920.134	34256.188	0.000	0.102	0.000	6.573	0.000	20448.698
Instance7704.10	14.301	0.886	64.247	28.318	32916.052	34254.022	0.000	0.100	0.000	6.596	0.000	20364.880

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance7704.1	8.836	261827.579
Instance7704.2	8.753	261840.739
Instance7704.3	8.823	261869.660
Instance7704.4	8.762	261861.234
Instance7704.5	8.747	261913.476
Instance7704.6	8.819	261825.965
Instance7704.7	8.820	261855.415
Instance7704.8	8.748	261860.829
Instance7704.9	8.859	261865.461
Instance7704.10	8.801	261846.094

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance7704.1	1.142	214578.944
Instance7704.2	1.150	213606.899
Instance7704.3	1.136	212148.832
Instance7704.4	1.144	212148.832
Instance7704.5	1.139	211905.821
Instance7704.6	1.141	210690.764
Instance7704.7	1.140	212866.072
Instance7704.8	1.146	214328.562
Instance7704.9	1.145	212877.866
Instance7704.10	1.146	211419.798

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
Instance7704.1	14.742	2.024	73.114	28.248	60585.828	34260.220	0.631	0.103	1.142	6.533	214578.944	20484.593
Instance7704.2	15.386	2.042	73.140	28.549	60318.924	34243.047	0.632	0.108	1.150	6.635	213606.899	20333.586
Instance7704.3	14.837	1.790	73.271	28.481	60486.495	34236.897	0.544	0.102	1.136	6.568	212148.832	20300.485
Instance7704.4	15.266	1.797	73.260	28.532	60290.817	34250.887	0.563	0.101	1.144	6.581	212148.832	20379.070
Instance7704.5	15.601	1.450	72.920	28.155	60383.678	34262.433	0.727	0.106	1.139	6.552	211905.821	20392.964
Instance7704.6	15.120	1.465	73.208	28.425	60488.279	34243.412	0.740	0.104	1.141	6.554	210690.764	20439.204
Instance7704.7	15.166	1.131	73.193	28.357	60489.928	34248.663	0.639	0.106	1.140	6.533	212866.072	20433.310
Instance7704.8	15.650	1.131	72.990	28.296	60351.934	34257.245	0.656	0.103	1.146	6.562	214328.562	20516.627
Instance7704.9	13.852	0.885	73.218	28.388	60620.922	34256.188	0.235	0.102	1.145	6.573	212877.866	20448.698
Instance7704.10	14.301	0.886	73.048	28.318	60497.863	34254.022	0.157	0.100	1.146	6.596	211419.798	20364.880

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.123	0.048	0.195
Available MBytes	184569.249	184543.000	184660.000
Free System Page Table Entries	16477130.327	16476079.000	16477487.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	149539145.219	149479424.000	149610496.000
Pool Paged Bytes	142501255.215	142303232.000	142561280.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log
2/23/2015 2:56:01 PM -- Preparing for testing ...
2/23/2015 2:56:11 PM -- Attaching databases ...
2/23/2015 2:56:11 PM -- Preparations for testing are complete.
2/23/2015 2:56:11 PM -- Starting transaction dispatch ..
2/23/2015 2:56:11 PM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/23/2015 2:56:11 PM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/23/2015 2:56:22 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/23/2015 2:56:22 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/23/2015 2:56:24 PM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/23/2015 2:56:24 PM -- Performance logging started (interval: 15000 ms).
2/23/2015 2:56:24 PM -- Attaining prerequisites:
2/23/2015 2:59:55 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 2420179000.0 (lower bound: 2415919000.0, upper bound: none)
2/23/2015 6:59:56 PM -- Performance logging has ended.
2/23/2015 6:59:56 PM -- JetInterop batch transaction stats: 31429, 31429, 31429, 31429, 31428, 31428, 31428, 31428, 31428 and 31428.
2/23/2015 6:59:56 PM -- Dispatching transactions ends.
2/23/2015 6:59:56 PM -- Shutting down databases ...
2/23/2015 7:00:14 PM -- Instance7704.1 (complete), Instance7704.2 (complete), Instance7704.3 (complete), Instance7704.4 (complete), Instance7704.5 (complete), Instance7704.6 (complete), Instance7704.7 (complete), Instance7704.8 (complete), Instance7704.9 (complete) and Instance7704.10 (complete)
2/23/2015 7:00:14 PM -- C:\Ajith\ESRP Runs\EXCH1\21T-4hrs\Performance_2015_2_23_14_56_22.blg has 972 samples.
2/23/2015 7:00:14 PM -- Creating test report ...
2/23/2015 7:00:23 PM -- Instance7704.1 has 14.7 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.1 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.1 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.2 has 15.4 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.2 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.2 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.3 has 14.8 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.3 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.3 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.4 has 15.3 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.4 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.4 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.5 has 15.6 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.5 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.5 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.6 has 15.1 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.6 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.6 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.7 has 15.2 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.7 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.7 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.8 has 15.6 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.8 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.8 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.9 has 13.9 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.9 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.9 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.10 has 14.3 for I/O Database Reads Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.10 has 0.1 for I/O Log Writes Average Latency.

2/23/2015 7:00:23 PM -- Instance7704.10 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:00:23 PM -- Instance7704.10 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:00:23 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/23/2015 7:00:23 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/23/2015 7:00:23 PM -- C:\Ajith\ESRP Runs\EXCH1\21T-4hrs\Performance_2015_2_23_14_56_22.xml has 957 samples queried.

A.2   Server 2

Microsoft Exchange Jetstress 2013

Performance Test Result Report

Test Summary

Overall Test Result	**Pass**
Machine Name	EXCH2
Test Description	Exchange Mailbox Profile Test Host: EXCH2 12*6TB 7.2KRPM NL-SAS 5 RAID1 Volumes for Exchange 1 RAID1 Volume for OS 1 RAID0 Volume for RestoreLUN, 1 HotSpares5000 users, 150 messages a day and 3GB Mailbox Size
Test Start Time	2/23/2015 2:57:57 PM
Test End Time	2/23/2015 7:02:15 PM
Collection Start Time	2/23/2015 3:01:56 PM
Collection End Time	2/23/2015 7:01:51 PM
Jetstress Version	15.00.0775.000
ESE Version	15.00.0995.021
Operating System	Windows Server 2012 R2 Datacenter (6.2.9200.0)
Performance Log	C:\Ajith\ESRP Runs\EXCH2\21T-4hrs\Performance_2015_2_23_14_58_19.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second	919.308
Target Transactional I/O per Second	605
Initial Database Size (bytes)	16153489440768
Final Database Size (bytes)	16157901848576
Database Files (Count)	10

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 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	3

