Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

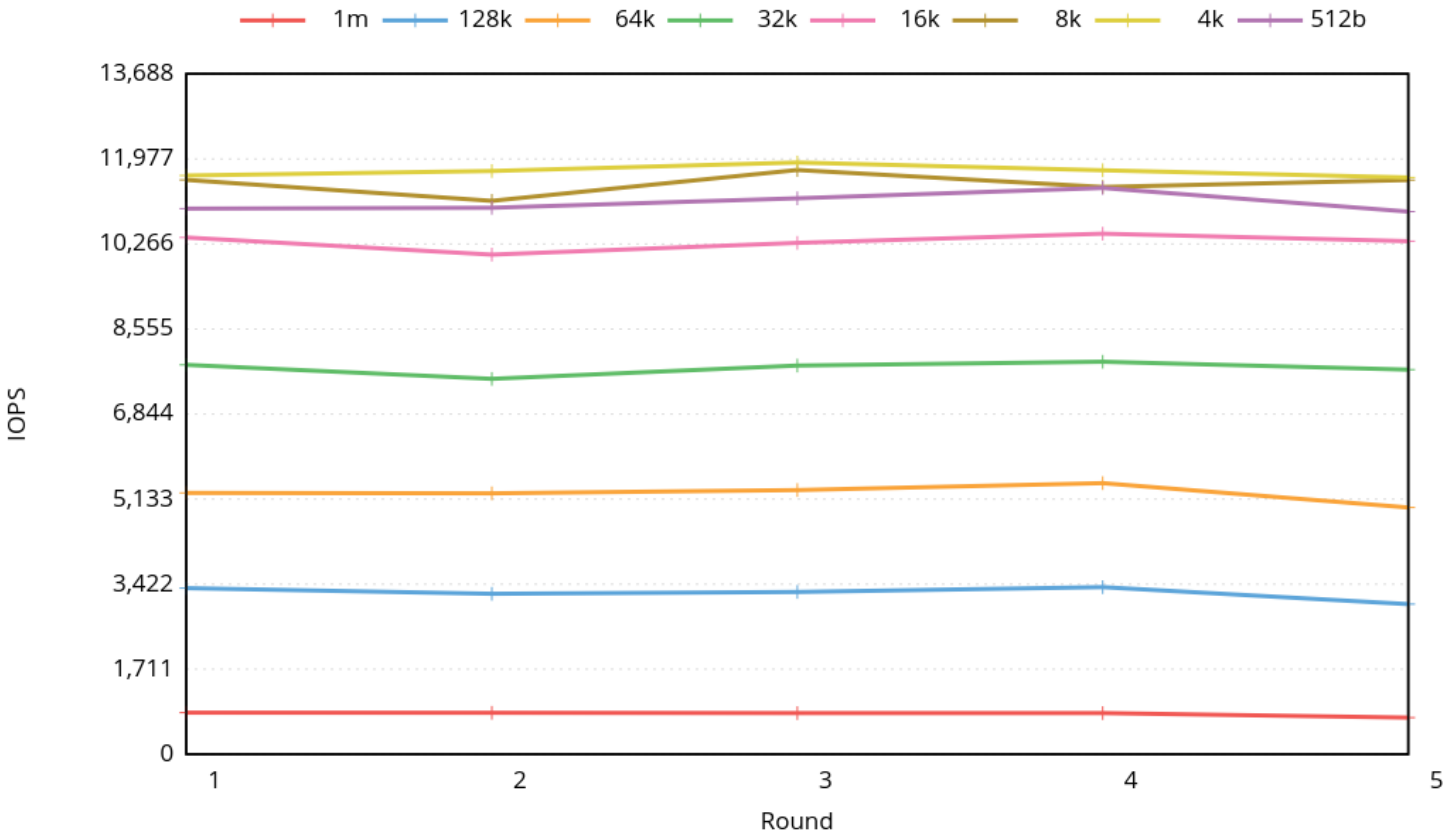
IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	1 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS Steady State Convergence Plot - All Block Sizes



Plot A.1 - IOPS Steady State Convergence Plot - All Block Sizes

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

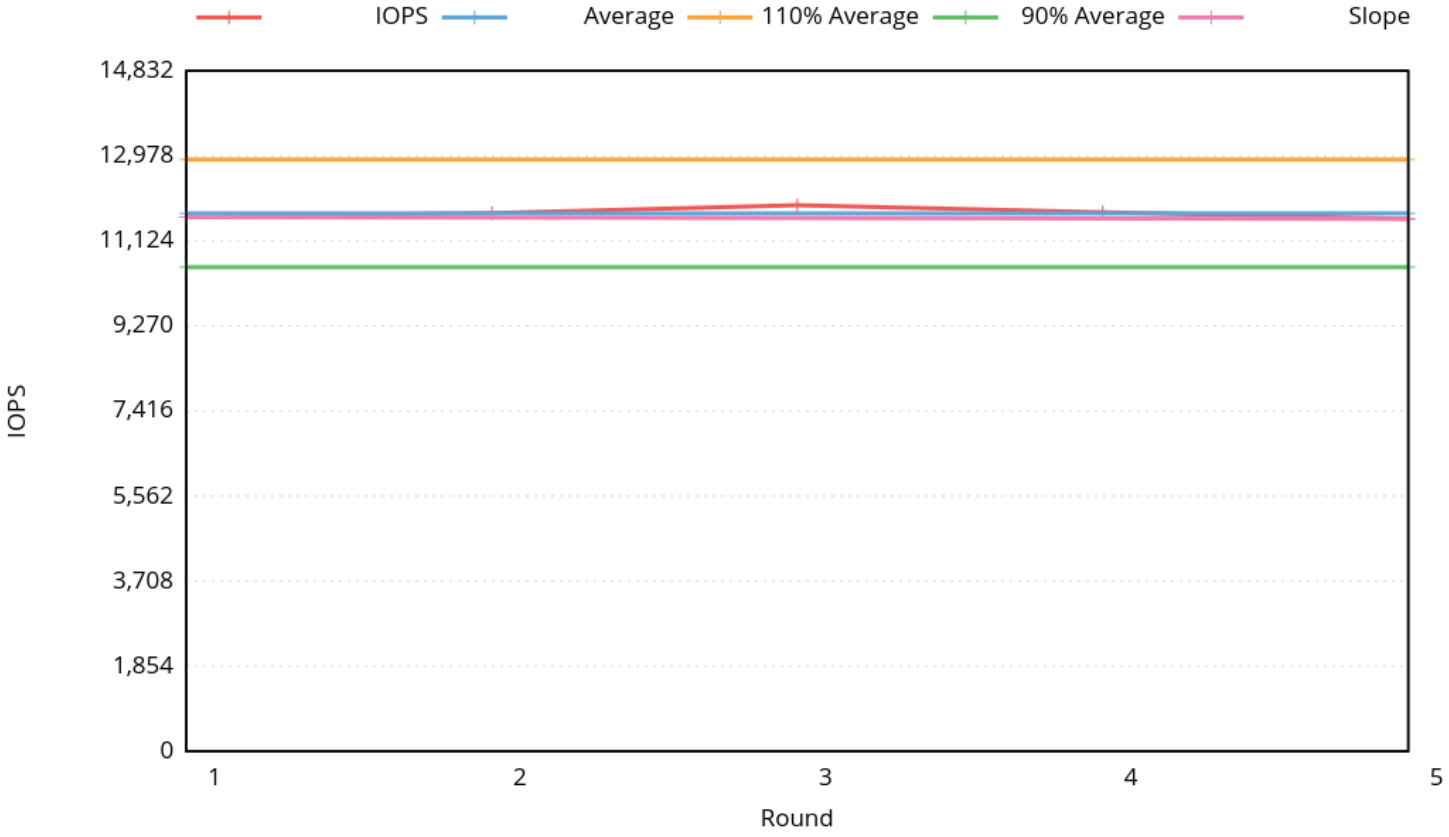
IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	2 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS Steady State Measurement Window