Database Configuration

Instance5980.1	Log path: C:\VOL1\Log\Log-DB01 Database: C:\VOL1\Database\DB01\Jetstress001001.edb
Instance5980.2	Log path: C:\VOL1\Log\Log-DB02 Database: C:\VOL1\Database\DB02\Jetstress002001.edb
Instance5980.3	Log path: C:\VOL2\Log\Log-DB03 Database: C:\VOL2\Database\DB03\Jetstress003001.edb
Instance5980.4	Log path: C:\VOL2\Log\Log-DB04 Database: C:\VOL2\Database\DB04\Jetstress004001.edb
Instance5980.5	Log path: C:\VOL3\Log\Log-DB05 Database: C:\VOL3\Database\DB05\Jetstress005001.edb
Instance5980.6	Log path: C:\VOL3\Log\Log-DB06 Database: C:\VOL3\Database\DB06\Jetstress006001.edb
Instance5980.7	Log path: C:\VOL4\Log\Log-DB07 Database: C:\VOL4\Database\DB07\Jetstress007001.edb
Instance5980.8	Log path: C:\VOL4\Log\Log-DB08 Database: C:\VOL4\Database\DB08\Jetstress008001.edb
Instance5980.9	Log path: C:\VOL5\Log\Log-DB09 Database: C:\VOL5\Database\DB09\Jetstress009001.edb
Instance5980.10	Log path: C:\VOL5\Log\Log-DB10 Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance5980.1	14.754	1.573	63.838	28.145	32917.691	34591.424	0.000	0.144	0.000	6.623	0.000	20357.095
Instance5980.2	15.776	1.575	63.870	28.224	32913.244	34561.311	0.000	0.143	0.000	6.591	0.000	20364.206
Instance5980.3	15.008	1.447	63.744	28.006	32924.803	34585.212	0.000	0.145	0.000	6.581	0.000	20509.876
Instance5980.4	15.697	1.460	63.797	28.040	32918.903	34562.390	0.000	0.141	0.000	6.552	0.000	20420.493
Instance5980.5	15.587	1.275	64.106	28.230	32922.477	34566.881	0.000	0.143	0.000	6.578	0.000	20158.938
Instance5980.6	14.921	1.269	63.636	27.836	32911.056	34599.528	0.000	0.145	0.000	6.523	0.000	20533.827
Instance5980.7	15.550	1.195	63.869	28.109	32912.044	34569.713	0.000	0.139	0.000	6.591	0.000	20369.586
Instance5980.8	14.955	1.199	63.930	28.186	32922.171	34574.719	0.000	0.138	0.000	6.590	0.000	20367.917
Instance5980.9	14.351	1.308	63.963	28.248	32913.903	34567.905	0.000	0.137	0.000	6.662	0.000	20274.624
Instance5980.10	14.909	1.314	63.626	27.907	32913.031	34576.736	0.000	0.138	0.000	6.593	0.000	20457.549

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance5980.1	8.837	261860.191
Instance5980.2	8.610	261946.816
Instance5980.3	8.836	261900.635
Instance5980.4	8.622	261899.414
Instance5980.5	8.625	261884.725
Instance5980.6	8.831	261884.822
Instance5980.7	8.629	261869.623
Instance5980.8	8.836	261879.542
Instance5980.9	8.858	261898.433
Instance5980.10	8.671	261905.845

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance5980.1	1.150	214316.125
Instance5980.2	1.146	211849.482
Instance5980.3	1.150	213567.203
Instance5980.4	1.141	213269.962
Instance5980.5	1.132	211902.283
Instance5980.6	1.142	214443.282
Instance5980.7	1.145	212561.119
Instance5980.8	1.144	210906.843
Instance5980.9	1.151	212106.082
Instance5980.10	1.150	213030.774

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
Instance5980.1	14.754	1.573	72.675	28.145	60756.428	34591.424	1.757	0.144	1.150	6.623	214316.125	20357.095
Instance5980.2	15.776	1.575	72.480	28.224	60120.312	34561.311	1.654	0.143	1.146	6.591	211849.482	20364.206
Instance5980.3	15.008	1.447	72.580	28.006	60799.704	34585.212	1.763	0.145	1.150	6.581	213567.203	20509.876
Instance5980.4	15.697	1.460	72.419	28.040	60179.429	34562.390	1.743	0.141	1.141	6.552	213269.962	20420.493
Instance5980.5	15.587	1.275	72.731	28.230	60074.385	34566.881	1.856	0.143	1.132	6.578	211902.283	20158.938
Instance5980.6	14.921	1.269	72.466	27.836	60814.445	34599.528	1.744	0.145	1.142	6.523	214443.282	20533.827
Instance5980.7	15.550	1.195	72.498	28.109	60163.551	34569.713	1.447	0.139	1.145	6.591	212561.119	20369.586
Instance5980.8	14.955	1.199	72.765	28.186	60723.627	34574.719	1.536	0.138	1.144	6.590	210906.843	20367.917
Instance5980.9	14.351	1.308	72.821	28.248	60768.411	34567.905	0.964	0.137	1.151	6.662	212106.082	20274.624
Instance5980.10	14.909	1.314	72.297	27.907	60378.927	34576.736	1.119	0.138	1.150	6.593	213030.774	20457.549

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.336	0.048	0.712
Available MBytes	184575.042	184556.000	184707.000
Free System Page Table Entries	16480202.700	16479843.000	16480475.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	137760626.611	137687040.000	138010624.000
Pool Paged Bytes	110741688.234	110690304.000	110837760.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

2/23/2015 2:57:57 PM -- Preparing for testing ...
2/23/2015 2:58:08 PM -- Attaching databases ...
2/23/2015 2:58:08 PM -- Preparations for testing are complete.
2/23/2015 2:58:08 PM -- Starting transaction dispatch ..
2/23/2015 2:58:08 PM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/23/2015 2:58:08 PM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/23/2015 2:58:19 PM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/23/2015 2:58:19 PM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/23/2015 2:58:20 PM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/23/2015 2:58:20 PM -- Performance logging started (interval: 15000 ms).
2/23/2015 2:58:20 PM -- Attaining prerequisites:
2/23/2015 3:01:56 PM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 2420732000.0 (lower bound: 2415919000.0, upper bound: none)
2/23/2015 7:01:57 PM -- Performance logging has ended.
2/23/2015 7:01:57 PM -- JetInterop batch transaction stats: 31406, 31406, 31405, 31405, 31405, 31405, 31405, 31405, 31405 and 31405.
2/23/2015 7:01:57 PM -- Dispatching transactions ends.
2/23/2015 7:01:57 PM -- Shutting down databases ...
2/23/2015 7:02:15 PM -- Instance5980.1 (complete), Instance5980.2 (complete), Instance5980.3 (complete), Instance5980.4 (complete), Instance5980.5 (complete), Instance5980.6 (complete), Instance5980.7 (complete), Instance5980.8 (complete), Instance5980.9 (complete) and Instance5980.10 (complete).
2/23/2015 7:02:15 PM -- C:\Ajith\ESRP Runs\EXCH2\21T-4hrs\Performance_2015_2_23_14_58_19.blg has 970 samples.
2/23/2015 7:02:15 PM -- Creating test report ...

```
2/23/2015 7:02:24 PM -- Instance5980.1 has 14.8 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.1 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.1 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.2 has 15.8 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.2 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.2 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.3 has 15.0 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.3 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.3 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.4 has 15.7 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.4 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.4 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.5 has 15.6 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.5 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.5 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.6 has 14.9 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.6 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.6 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.7 has 15.6 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.7 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.7 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.8 has 15.0 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.8 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.8 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.9 has 14.4 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.9 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.9 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.10 has 14.9 for I/O Database Reads Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.10 has 0.1 for I/O Log Writes Average Latency.
2/23/2015 7:02:24 PM -- Instance5980.10 has 0.1 for I/O Log Reads Average Latency.
2/23/2015 7:02:24 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/23/2015 7:02:24 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/23/2015 7:02:25 PM -- C:\Ajith\ESRP Runs\EXCH2\21T-4hrs\Performance_2015_2_23_14_58_19.xml has 955 samples queried.
```

B   Stress Test Result Report

B.1   Server 1

Microsoft Exchange Jetstress 2013

Stress Test Result Report

Test Summary

Overall Test Result	Pass
Machine Name	EXCH1
Test Description	EXchange Mailbox Profile Test
	Host: EXCH1
	12*6TB 7.2KRPM NL-SAS
	5 RAID1 Volumes for Exchange
	1 RAID1 Volume for OS
	1 RAID0 Volume for RestoreLUN, 1 HotSpares5000 users, 150 messages a day and 3GB Mailbox Size
Test Start Time	2/24/2015 12:06:52 AM
Test End Time	2/25/2015 12:11:04 AM
Collection Start Time	2/24/2015 12:10:45 AM
Collection End Time	2/25/2015 12:10:44 AM
Jetstress Version	15.00.0775.000
ESE Version	15.00.0995.021
Operating System	Windows Server 2012 R2 Datacenter (6.2.9200.0)
Performance Log	C:\Ajith\ESRP Runs\EXCH1\Stress\Stress_2015_2_24_0_7_13.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second	926.622
Target Transactional I/O per Second	605
Initial Database Size (bytes)	16222619959296
Final Database Size (bytes)	16248767250432
Database Files (Count)	10

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 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	3

Database Configuration

Instance6764.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance6764.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance6764.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance6764.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance6764.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance6764.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance6764.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance6764.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance6764.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance6764.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance6764.1	14.908	2.039	64.191	28.353	32915.574	34218.415	0.000	0.107	0.000	6.548	0.000	20399.734
Instance6764.2	15.389	2.049	64.308	28.449	32912.165	34213.102	0.000	0.103	0.000	6.547	0.000	20322.094
Instance6764.3	15.012	1.810	64.233	28.429	32910.645	34216.618	0.000	0.104	0.000	6.561	0.000	20379.707
Instance6764.4	15.284	1.814	64.238	28.415	32912.690	34215.669	0.000	0.105	0.000	6.555	0.000	20342.324
Instance6764.5	15.425	1.472	64.292	28.473	32910.625	34211.970	0.000	0.105	0.000	6.555	0.000	20326.504
Instance6764.6	15.148	1.478	64.277	28.367	32915.244	34213.547	0.000	0.106	0.000	6.532	0.000	20333.817
Instance6764.7	15.234	1.135	64.229	28.420	32916.535	34215.516	0.000	0.106	0.000	6.563	0.000	20356.063
Instance6764.8	15.534	1.139	64.226	28.422	32912.453	34218.738	0.000	0.105	0.000	6.561	0.000	20388.484
Instance6764.9	13.903	0.886	64.228	28.440	32917.145	34223.815	0.000	0.100	0.000	6.577	0.000	20387.904
Instance6764.10	14.181	0.889	64.238	28.395	32917.568	34214.517	0.000	0.101	0.000	6.543	0.000	20384.457

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance6764.1	8.814	261873.187
Instance6764.2	8.783	261852.144
Instance6764.3	8.802	261877.799
Instance6764.4	8.792	261861.831
Instance6764.5	8.783	261851.876
Instance6764.6	8.797	261850.979
Instance6764.7	8.793	261858.178
Instance6764.8	8.781	261850.681
Instance6764.9	8.845	261827.022
Instance6764.10	8.831	261856.840

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance6764.1	1.139	210499.695
Instance6764.2	1.134	212679.536
Instance6764.3	1.139	212039.051
Instance6764.4	1.137	210051.260
Instance6764.5	1.136	211302.283
Instance6764.6	1.132	210669.001
Instance6764.7	1.139	211553.143
Instance6764.8	1.141	212449.493
Instance6764.9	1.143	211878.984
Instance6764.10	1.137	212894.991

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
Instance6764.1	14.908	2.039	73.004	28.353	60556.873	34218.415	0.577	0.107	1.139	6.548	210499.695	20399.734
Instance6764.2	15.389	2.049	73.091	28.449	60423.878	34213.102	0.593	0.103	1.134	6.547	212679.536	20322.094
Instance6764.3	15.012	1.810	73.035	28.429	60504.997	34216.618	0.595	0.104	1.139	6.561	212039.051	20379.707
Instance6764.4	15.284	1.814	73.029	28.415	60474.640	34215.669	0.597	0.105	1.137	6.555	210051.260	20342.324
Instance6764.5	15.425	1.472	73.075	28.473	60428.854	34211.970	0.576	0.105	1.136	6.555	211302.283	20326.504
Instance6764.6	15.148	1.478	73.074	28.367	60475.221	34213.547	0.526	0.106	1.132	6.532	210669.001	20333.817
Instance6764.7	15.234	1.135	73.022	28.420	60483.647	34215.516	0.532	0.106	1.139	6.563	211553.143	20356.063
Instance6764.8	15.534	1.139	73.007	28.422	60447.800	34218.738	0.542	0.105	1.141	6.561	212449.493	20388.484
Instance6764.9	13.903	0.886	73.073	28.440	60625.196	34223.815	0.177	0.100	1.143	6.577	211878.984	20387.904
Instance6764.10	14.181	0.889	73.069	28.395	60586.022	34214.517	0.195	0.101	1.137	6.543	212894.991	20384.457

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.125	0.052	0.410
Available MBytes	184548.578	184507.000	184672.000
Free System Page Table Entries	16477090.875	16475837.000	16477542.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	150009423.454	149766144.000	150327296.000
Pool Paged Bytes	143914448.612	143081472.000	144416768.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

2/24/2015 12:06:52 AM -- Preparing for testing ...
2/24/2015 12:07:02 AM -- Attaching databases ...
2/24/2015 12:07:02 AM -- Preparations for testing are complete.
2/24/2015 12:07:02 AM -- Starting transaction dispatch ..
2/24/2015 12:07:02 AM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/24/2015 12:07:02 AM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/24/2015 12:07:13 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
2/24/2015 12:07:13 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
2/24/2015 12:07:14 AM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/24/2015 12:07:14 AM -- Performance logging started (interval: 15000 ms).
2/24/2015 12:07:15 AM -- Attaining prerequisites:
2/24/2015 12:10:45 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 2434777000.0 (lower bound: 2415919000.0, upper bound: none)
2/25/2015 12:10:46 AM -- Performance logging has ended.
2/25/2015 12:10:46 AM -- JetInterop batch transaction stats: 185195, 185195, 185195, 185195, 185195, 185195, 185195, 185195, 185195 and 185195.
2/25/2015 12:10:46 AM -- Dispatching transactions ends.
2/25/2015 12:10:46 AM -- Shutting down databases ...
2/25/2015 12:11:04 AM -- Instance6764.1 (complete), Instance6764.2 (complete), Instance6764.3 (complete), Instance6764.4 (complete), Instance6764.5 (complete), Instance6764.6 (complete), Instance6764.7 (complete), Instance6764.8 (complete), Instance6764.9 (complete) and Instance6764.10 (complete)
2/25/2015 12:11:04 AM -- C:\Ajith\ESRP Runs\EXCH1\Stress\Stress_2015_2_24_0_7_13.blg has 5762 samples.
2/25/2015 12:11:04 AM -- Creating test report ...
2/25/2015 12:11:53 AM -- Instance6764.1 has 14.9 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.1 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.1 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.2 has 15.4 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.2 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.2 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.3 has 15.0 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.3 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.3 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.4 has 15.3 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.4 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.4 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.5 has 15.4 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.5 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.5 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.6 has 15.1 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.6 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.6 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.7 has 15.2 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.7 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.7 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.8 has 15.5 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.8 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.8 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.9 has 13.9 for I/O Database Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.9 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.9 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.10 has 14.2 for I/O Database Reads Average Latency.