Plot A.2 - IOPS Steady State Measurement Window

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

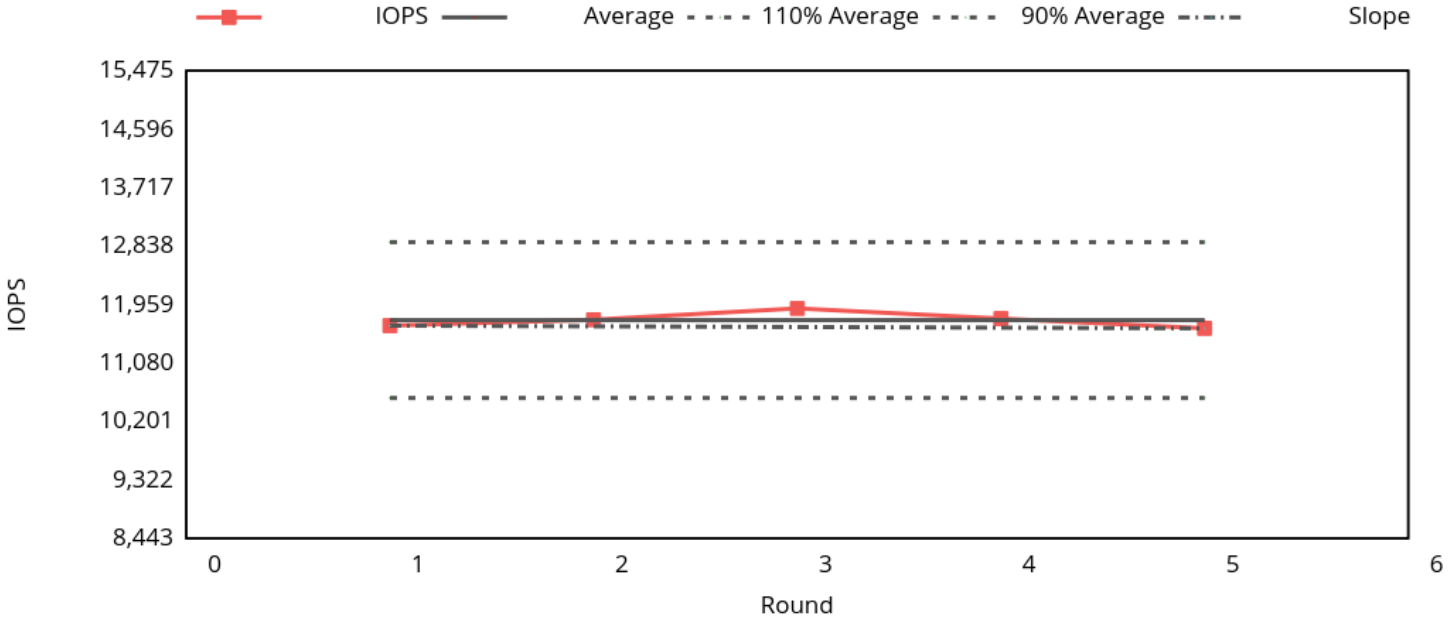
IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	3 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparancy for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS Steady State Measurement Window - RND/4KiB



Steady State Determination Data

Average IOPS:			11726
Allowed Maximum Data Excursion:	2345.36	Measured Maximum Data Excursion:	300
Allowed Maximum Slope Excursion:	1172.68	Measured Maximum Slope Excursion:	25.6
Least Squares Linear Fit Formula:			-6.4 * R + 11746

Plot A.3 - IOPS Steady State Measurement Window - RND/4KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	4 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS - All RW Mix & BS - Tabular Data

Block Size (KiB)	Read / Write Mix %						
	0/100	5/95	35/65	50/50	65/35	95/5	100/0
512b	11093	11124.8	11030.8	11063.8	11357.6	11233.6	76888.2
4k	11726.8	11715.2	11802	11790.4	11781.8	11717	70105.8
8k	11482	11536.8	11543.8	11667.8	11583.8	11623.2	62755.4
16k	10306.2	10319.4	10343.8	10364.6	10301.4	10431.2	56564.2
32k	7768.2	8070.2	7791.8	7775.4	7964.4	7910.2	43290
64k	5247.4	5387	5352	5314.2	5394.6	5332.6	22173.6
128k	3243.2	3290	3267.6	3292.4	3309.2	3331.6	12111.8
1m	812.8	798.6	809.6	807.2	798.6	854	1059.8

Plot A.4 - IOPS - All RW Mix & BS - Tabular Data

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

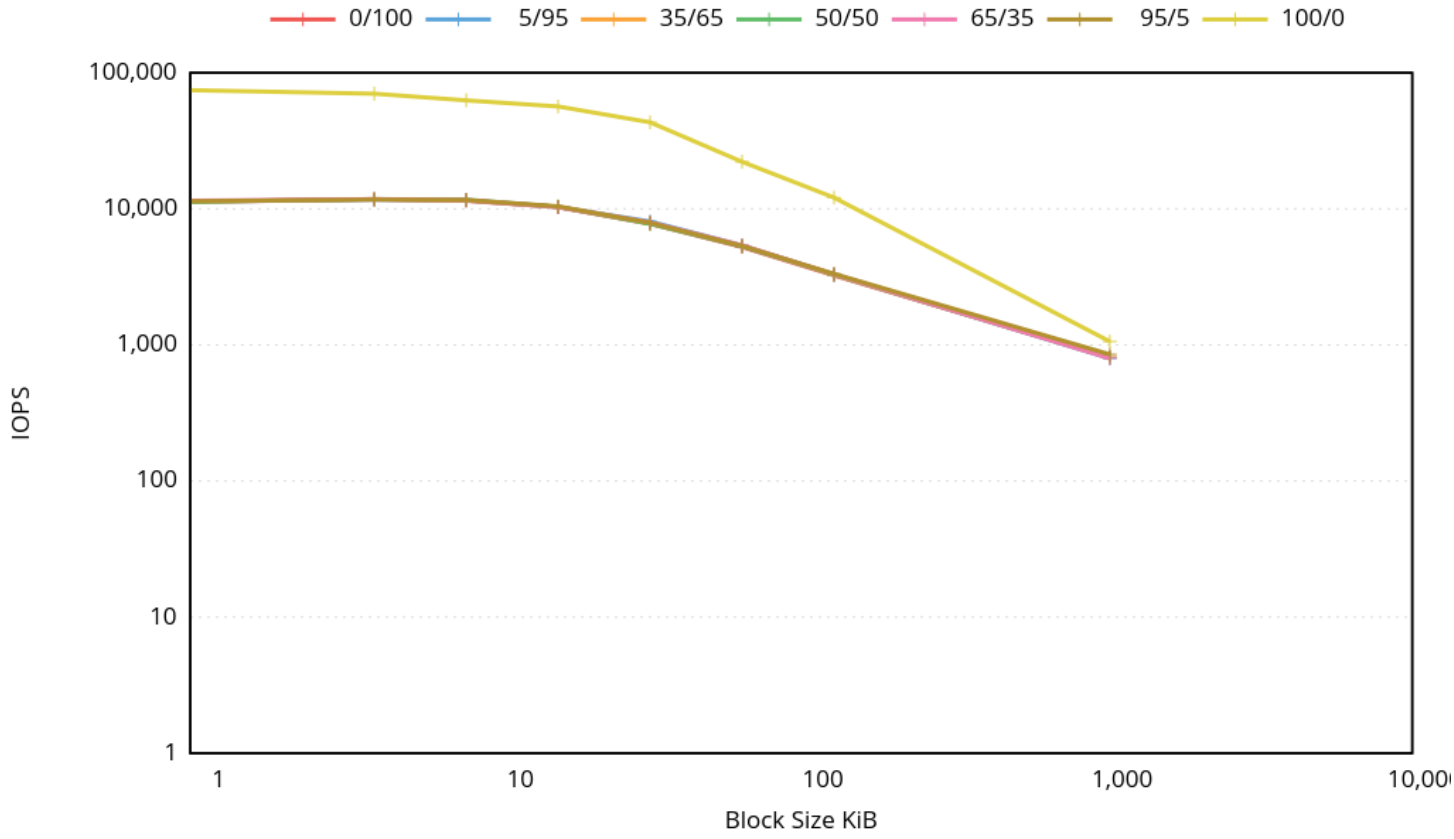
IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	5 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS - All RW Mix & BS - 2D Plot