2/25/2015 12:11:53 AM -- Instance6764.10 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:11:53 AM -- Instance6764.10 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:11:53 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/25/2015 12:11:53 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/25/2015 12:11:53 AM -- C:\Ajith\ESRP Runs\EXCH1\Stress\Stress_2015_2_24_0_7_13.xml has 5747 samples queried.

B.2   Server 2

Microsoft Exchange Jetstress 2013

Stress Test Result Report

Test Summary

Overall Test Result	Pass
Machine Name	EXCH2
Test Description	Exchange Mailbox Profile Test
	Host: EXCH2
	12*6TB 7.2KRPM NL-SAS
	5 RAID1 Volumes for Exchange
	1 RAID1 Volume for OS
	1 RAID0 Volume for RestoreLUN, 1 HotSpares5000 users, 150 messages a day and 3GB Mailbox Size
Test Start Time	2/24/2015 12:10:17 AM
Test End Time	2/25/2015 12:14:34 AM
Collection Start Time	2/24/2015 12:14:15 AM
Collection End Time	2/25/2015 12:14:11 AM
Jetstress Version	15.00.0775.000
ESE Version	15.00.0995.021
Operating System	Windows Server 2012 R2 Datacenter (6.2.9200.0)
Performance Log	C:\Ajith\ESRP Runs\EXCH2\Stress\Stress_2015_2_24_0_10_38.blg

Database Sizing and Throughput

Achieved Transactional I/O per Second	917.407
Target Transactional I/O per Second	605
Initial Database Size (bytes)	16157901848576
Final Database Size (bytes)	16183763927040
Database Files (Count)	10

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 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	3

Database Configuration

Instance3296.1	Log path: C:\VOL1\Log\Log-DB01
	Database: C:\VOL1\Database\DB01\Jetstress001001.edb
Instance3296.2	Log path: C:\VOL1\Log\Log-DB02
	Database: C:\VOL1\Database\DB02\Jetstress002001.edb
Instance3296.3	Log path: C:\VOL2\Log\Log-DB03
	Database: C:\VOL2\Database\DB03\Jetstress003001.edb
Instance3296.4	Log path: C:\VOL2\Log\Log-DB04
	Database: C:\VOL2\Database\DB04\Jetstress004001.edb
Instance3296.5	Log path: C:\VOL3\Log\Log-DB05
	Database: C:\VOL3\Database\DB05\Jetstress005001.edb
Instance3296.6	Log path: C:\VOL3\Log\Log-DB06
	Database: C:\VOL3\Database\DB06\Jetstress006001.edb
Instance3296.7	Log path: C:\VOL4\Log\Log-DB07
	Database: C:\VOL4\Database\DB07\Jetstress007001.edb
Instance3296.8	Log path: C:\VOL4\Log\Log-DB08
	Database: C:\VOL4\Database\DB08\Jetstress008001.edb
Instance3296.9	Log path: C:\VOL5\Log\Log-DB09
	Database: C:\VOL5\Database\DB09\Jetstress009001.edb
Instance3296.10	Log path: C:\VOL5\Log\Log-DB10
	Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance3296.1	14.854	1.465	63.573	28.007	32918.281	34450.805	0.000	0.147	0.000	6.510	0.000	20436.025
Instance3296.2	15.834	1.475	63.687	28.182	32910.398	34434.557	0.000	0.148	0.000	6.536	0.000	20352.013
Instance3296.3	14.863	1.369	63.665	28.144	32917.850	34452.425	0.000	0.147	0.000	6.538	0.000	20385.793
Instance3296.4	15.531	1.375	63.687	28.148	32914.487	34445.358	0.000	0.145	0.000	6.532	0.000	20390.051
Instance3296.5	15.445	1.230	63.666	28.117	32914.596	34457.211	0.000	0.146	0.000	6.542	0.000	20401.543
Instance3296.6	14.794	1.239	63.605	28.049	32918.794	34448.419	0.000	0.149	0.000	6.536	0.000	20351.040
Instance3296.7	15.647	1.251	63.590	28.036	32913.634	34450.076	0.000	0.145	0.000	6.525	0.000	20399.564
Instance3296.8	14.944	1.252	63.701	28.173	32917.167	34445.799	0.000	0.147	0.000	6.542	0.000	20355.845
Instance3296.9	14.486	1.449	63.643	28.123	32919.786	34454.166	0.000	0.144	0.000	6.545	0.000	20394.655
Instance3296.10	15.103	1.451	63.570	28.041	32916.996	34452.381	0.000	0.142	0.000	6.542	0.000	20402.593

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance3296.1	8.835	261884.154
Instance3296.2	8.635	261877.811
Instance3296.3	8.843	261866.755
Instance3296.4	8.659	261884.880
Instance3296.5	8.662	261874.954
Instance3296.6	8.844	261879.305
Instance3296.7	8.650	261882.674
Instance3296.8	8.840	261853.131
Instance3296.9	8.856	261867.412
Instance3296.10	8.683	261873.632

Log Replication I/O Performance

MSExchange Database ==> Instances	I/O Log Reads/sec	I/O Log Reads Average Bytes
Instance3296.1	1.134	211259.611
Instance3296.2	1.134	210858.090
Instance3296.3	1.137	212166.131
Instance3296.4	1.136	211784.587
Instance3296.5	1.138	211843.494
Instance3296.6	1.134	211966.695
Instance3296.7	1.134	211385.897
Instance3296.8	1.136	212559.438
Instance3296.9	1.138	210569.569
Instance3296.10	1.138	212114.622

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
Instance3296.1	14.854	1.465	72.408	28.007	60855.943	34450.805	1.753	0.147	1.134	6.510	211259.611	20436.025
Instance3296.2	15.834	1.475	72.323	28.182	60249.455	34434.557	1.808	0.148	1.134	6.536	210858.090	20352.013
Instance3296.3	14.863	1.369	72.508	28.144	60838.942	34452.425	1.128	0.147	1.137	6.538	212166.131	20385.793
Instance3296.4	15.531	1.375	72.346	28.148	60318.536	34445.358	1.206	0.145	1.136	6.532	211784.587	20390.051
Instance3296.5	15.445	1.230	72.328	28.117	60335.659	34457.211	1.198	0.146	1.138	6.542	211843.494	20401.543
Instance3296.6	14.794	1.239	72.449	28.049	60868.345	34448.419	1.214	0.149	1.134	6.536	211966.695	20351.040
Instance3296.7	15.647	1.251	72.241	28.036	60330.846	34450.076	1.201	0.145	1.134	6.525	211385.897	20399.564
Instance3296.8	14.944	1.252	72.541	28.173	60816.047	34445.799	1.200	0.147	1.136	6.542	212559.438	20355.845
Instance3296.9	14.486	1.449	72.499	28.123	60886.297	34454.166	1.105	0.144	1.138	6.545	210569.569	20394.655
Instance3296.10	15.103	1.451	72.253	28.041	60430.494	34452.381	1.068	0.142	1.138	6.542	212114.622	20402.593