Plot A.5 - IOPS - All RW Mix & BS - 2D Plot

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

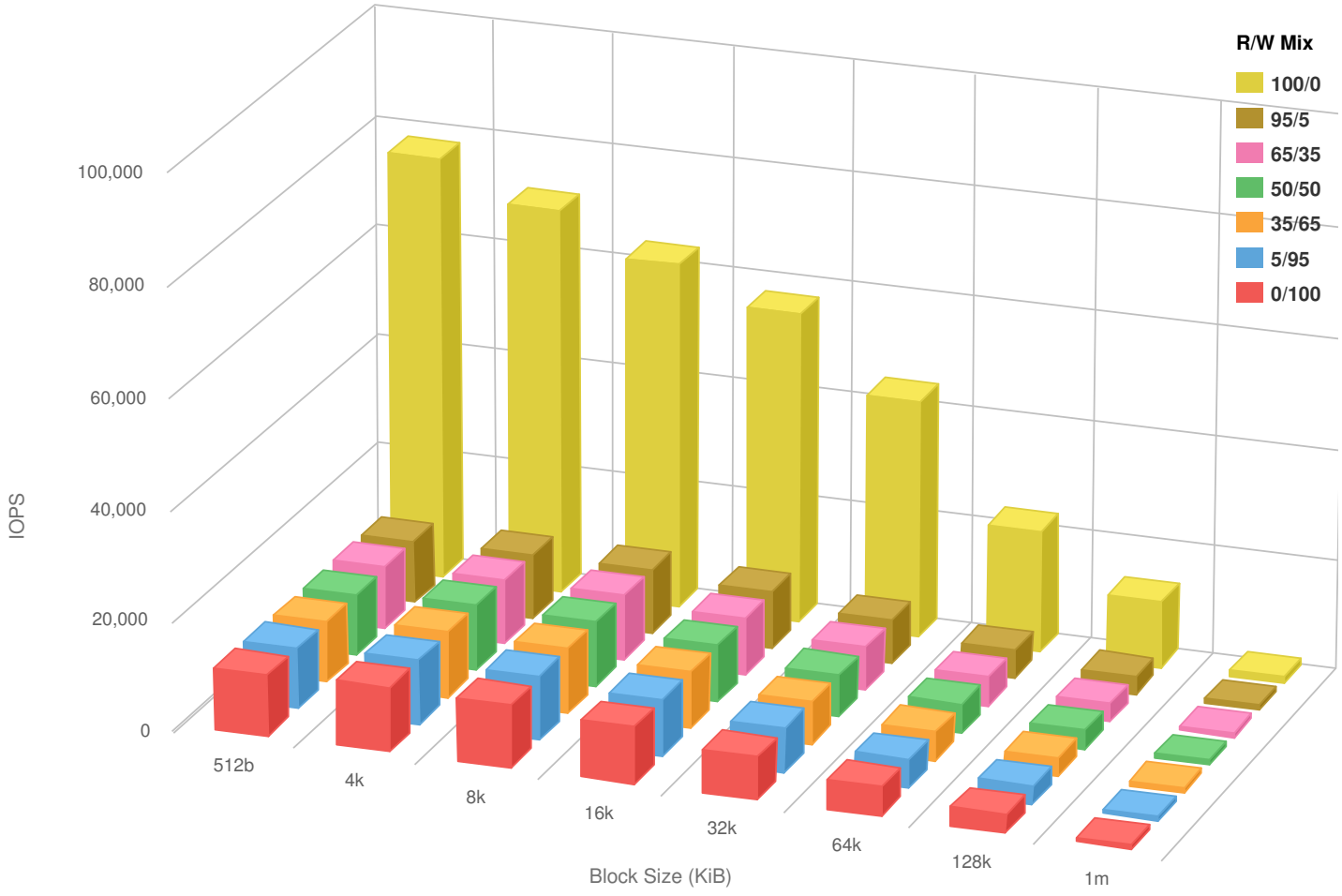
IOPS Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	IOPS - Block Size x RW Mix Matrix	Rev.	PTS-E 1.1
			Page.	6 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	IOPS Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	IOPS Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Steady State	N/A

IOPS -All RW Mix & BS - 3D Columns



Plot A.6 - IOPS -All RW Mix & BS - 3D Columns

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

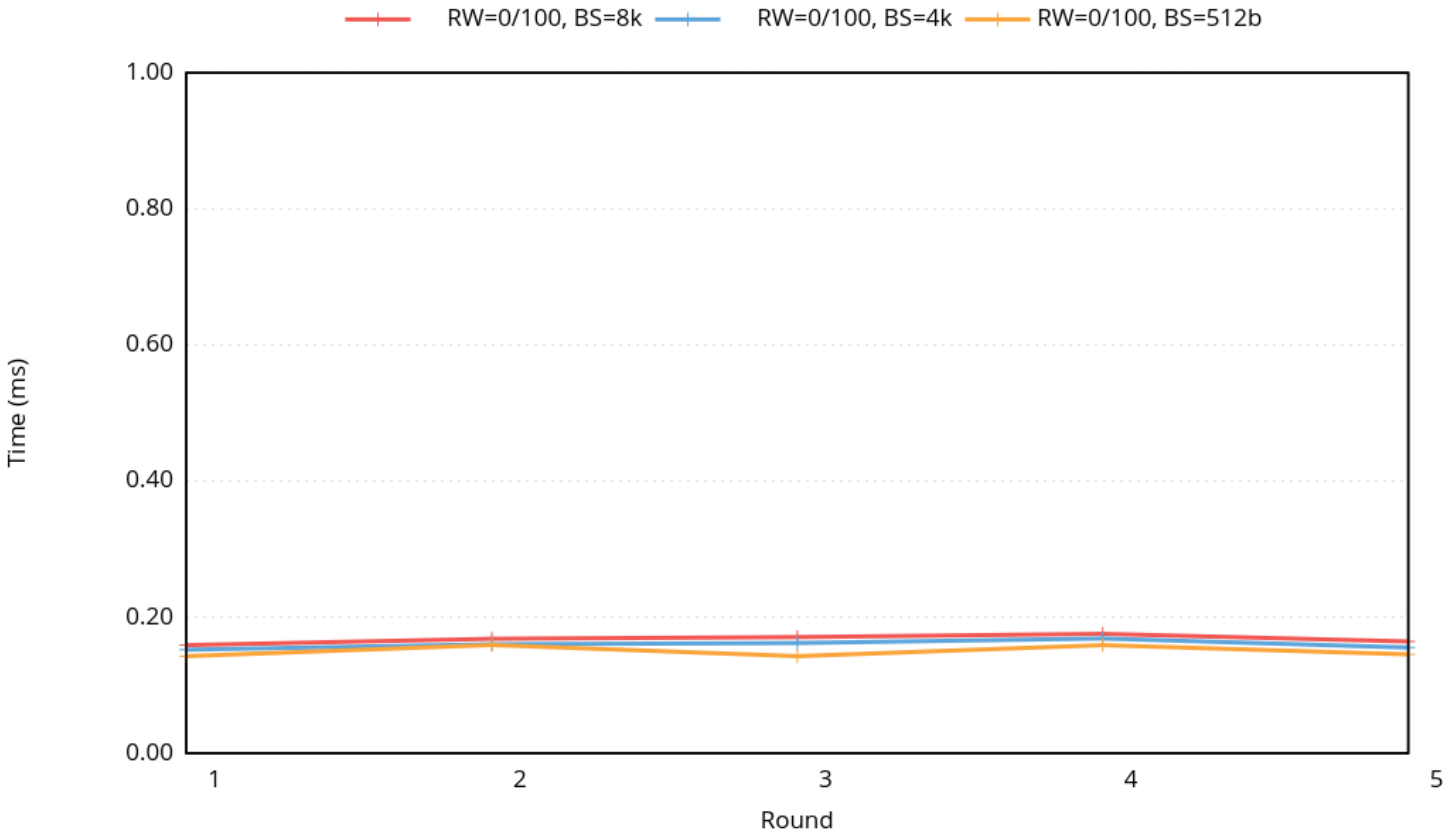
LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LATENCY - Response Time OIO=1	Rev.	PTS-E 1.1
			Page.	1 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Steady State Convergence Plot - Average Latency - 100% Writes



Plot A.7 - Steady State Convergence Plot - Average Latency - 100% Writes

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

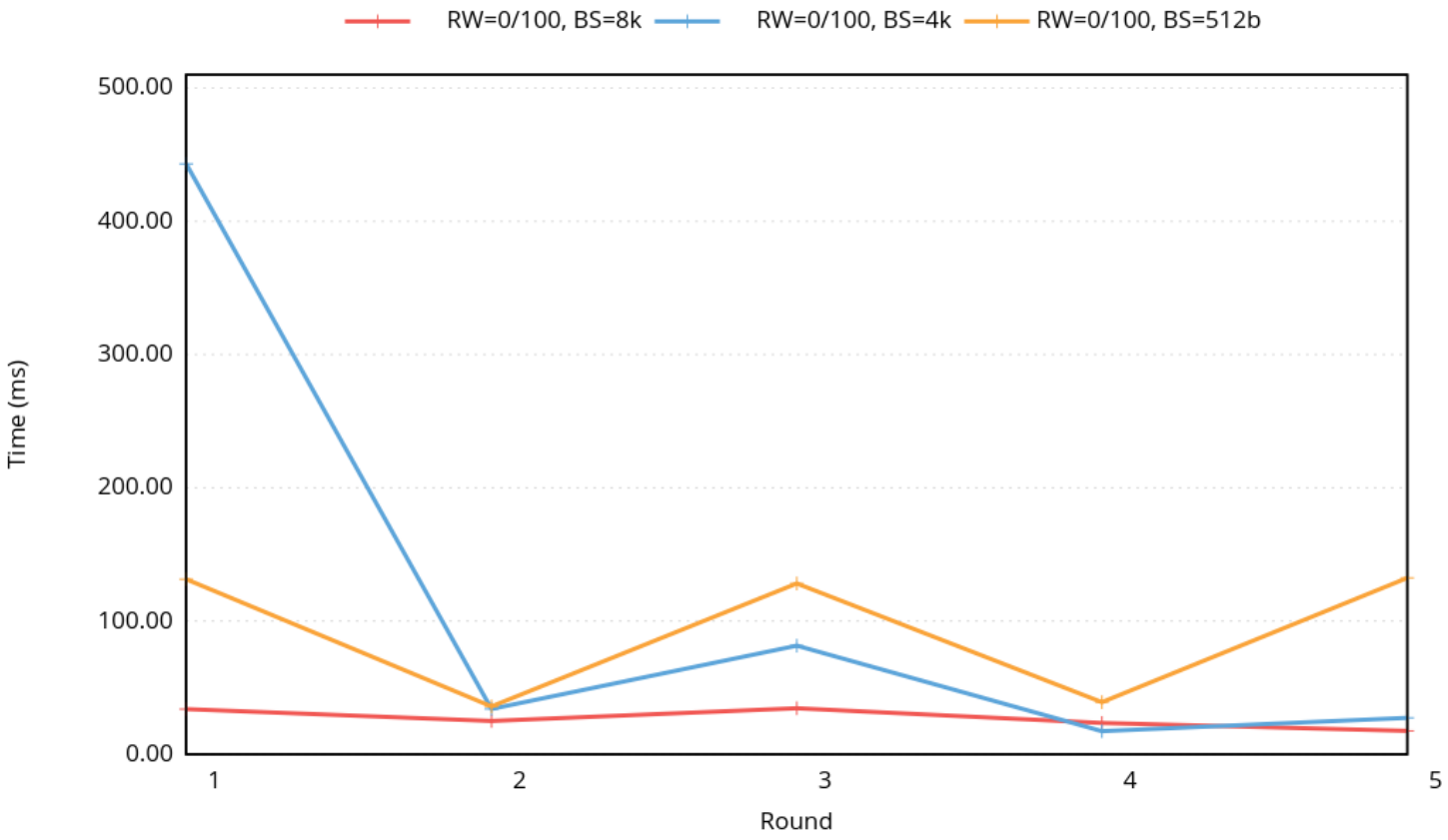
LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LATENCY - Response Time OIO=1	Rev.	PTS-E 1.1
			Page.	2 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Steady State Convergence Plot - Maximum Latency - 100% Writes



Plot A.8 - Steady State Convergence Plot - Maximum Latency - 100% Writes

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

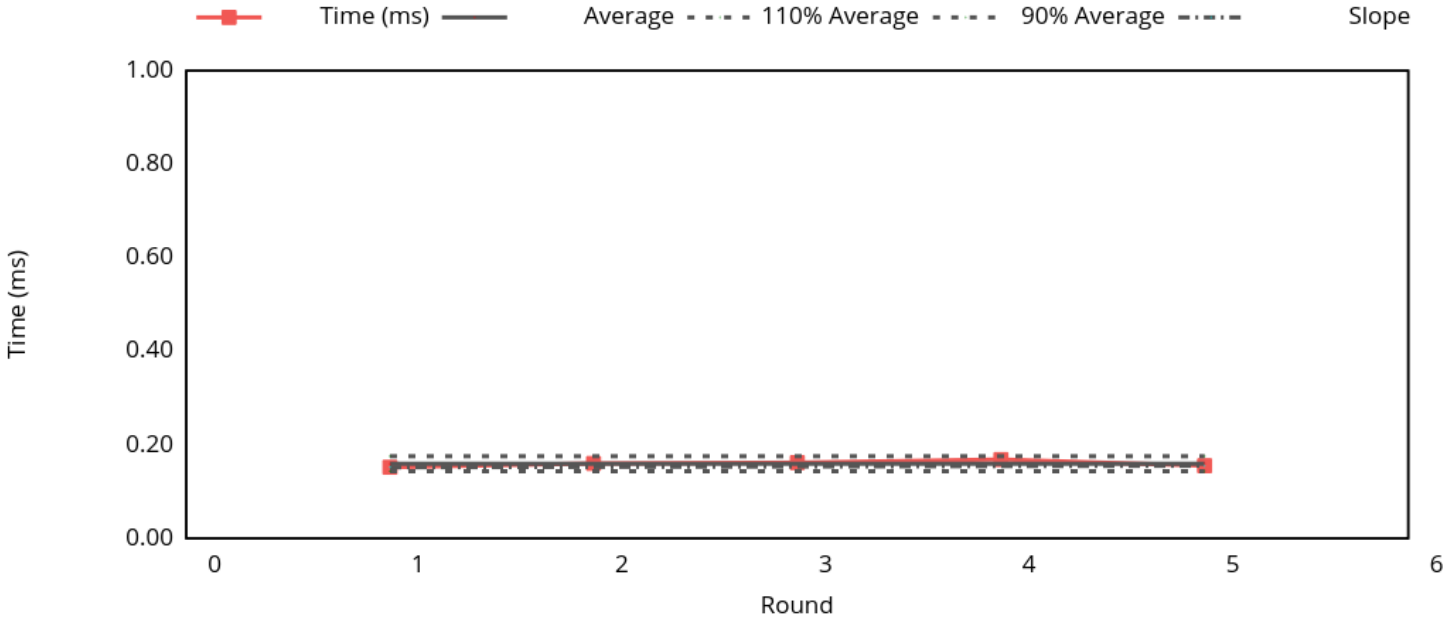
LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LATENCY - Response Time OIO=1	Rev.	PTS-E 1.1
			Page.	3 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Steady State Measurement Window - RND/4KiB



Plot A.9 - Steady State Measurement Window - RND/4KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LATENCY - Response Time OIO=1	Rev.	PTS-E 1.1
			Page.	4 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Average and Maximum Response Time - All RW Mix & BS - Tabular Data

Average Response Time (ms)			
Block Size (KiB)	Read / Write Mix %		
	0/100	65/35	100/0
512b	0.149724	0.153186	0.225818
4k	0.159608	0.161386	0.22898
8k	0.167504	0.16703	0.255142

Maximum Response Time (ms)			
Block Size (KiB)	Read / Write Mix %		
	0/100	65/35	100/0
512b	93.4	53.0466	15.8726
4k	120.6748	56.3558	23.6748
8k	26.9242	23.1738	27.811