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.345	0.000	0.896
Available MBytes	184553.564	184524.000	184722.000
Free System Page Table Entries	16480172.714	16479743.000	16480566.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	138294207.732	138010624.000	138551296.000
Pool Paged Bytes	112236592.558	112062464.000	112345088.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log
2/24/2015 12:10:17 AM -- Preparing for testing ...
2/24/2015 12:10:28 AM -- Attaching databases ...
2/24/2015 12:10:28 AM -- Preparations for testing are complete.
2/24/2015 12:10:28 AM -- Starting transaction dispatch ..
2/24/2015 12:10:28 AM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/24/2015 12:10:28 AM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/24/2015 12:10:38 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 200 msec/read).
2/24/2015 12:10:38 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 200 msec/write).
2/24/2015 12:10:40 AM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/24/2015 12:10:40 AM -- Performance logging started (interval: 15000 ms).
2/24/2015 12:10:40 AM -- Attaining prerequisites:
2/24/2015 12:14:15 AM -- \MSExchange Database(JetstressWin)\Database Cache Size, Last: 2418938000.0 (lower bound: 2415919000.0, upper bound: none)
2/25/2015 12:14:15 AM -- Performance logging has ended.
2/25/2015 12:14:15 AM -- JetInterop batch transaction stats: 184707, 184707, 184707, 184707, 184706, 184706, 184706, 184706, 184706 and 184706.
2/25/2015 12:14:15 AM -- Dispatching transactions ends.
2/25/2015 12:14:16 AM -- Shutting down databases ...
2/25/2015 12:14:34 AM -- Instance3296.1 (complete), Instance3296.2 (complete), Instance3296.3 (complete), Instance3296.4 (complete), Instance3296.5 (complete), Instance3296.6 (complete), Instance3296.7 (complete), Instance3296.8 (complete), Instance3296.9 (complete) and Instance3296.10 (complete)
2/25/2015 12:14:34 AM -- C:\Ajith\ESRP Runs\EXCH2\Stress\Stress_2015_2_24_0_10_38.blg has 5750 samples.
2/25/2015 12:14:34 AM -- Creating test report ...

```
2/25/2015 12:15:25 AM -- Instance3296.1 has 14.9 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.1 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.1 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.2 has 15.8 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.2 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.2 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.3 has 14.9 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.3 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.3 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.4 has 15.5 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.4 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.4 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.5 has 15.4 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.5 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.5 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.6 has 14.8 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.6 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.6 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.7 has 15.6 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.7 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.7 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.8 has 14.9 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.8 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.8 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.9 has 14.5 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.9 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.9 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.10 has 15.1 for I/O Database Reads Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.10 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 12:15:25 AM -- Instance3296.10 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 12:15:25 AM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/25/2015 12:15:25 AM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/25/2015 12:15:25 AM -- C:\Ajith\ESRP Runs\EXCH2\Stress\Stress_2015_2_24_0_10_38.xml has 5735 samples queried.
```

C   Database Backup Test Result Report

C.1   Server 1

Microsoft Exchange Jetstress 2013

Database backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance4680.1	1549600.03	02:08:37	200.80
Instance4680.2	1549592.03	02:19:14	185.49
Instance4680.3	1549600.03	02:08:12	201.45
Instance4680.4	1549608.03	02:21:18	182.77
Instance4680.5	1549560.03	02:22:24	181.34
Instance4680.6	1549576.03	02:08:03	201.68
Instance4680.7	1549600.03	02:12:48	194.48
Instance4680.8	1549632.03	02:22:54	180.73
Instance4680.9	1549592.03	02:12:19	195.18
Instance4680.10	1549592.03	02:23:41	179.74
Avg			190.37
Sum			1903.66

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%

Database Configuration

Instance4680.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance4680.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance4680.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance4680.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance4680.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance4680.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance4680.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance4680.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance4680.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance4680.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance4680.1	2.105	0.000	803.152	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.2	2.017	0.000	741.946	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.3	2.207	0.000	805.943	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.4	2.055	0.000	731.153	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.5	2.104	0.000	725.456	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.6	2.415	0.000	807.276	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.7	2.857	0.000	778.006	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.8	2.172	0.000	722.995	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.9	2.877	0.000	781.641	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4680.10	2.232	0.000	718.829	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	0.693	0.096	0.847
Available MBytes	187271.906	187260.000	187287.000
Free System Page Table Entries	16477450.920	16477160.000	16477667.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	150734569.700	150724608.000	150786048.000
Pool Paged Bytes	150881754.537	150786048.000	151003136.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

2/25/2015 7:07:59 AM -- Preparing for testing ...
2/25/2015 7:08:09 AM -- Attaching databases ...
2/25/2015 7:08:09 AM -- Preparations for testing are complete.
2/25/2015 7:08:20 AM -- Performance logging started (interval: 30000 ms).
2/25/2015 7:08:20 AM -- Backing up databases ...
2/25/2015 9:32:02 AM -- Performance logging has ended.
2/25/2015 9:32:02 AM -- Instance4680.1 (100% processed), Instance4680.2 (100% processed), Instance4680.3 (100% processed), Instance4680.4 (100% processed), Instance4680.5 (100% processed), Instance4680.6 (100% processed), Instance4680.7 (100% processed), Instance4680.8 (100% processed), Instance4680.9 (100% processed) and Instance4680.10 (100% processed)
2/25/2015 9:32:02 AM -- C:\Ajith\ESRP Runs\EXCH1\DB Backup\DatabaseBackup_2015_2_25_7_8_9.blg has 287 samples.
2/25/2015 9:32:02 AM -- Creating test report ...