Plot A.10 - Average and Maximum Response Time - All RW Mix & BS - Tabular Data

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

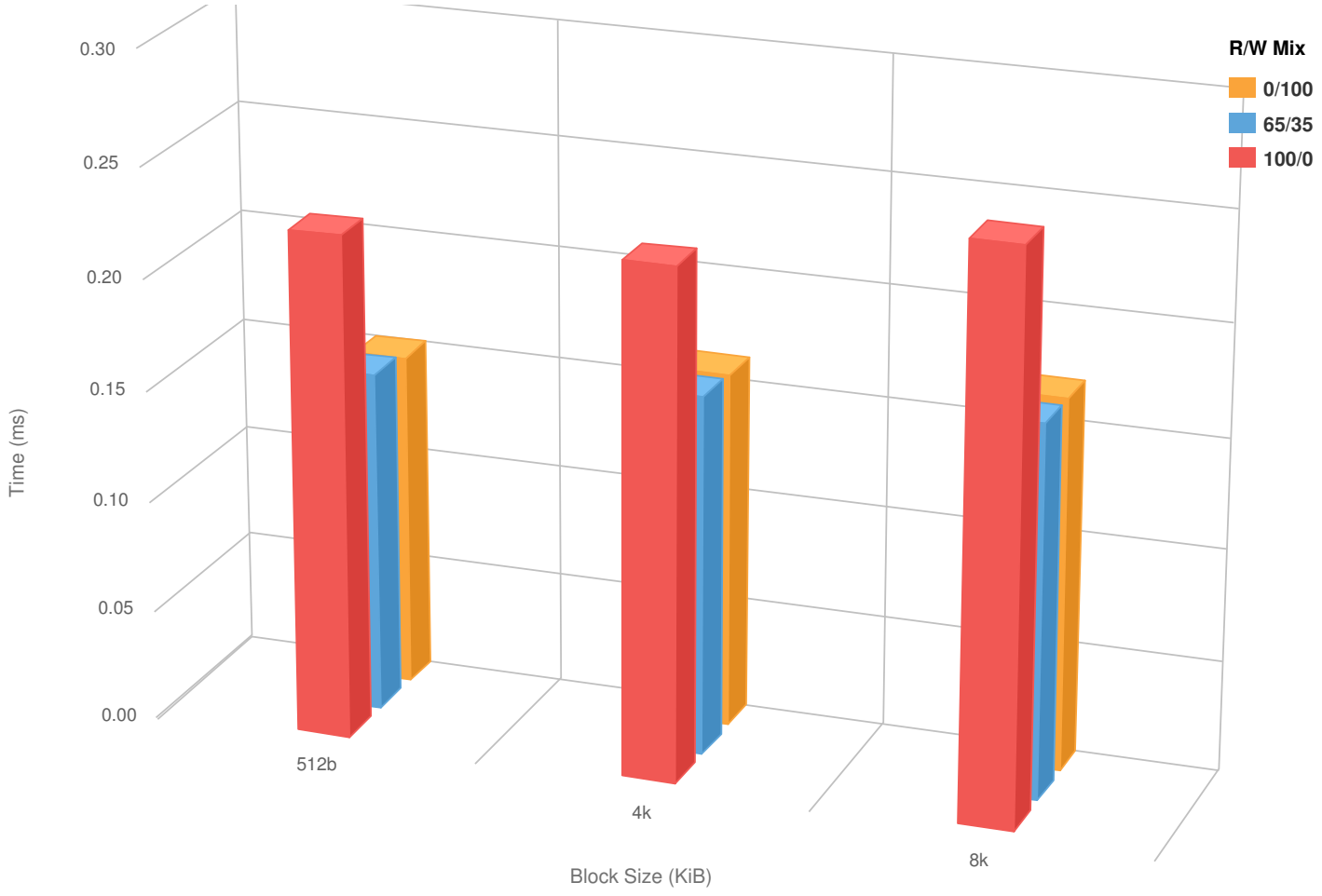
LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LATENCY - Response Time OIO=1	Rev.	PTS-E 1.1
			Page.	5 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Average Latency vs. BS and R/W Mix - 3D Plot



Plot A.11 - Average Latency vs. BS and R/W Mix - 3D Plot

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

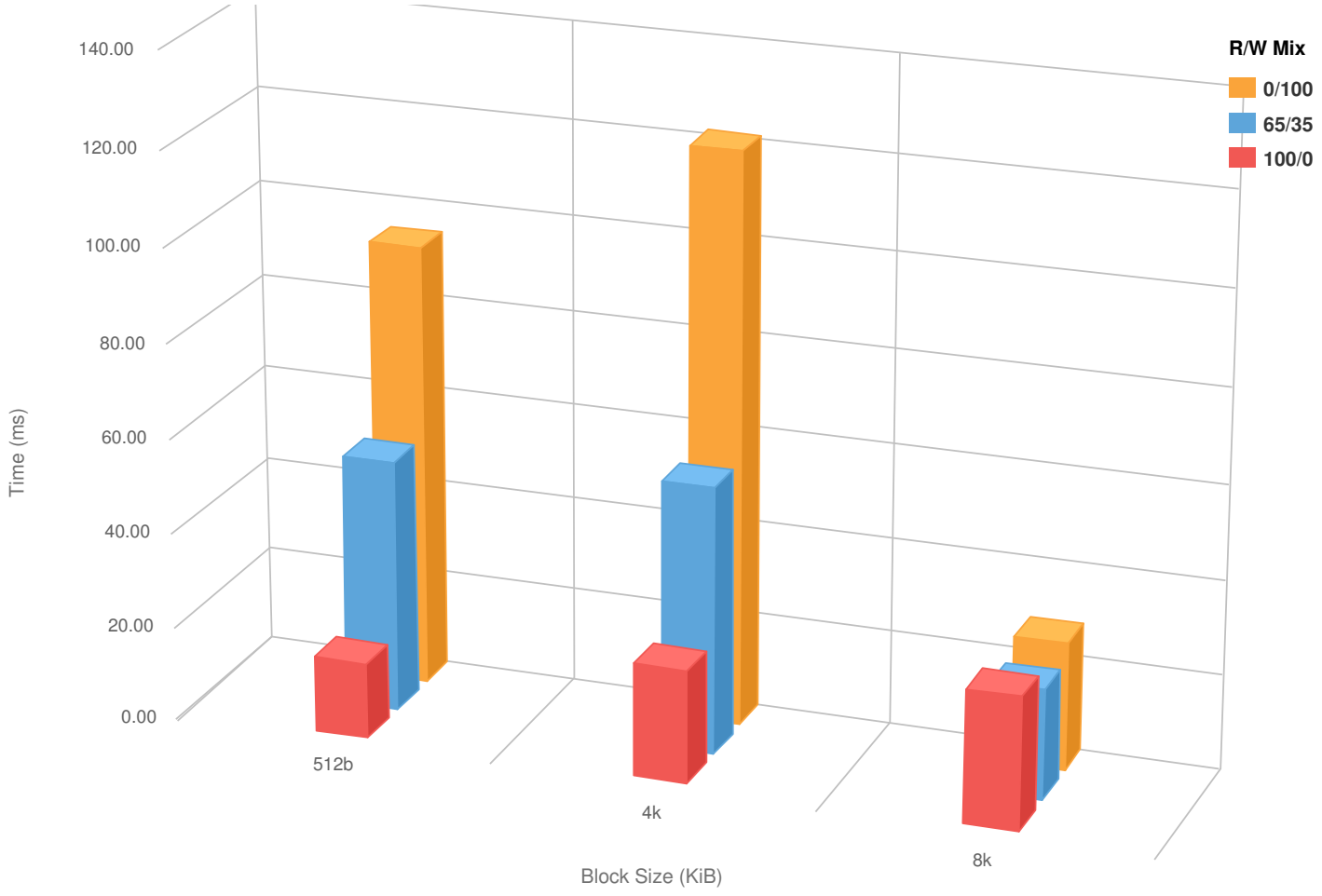
LATENCY Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	LAT - 0.5, 4, 8KiB x R, 65:35, W	Rev.	PTS-E 1.1
			Page.	6 of 6

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	LAT Loop
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	Outer Loop
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	Zero	TOIO - TC/QD	TC 1/QD 1	Block Sizes	Inner Loop
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 1
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	LAT Loop	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 1	Histogram	N/A
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	N/A
Notes				Notes		Note	

Maximum Latency vs. BS and R/W Mix - 3D Plot



Plot A.12 - Maximum Latency vs. BS and R/W Mix - 3D Plot

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

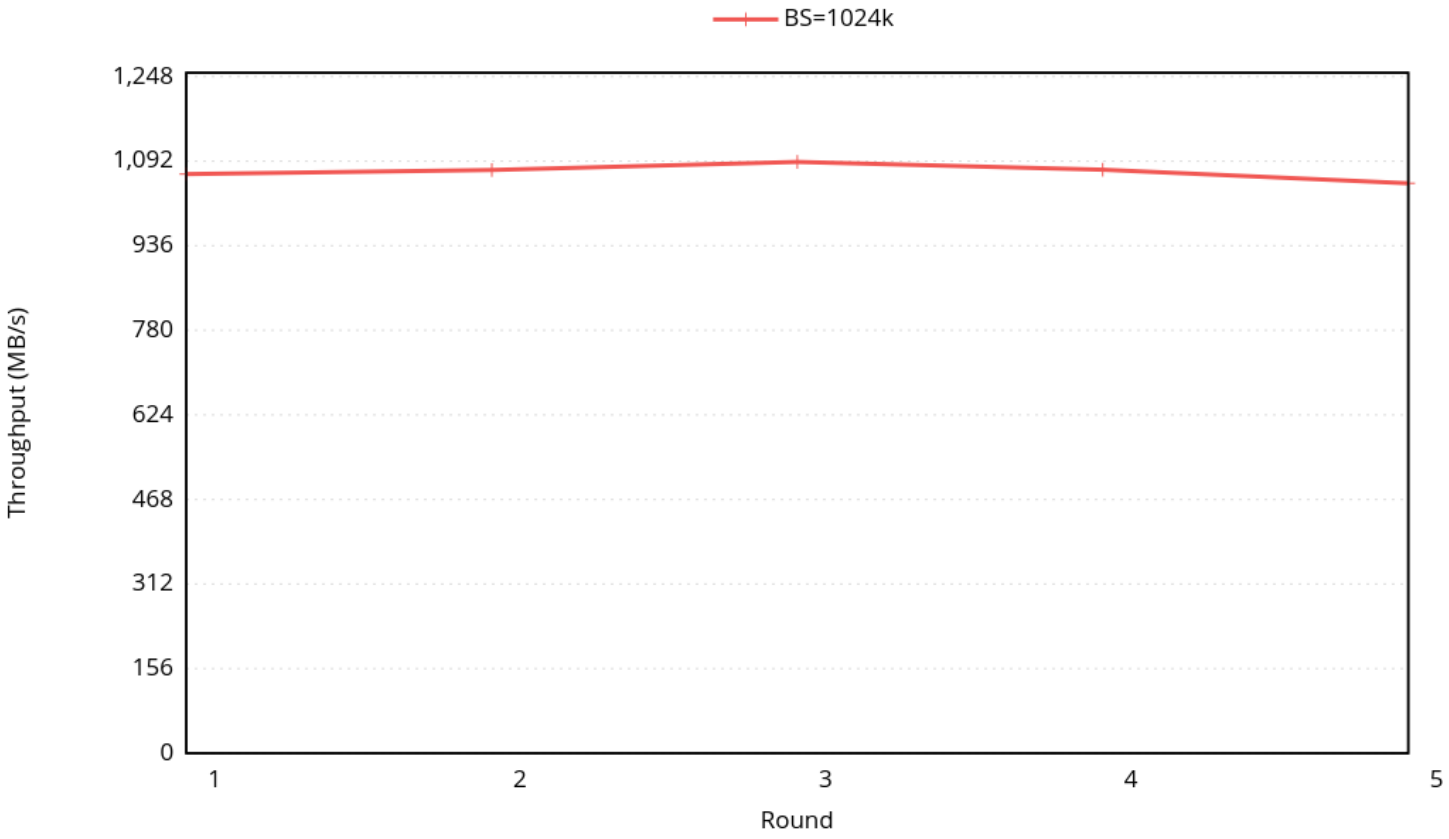
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB & 128KiB	Rev.	PTS-E 1.1
			Page.	1 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparancy for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput Test - SS Convergence - Write 1024KiB