C.2 Server 2

Microsoft Exchange Jetstress 2013

Database backup Test Result Report

Database Backup Statistics - All

Database Instance	Database Size (MBytes)	Elapsed Backup Time	MBytes Transferred/sec
Instance4768.1	1543384.03	02:06:47	202.87
Instance4768.2	1543408.03	02:21:41	181.55
Instance4768.3	1543392.03	02:06:47	202.89
Instance4768.4	1543400.03	02:21:09	182.22
Instance4768.5	1543384.03	02:23:08	179.71
Instance4768.6	1543400.03	02:09:14	199.04
Instance4768.7	1543408.03	02:21:48	181.39
Instance4768.8	1543376.03	02:09:16	198.99
Instance4768.9	1543400.03	02:09:06	199.25
Instance4768.10	1543408.03	02:20:33	183.00
Avg			191.09
Sum			1910.90

Jetstress System Parameters

Thread Count	21
Minimum Database Cache	320.0 MB
Maximum Database Cache	2560.0 MB
Insert Operations	40%
Delete Operations	20%
Replace Operations	5%
Read Operations	35%
Lazy Commits	70%

Database Configuration

Instance4768.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance4768.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance4768.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance4768.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance4768.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance4768.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance4768.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance4768.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance4768.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance4768.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance4768.1	2.510	0.000	811.539	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.2	2.008	0.000	726.020	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.3	1.980	0.000	811.676	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.4	1.911	0.000	729.218	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.5	2.013	0.000	719.045	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.6	2.179	0.000	796.456	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.7	1.979	0.000	725.505	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.8	2.215	0.000	796.383	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.9	2.156	0.000	799.247	0.000	262144.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Instance4768.10	2.041	0.000	732.160	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	1.623	0.219	1.884
Available MBytes	187287.382	187285.000	187289.000
Free System Page Table Entries	16480650.705	16480431.000	16480855.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	138122552.589	138096640.000	138194944.000
Pool Paged Bytes	118928078.596	118849536.000	119005184.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log
2/25/2015 7:11:38 AM -- Preparing for testing ...
2/25/2015 7:11:48 AM -- Attaching databases ...
2/25/2015 7:11:48 AM -- Preparations for testing are complete.
2/25/2015 7:12:00 AM -- Performance logging started (interval: 30000 ms).
2/25/2015 7:12:00 AM -- Backing up databases ...
2/25/2015 9:35:08 AM -- Performance logging has ended.
2/25/2015 9:35:08 AM -- Instance4768.1 (100% processed), Instance4768.2 (100% processed), Instance4768.3 (100% processed), Instance4768.4 (100% processed), Instance4768.5 (100% processed), Instance4768.6 (100% processed), Instance4768.7 (100% processed), Instance4768.8 (100% processed), Instance4768.9 (100% processed) and Instance4768.10 (100% processed)
2/25/2015 9:35:08 AM -- C:\Ajith\ESRP Runs\EXCH2\DB Backup\DatabaseBackup_2015_2_25_7_11_48.blg has 285 samples.
2/25/2015 9:35:08 AM -- Creating test report ...

D   Soft Recovery test Result Report

D.1   Server 1

Microsoft Exchange Jetstress 2013

SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance6520.1	502	1377.4360926
Instance6520.2	508	1366.0676875
Instance6520.3	501	1386.4891691
Instance6520.4	503	1364.2764638
Instance6520.5	503	1362.4637048
Instance6520.6	501	1391.1315196
Instance6520.7	505	1408.0685804
Instance6520.8	506	1394.7375953
Instance6520.9	503	1399.644724
Instance6520.10	505	1378.7240416
Avg	503	1382.904
Sum	5037	13829.0395787

Database Configuration

Instance6520.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance6520.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance6520.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance6520.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance6520.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance6520.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance6520.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance6520.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance6520.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance6520.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance6520.1	27.795	6.983	157.969	1.455	37940.743	32768.000	5.093	0.000	1.819	0.000	209823.263	0.000
Instance6520.2	27.214	7.283	159.756	1.486	37862.287	32768.000	9.011	0.000	1.857	0.000	209744.356	0.000
Instance6520.3	27.858	6.735	157.110	1.441	37931.612	32768.000	4.894	0.000	1.801	0.000	209665.945	0.000
Instance6520.4	27.436	6.936	159.585	1.471	37924.800	32768.000	9.417	0.000	1.839	0.000	209689.348	0.000
Instance6520.5	27.399	6.321	159.513	1.475	37868.563	32768.000	10.335	0.000	1.844	0.000	209675.737	0.000
Instance6520.6	27.917	6.741	157.580	1.437	37936.073	32672.744	5.938	0.000	1.796	0.000	209108.072	0.000
Instance6520.7	28.229	7.026	155.537	1.433	37924.484	32674.109	6.047	0.000	1.792	0.000	209127.146	0.000
Instance6520.8	27.462	6.464	159.028	1.447	37976.657	32768.000	9.371	0.000	1.809	0.000	209714.988	0.000
Instance6520.9	27.812	6.240	157.728	1.433	37862.840	32673.568	5.463	0.000	1.798	0.000	209140.709	0.000
Instance6520.10	27.318	6.735	159.426	1.464	37951.016	32768.000	9.498	0.000	1.830	0.000	209741.502	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance6520.1	0.000	0.000
Instance6520.2	0.000	0.000
Instance6520.3	0.000	0.000
Instance6520.4	0.000	0.000
Instance6520.5	0.000	0.000
Instance6520.6	0.000	0.000
Instance6520.7	0.000	0.000
Instance6520.8	0.000	0.000
Instance6520.9	0.000	0.000
Instance6520.10	0.000	0.000

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
Instance6520.1	27.795	6.983	157.969	1.455	37940.743	32768.000	5.093	0.000	1.819	0.000	209823.263	0.000
Instance6520.2	27.214	7.283	159.756	1.486	37862.287	32768.000	9.011	0.000	1.857	0.000	209744.356	0.000
Instance6520.3	27.858	6.735	157.110	1.441	37931.612	32768.000	4.894	0.000	1.801	0.000	209665.945	0.000
Instance6520.4	27.436	6.936	159.585	1.471	37924.800	32768.000	9.417	0.000	1.839	0.000	209689.348	0.000
Instance6520.5	27.399	6.321	159.513	1.475	37868.563	32768.000	10.335	0.000	1.844	0.000	209675.737	0.000
Instance6520.6	27.917	6.741	157.580	1.437	37936.073	32672.744	5.938	0.000	1.796	0.000	209108.072	0.000
Instance6520.7	28.229	7.026	155.537	1.433	37924.484	32674.109	6.047	0.000	1.792	0.000	209127.146	0.000
Instance6520.8	27.462	6.464	159.028	1.447	37976.657	32768.000	9.371	0.000	1.809	0.000	209714.988	0.000
Instance6520.9	27.812	6.240	157.728	1.433	37862.840	32673.568	5.463	0.000	1.798	0.000	209140.709	0.000
Instance6520.10	27.318	6.735	159.426	1.464	37951.016	32768.000	9.498	0.000	1.830	0.000	209741.502	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.230	0.000	0.685
Available MBytes	184667.597	184550.000	187131.000
Free System Page Table Entries	16477397.194	16477103.000	16477652.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	151890856.229	151883776.000	151900160.000
Pool Paged Bytes	152171806.720	152170496.000	152178688.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log

2/25/2015 11:21:24 AM -- Preparing for testing ...
2/25/2015 11:21:34 AM -- Attaching databases ...
2/25/2015 11:21:34 AM -- Preparations for testing are complete.
2/25/2015 11:21:34 AM -- Starting transaction dispatch ..
2/25/2015 11:21:35 AM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/25/2015 11:21:35 AM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/25/2015 11:21:45 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/25/2015 11:21:45 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/25/2015 11:21:46 AM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/25/2015 11:21:46 AM -- Performance logging started (interval: 15000 ms).
2/25/2015 11:21:46 AM -- Generating log files ...
2/25/2015 1:32:15 PM -- C:\VOL1\Log\Log-DB01 (100.4% generated), C:\VOL1\Log\Log-DB02 (101.6% generated), C:\VOL2\Log\Log-DB03 (100.2% generated), C:\VOL2\Log\Log-DB04 (100.6% generated), C:\VOL3\Log\Log-DB05 (100.6% generated), C:\VOL3\Log\Log-DB06 (100.2% generated), C:\VOL4\Log\Log-DB07 (101.0% generated), C:\VOL4\Log\Log-DB08 (101.2% generated), C:\VOL5\Log\Log-DB09 (100.6% generated) and C:\VOL5\Log\Log-DB10 (101.0% generated)
2/25/2015 1:32:16 PM -- Performance logging has ended.
2/25/2015 1:32:16 PM -- JetInterop batch transaction stats: 17046, 17046, 17046, 17046, 17046, 17046, 17046, 17046, 17046 and 17045.
2/25/2015 1:32:16 PM -- Dispatching transactions ends.
2/25/2015 1:32:16 PM -- Shutting down databases ...
2/25/2015 1:32:34 PM -- Instance6520.1 (complete), Instance6520.2 (complete), Instance6520.3 (complete), Instance6520.4 (complete), Instance6520.5 (complete), Instance6520.6 (complete), Instance6520.7 (complete), Instance6520.8 (complete), Instance6520.9 (complete) and Instance6520.10 (complete)
2/25/2015 1:32:34 PM -- C:\Ajith\ESRP Runs\EXCH1\Soft Recovery\Performance_2015_2_25_11_21_45.blg has 521 samples.
2/25/2015 1:32:34 PM -- Creating test report ...

2/25/2015 1:32:37 PM -- Instance6520.1 has 15.8 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.1 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.1 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.2 has 16.2 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.2 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.2 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.3 has 15.9 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.3 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.3 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.4 has 16.2 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.4 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.4 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.5 has 16.1 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.5 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.5 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.6 has 15.8 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.6 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.6 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.7 has 15.7 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.7 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.7 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.8 has 16.0 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.8 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.8 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.9 has 14.9 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.9 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.9 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.10 has 15.2 for I/O Database Reads Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.10 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:32:37 PM -- Instance6520.10 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:32:37 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/25/2015 1:32:37 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.

2/25/2015 1:32:37 PM -- C:\Ajith\ESRP Runs\EXCH1\Soft Recovery\Performance_2015_2_25_11_21_45.xml has 520 samples queried.
2/25/2015 1:32:37 PM -- C:\Ajith\ESRP Runs\EXCH1\Soft Recovery\Performance_2015_2_25_11_21_45.html was saved.
2/25/2015 1:32:38 PM -- Performance logging started (interval: 4000 ms).
2/25/2015 1:32:38 PM -- Recovering databases ...
2/25/2015 1:56:07 PM -- Performance logging has ended.
2/25/2015 1:56:07 PM -- Instance6520.1 (1377.4360926), Instance6520.2 (1366.0676875), Instance6520.3 (1386.4891691), Instance6520.4 (1364.2764638), Instance6520.5 (1362.4637048), Instance6520.6 (1391.1315196), Instance6520.7 (1408.0685804), Instance6520.8 (1394.7375953), Instance6520.9 (1399.644724) and Instance6520.10 (1378.7240416)
2/25/2015 1:56:07 PM -- C:\Ajith\ESRP Runs\EXCH1\Soft Recovery\SoftRecovery_2015_2_25_13_32_37.blg has 350 samples.
2/25/2015 1:56:07 PM -- Creating test report ...

D.2   Server 2

Microsoft Exchange Jetstress 2013

SoftRecovery Test Result Report

Soft-Recovery Statistics - All

Database Instance	Log files replayed	Elapsed seconds
Instance3664.1	505	1368.3761193
Instance3664.2	501	1356.7889787
Instance3664.3	508	1395.4351006
Instance3664.4	509	1378.9082173
Instance3664.5	511	1395.4351006
Instance3664.6	508	1402.1285273
Instance3664.7	507	1388.7271552
Instance3664.8	504	1402.1285273
Instance3664.9	509	1393.3693988
Instance3664.10	512	1373.7821916
Avg	507	1385.508
Sum	5074	13855.0793167

Database Configuration

Instance3664.1 Log path: C:\VOL1\Log\Log-DB01
Database: C:\VOL1\Database\DB01\Jetstress001001.edb

Instance3664.2 Log path: C:\VOL1\Log\Log-DB02
Database: C:\VOL1\Database\DB02\Jetstress002001.edb

Instance3664.3 Log path: C:\VOL2\Log\Log-DB03
Database: C:\VOL2\Database\DB03\Jetstress003001.edb

Instance3664.4 Log path: C:\VOL2\Log\Log-DB04
Database: C:\VOL2\Database\DB04\Jetstress004001.edb

Instance3664.5 Log path: C:\VOL3\Log\Log-DB05
Database: C:\VOL3\Database\DB05\Jetstress005001.edb

Instance3664.6 Log path: C:\VOL3\Log\Log-DB06
Database: C:\VOL3\Database\DB06\Jetstress006001.edb

Instance3664.7 Log path: C:\VOL4\Log\Log-DB07
Database: C:\VOL4\Database\DB07\Jetstress007001.edb

Instance3664.8 Log path: C:\VOL4\Log\Log-DB08
Database: C:\VOL4\Database\DB08\Jetstress008001.edb

Instance3664.9 Log path: C:\VOL5\Log\Log-DB09
Database: C:\VOL5\Database\DB09\Jetstress009001.edb

Instance3664.10 Log path: C:\VOL5\Log\Log-DB10
Database: C:\VOL5\Database\DB10\Jetstress010001.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
Instance3664.1	27.631	6.435	159.473	1.475	38180.749	32768.000	5.161	0.000	1.850	0.000	209717.398	0.000
Instance3664.2	27.665	6.838	160.028	1.476	38040.068	32768.000	8.853	0.000	1.845	0.000	209698.718	0.000
Instance3664.3	28.375	6.434	155.672	1.452	38078.569	32768.000	6.548	0.000	1.815	0.000	209664.477	0.000
Instance3664.4	27.565	6.795	159.390	1.475	38206.910	32768.000	9.257	0.000	1.843	0.000	209715.200	0.000
Instance3664.5	27.695	7.052	157.766	1.463	38167.904	32768.000	10.465	0.000	1.829	0.000	209687.077	0.000
Instance3664.6	28.028	6.388	156.803	1.446	38189.897	32768.000	5.641	0.000	1.808	0.000	209722.961	0.000
Instance3664.7	27.745	6.816	159.193	1.459	38190.235	32768.000	10.152	0.000	1.830	0.000	209756.110	0.000
Instance3664.8	28.333	6.614	154.878	1.435	38178.733	32768.000	5.266	0.000	1.793	0.000	209654.370	0.000
Instance3664.9	28.095	7.319	156.138	1.460	38136.810	32768.000	5.612	0.000	1.825	0.000	209720.431	0.000
Instance3664.10	27.704	7.164	158.907	1.488	38098.267	32768.000	10.183	0.000	1.860	0.000	209725.815	0.000

Background Database Maintenance I/O Performance

MSExchange Database ==> Instances	Database Maintenance IO Reads/sec	Database Maintenance IO Reads Average Bytes
Instance3664.1	0.000	0.000
Instance3664.2	0.000	0.000
Instance3664.3	0.000	0.000
Instance3664.4	0.000	0.000
Instance3664.5	0.000	0.000
Instance3664.6	0.000	0.000
Instance3664.7	0.000	0.000
Instance3664.8	0.000	0.000
Instance3664.9	0.000	0.000
Instance3664.10	0.000	0.000