Plot A.13 - Throughput Test - SS Convergence - Write 1024KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

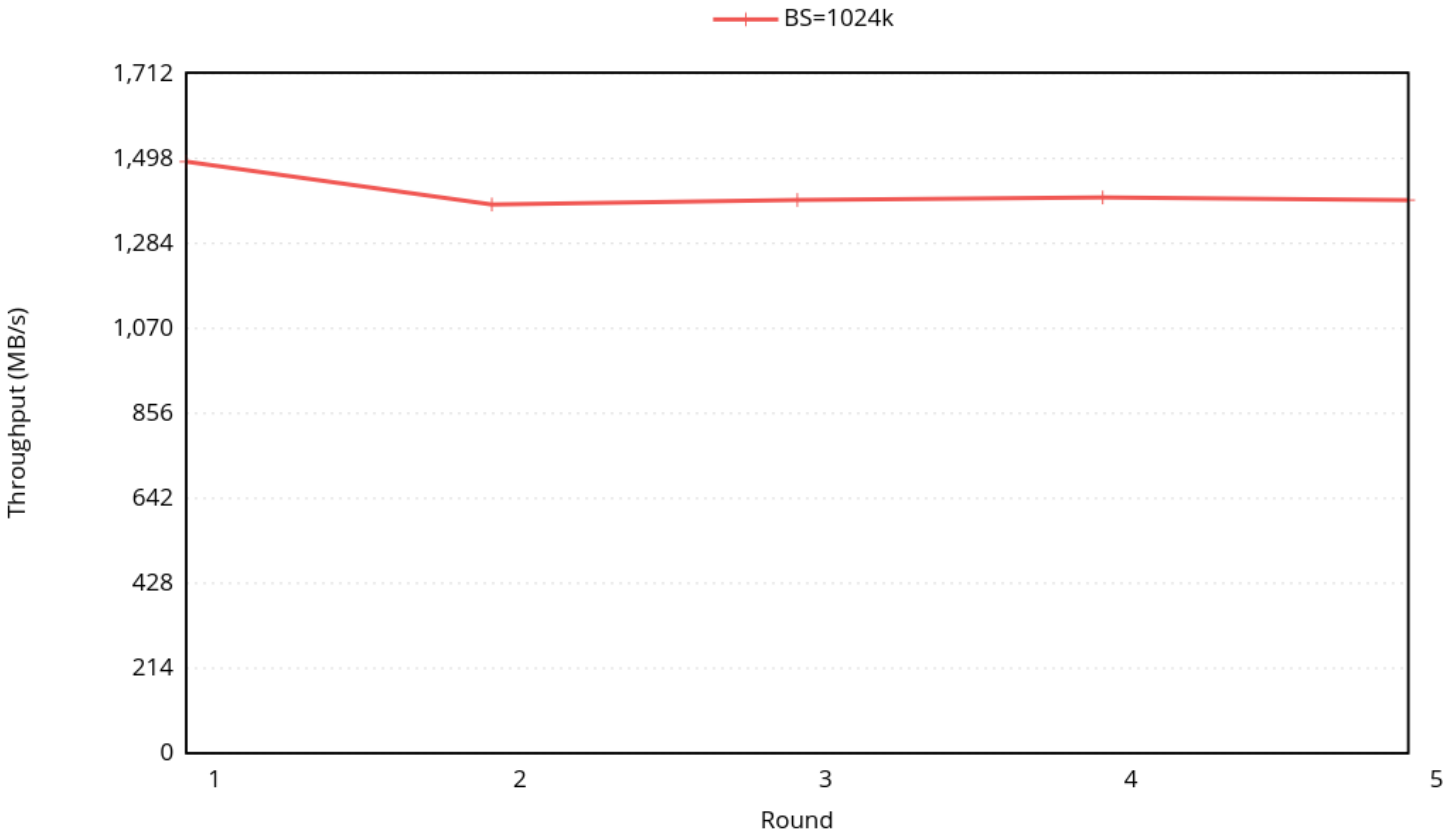
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB	Rev.	PTS-E 1.1
			Page.	2 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparancy for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput Test - SS Convergence - Read 1024 KiB



Plot A.14 - Throughput Test - SS Convergence - Read 1024 KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

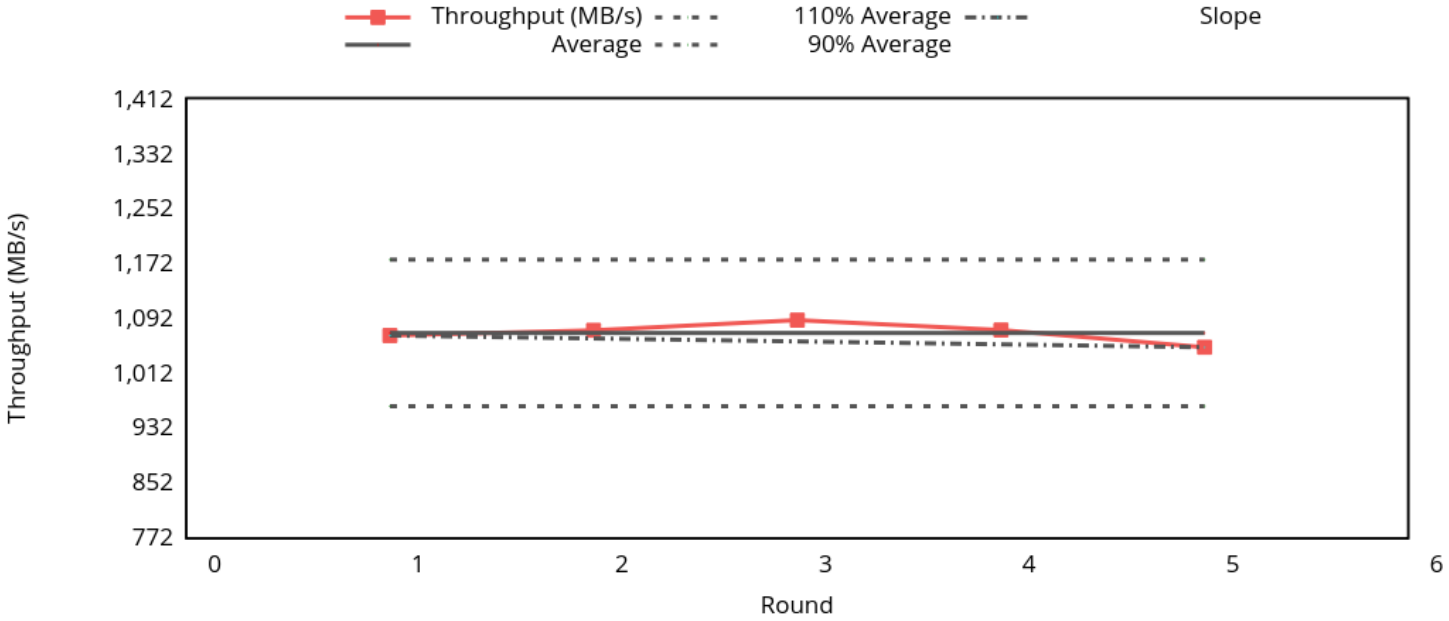
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB	Rev.	PTS-E 1.1
			Page.	3 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Steady State Measurement Window - SEQ/1024 KiB