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
Instance3664.1	27.631	6.435	159.473	1.475	38180.749	32768.000	5.161	0.000	1.850	0.000	209717.398	0.000
Instance3664.2	27.665	6.838	160.028	1.476	38040.068	32768.000	8.853	0.000	1.845	0.000	209698.718	0.000
Instance3664.3	28.375	6.434	155.672	1.452	38078.569	32768.000	6.548	0.000	1.815	0.000	209664.477	0.000
Instance3664.4	27.565	6.795	159.390	1.475	38206.910	32768.000	9.257	0.000	1.843	0.000	209715.200	0.000
Instance3664.5	27.695	7.052	157.766	1.463	38167.904	32768.000	10.465	0.000	1.829	0.000	209687.077	0.000
Instance3664.6	28.028	6.388	156.803	1.446	38189.897	32768.000	5.641	0.000	1.808	0.000	209722.961	0.000
Instance3664.7	27.745	6.816	159.193	1.459	38190.235	32768.000	10.152	0.000	1.830	0.000	209756.110	0.000
Instance3664.8	28.333	6.614	154.878	1.435	38178.733	32768.000	5.266	0.000	1.793	0.000	209654.370	0.000
Instance3664.9	28.095	7.319	156.138	1.460	38136.810	32768.000	5.612	0.000	1.825	0.000	209720.431	0.000
Instance3664.10	27.704	7.164	158.907	1.488	38098.267	32768.000	10.183	0.000	1.860	0.000	209725.815	0.000

Host System Performance

Counter	Average	Minimum	Maximum
% Processor Time	0.574	0.000	1.551
Available MBytes	184672.066	184553.000	187143.000
Free System Page Table Entries	16480414.553	16480126.000	16480612.000
Transition Pages RePurposed/sec	0.000	0.000	0.000
Pool Nonpaged Bytes	138617622.870	138588160.000	138674176.000
Pool Paged Bytes	119514669.741	119492608.000	119541760.000
Database Page Fault Stalls/sec	0.000	0.000	0.000

Test Log
2/25/2015 11:24:12 AM -- Preparing for testing ...
2/25/2015 11:24:23 AM -- Attaching databases ...
2/25/2015 11:24:23 AM -- Preparations for testing are complete.
2/25/2015 11:24:23 AM -- Starting transaction dispatch ..
2/25/2015 11:24:23 AM -- Database cache settings: (minimum: 320.0 MB, maximum: 2.5 GB)
2/25/2015 11:24:23 AM -- Database flush thresholds: (start: 25.6 MB, stop: 51.2 MB)
2/25/2015 11:24:33 AM -- Database read latency thresholds: (average: 20 msec/read, maximum: 100 msec/read).
2/25/2015 11:24:33 AM -- Log write latency thresholds: (average: 10 msec/write, maximum: 100 msec/write).
2/25/2015 11:24:34 AM -- Operation mix: Sessions 21, Inserts 40%, Deletes 20%, Replaces 5%, Reads 35%, Lazy Commits 70%.
2/25/2015 11:24:34 AM -- Performance logging started (interval: 15000 ms).
2/25/2015 11:24:34 AM -- Generating log files ...
2/25/2015 1:35:20 PM -- C:\VOL1\Log\Log-DB01 (101.0% generated), C:\VOL1\Log\Log-DB02 (100.2% generated), C:\VOL2\Log\Log-DB03 (101.6% generated), C:\VOL2\Log\Log-DB04 (101.8% generated), C:\VOL3\Log\Log-DB05 (102.2% generated), C:\VOL3\Log\Log-DB06 (101.6% generated), C:\VOL4\Log\Log-DB07 (101.4% generated), C:\VOL4\Log\Log-DB08 (100.8% generated), C:\VOL5\Log\Log-DB09 (101.8% generated) and C:\VOL5\Log\Log-DB10 (102.2% generated)
2/25/2015 1:35:20 PM -- Performance logging has ended.
2/25/2015 1:35:20 PM -- JetInterop batch transaction stats: 17171, 17171, 17171, 17171, 17171, 17171, 17171, 17171, 17170 and 17170.
2/25/2015 1:35:20 PM -- Dispatching transactions ends.
2/25/2015 1:35:21 PM -- Shutting down databases ...
2/25/2015 1:35:38 PM -- Instance3664.1 (complete), Instance3664.2 (complete), Instance3664.3 (complete), Instance3664.4 (complete), Instance3664.5 (complete), Instance3664.6 (complete), Instance3664.7 (complete), Instance3664.8 (complete), Instance3664.9 (complete) and Instance3664.10 (complete)
2/25/2015 1:35:38 PM -- C:\Ajith\ESRP Runs\EXCH2\Soft Recovery\Performance_2015_2_25_11_24_33.blg has 521 samples.
2/25/2015 1:35:38 PM -- Creating test report ...

2/25/2015 1:35:42 PM -- Instance3664.1 has 15.8 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.1 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.1 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.2 has 16.1 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.2 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.2 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.3 has 15.6 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.3 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.3 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.4 has 15.8 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.4 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.4 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.5 has 15.5 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.5 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.5 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.6 has 15.4 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.6 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.6 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.7 has 15.9 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.7 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.7 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.8 has 15.7 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.8 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.8 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.9 has 15.5 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.9 has 0.1 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.9 has 0.1 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.10 has 15.7 for I/O Database Reads Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.10 has 0.2 for I/O Log Writes Average Latency.
2/25/2015 1:35:42 PM -- Instance3664.10 has 0.2 for I/O Log Reads Average Latency.
2/25/2015 1:35:42 PM -- Test has 0 Maximum Database Page Fault Stalls/sec.
2/25/2015 1:35:42 PM -- The test has 0 Database Page Fault Stalls/sec samples higher than 0.
2/25/2015 1:35:42 PM -- C:\Ajith\ESRP Runs\EXCH2\Soft Recovery\Performance_2015_2_25_11_24_33.xml has 520 samples queried.
2/25/2015 1:35:42 PM -- C:\Ajith\ESRP Runs\EXCH2\Soft Recovery\Performance_2015_2_25_11_24_33.html was saved.
2/25/2015 1:35:43 PM -- Performance logging started (interval: 4000 ms).
2/25/2015 1:35:43 PM -- Recovering databases ...

2/25/2015 1:59:05 PM -- Performance logging has ended.
2/25/2015 1:59:05 PM -- Instance3664.1 (1368.3761193), Instance3664.2 (1356.7889787), Instance3664.3 (1395.4351006), Instance3664.4 (1378.9082173), Instance3664.5 (1395.4351006), Instance3664.6 (1402.1285273), Instance3664.7 (1388.7271552), Instance3664.8 (1402.1285273), Instance3664.9 (1393.3693988) and Instance3664.10 (1373.7821916)
2/25/2015 1:59:06 PM -- C:\Ajith\ESRP Runs\EXCH2\Soft Recovery\SoftRecovery_2015_2_25_13_35_42.blg has 347 samples.
2/25/2015 1:59:06 PM -- Creating test report ...