Steady State Determination Data

Average Throughput:			1072
Allowed Maximum Data Excursion:	214.476	Measured Maximum Data Excursion:	39.48
Allowed Maximum Slope Excursion:	107.238	Measured Maximum Slope Excursion:	13.5
Least Squares Linear Fit Formula:			-3.366 * R + 1082.478

Plot A.15 - Steady State Measurement Window - SEQ/1024 KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB	Rev.	PTS-E 1.1
			Page.	4 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput - All RW Mix & BS - Tabular Data 1024KiB

Block Size (KiB)	Read / Write Mix %	
	0/100	100/0
1024k	1072.38	1411.83

Plot A.16 - Throughput - All RW Mix & BS - Tabular Data 1024KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

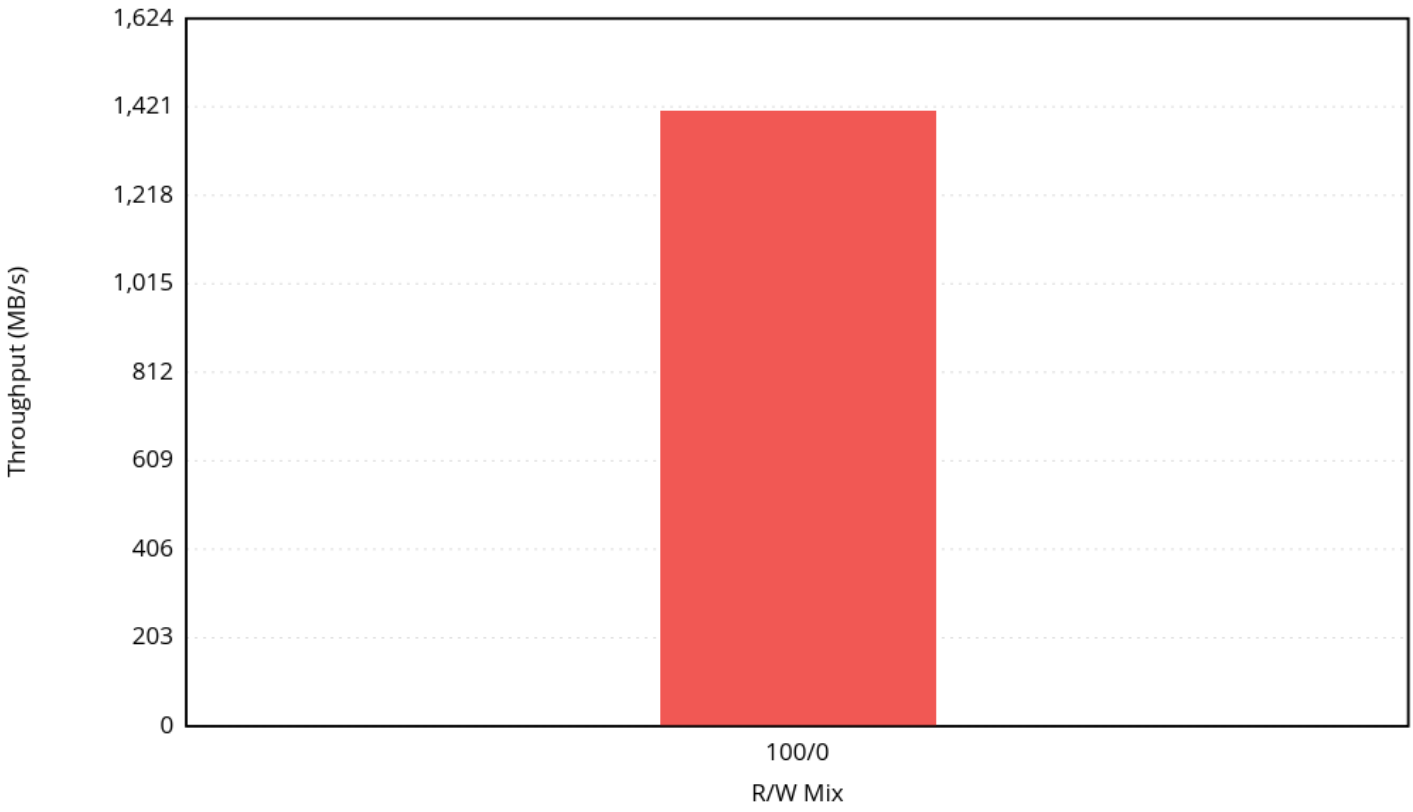
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB	Rev.	PTS-E 1.1
			Page.	5 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput - All RW Mix & BS - 2D Plot 1024KiB



Plot A.17 - Throughput - All RW Mix & BS - 2D Plot 1024KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

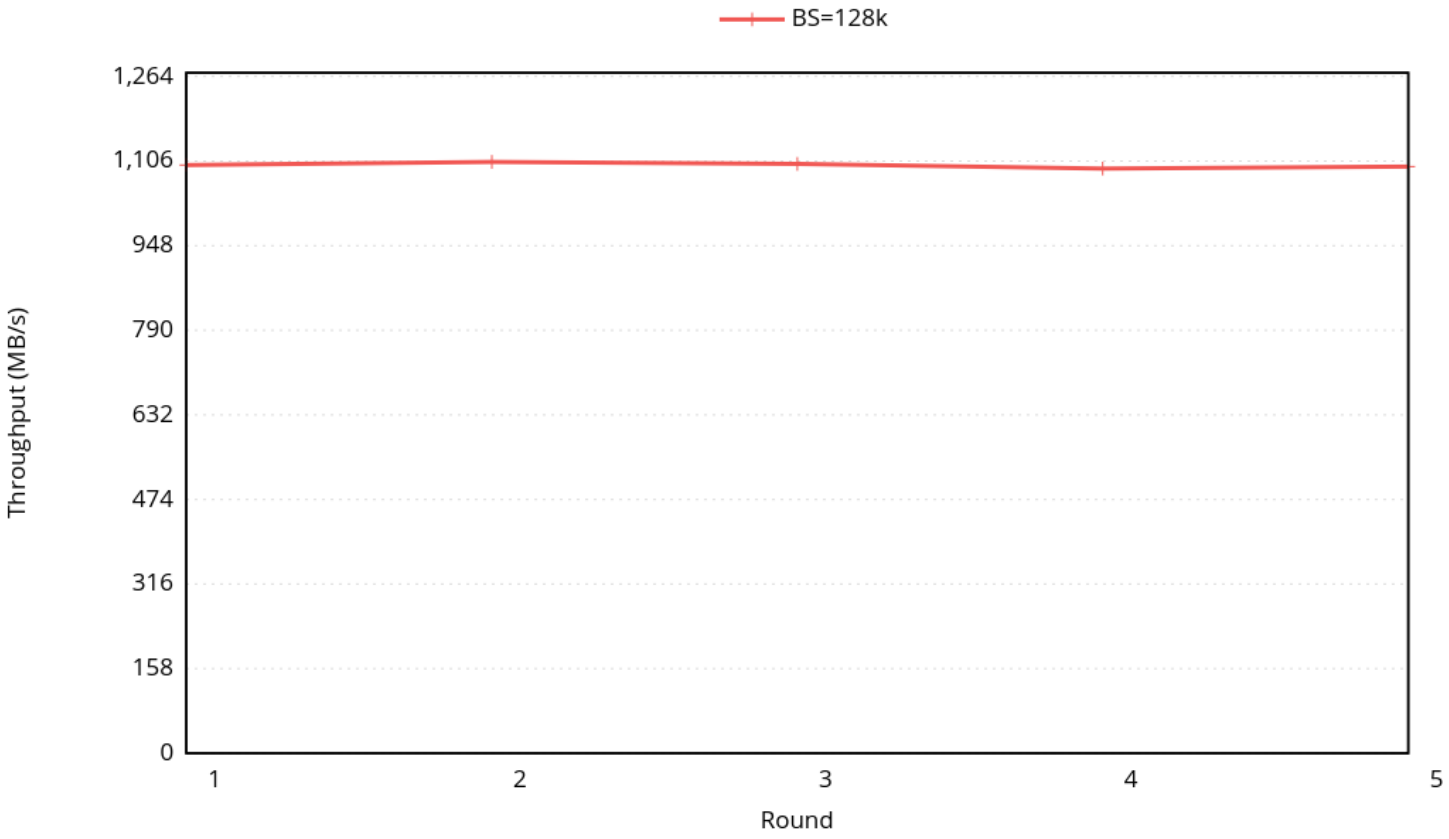
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 128KiB	Rev.	PTS-E 1.1
			Page.	6 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput Test - SS Convergence - Write 128KiB



Plot A.18 - Throughput Test - SS Convergence - Write 128KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

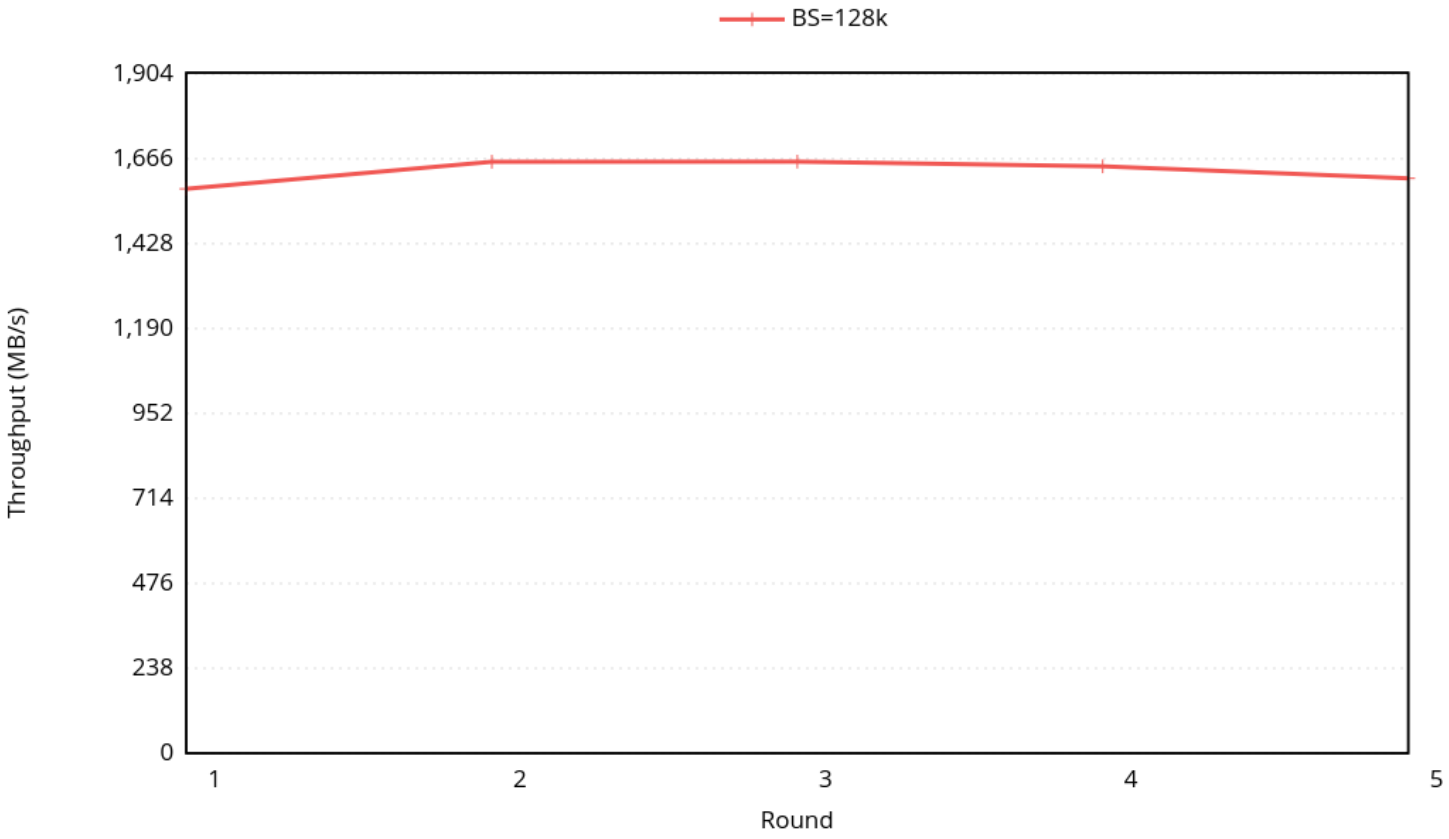
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB / 128KiB	Rev.	PTS-E 1.1
			Page.	7 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput Test - SS Convergence - Read 128KiB



Plot A.19 - Throughput Test - SS Convergence - Read 128KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

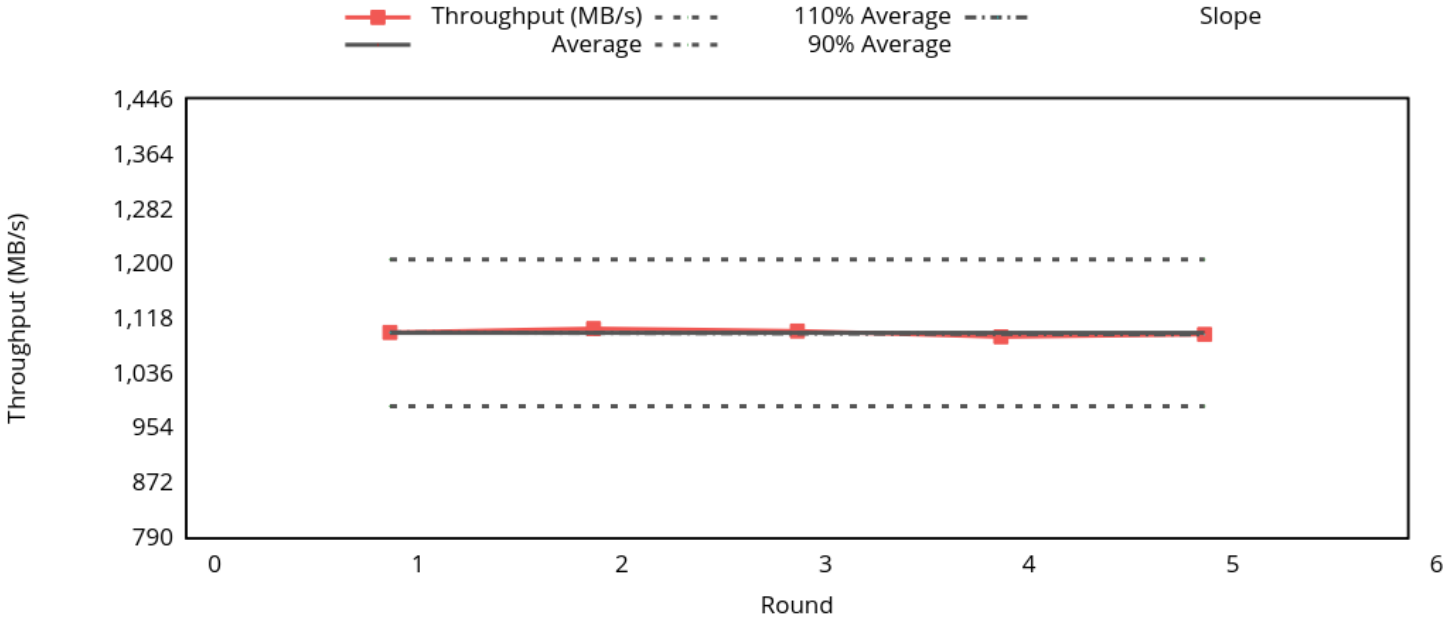
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB / 128KiB	Rev.	PTS-E 1.1
			Page.	8 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Steady State Measurement Window - SEQ/128 KiB



Steady State Determination Data

Average Throughput:			1098
Allowed Maximum Data Excursion:	219.6692	Measured Maximum Data Excursion:	12.29
Allowed Maximum Slope Excursion:	109.8346	Measured Maximum Slope Excursion:	7.3
Least Squares Linear Fit Formula:			-1.829 * R + 1103.833

Plot A.20 - Steady State Measurement Window - SEQ/128 KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB / 128KiB	Rev.	PTS-E 1.1
			Page.	9 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput -All RW Mix & BS - Tabular Data 128KiB

Block Size (KiB)	Read / Write Mix %	
	0/100	100/0
128k	1098.35	1630.65

Plot A.21 - Throughput -All RW Mix & BS - Tabular Data 128KiB

Test Run Date:	08/27/2014 21:06 UTC	Test Run Date:	08/28/2014 02:58 UTC

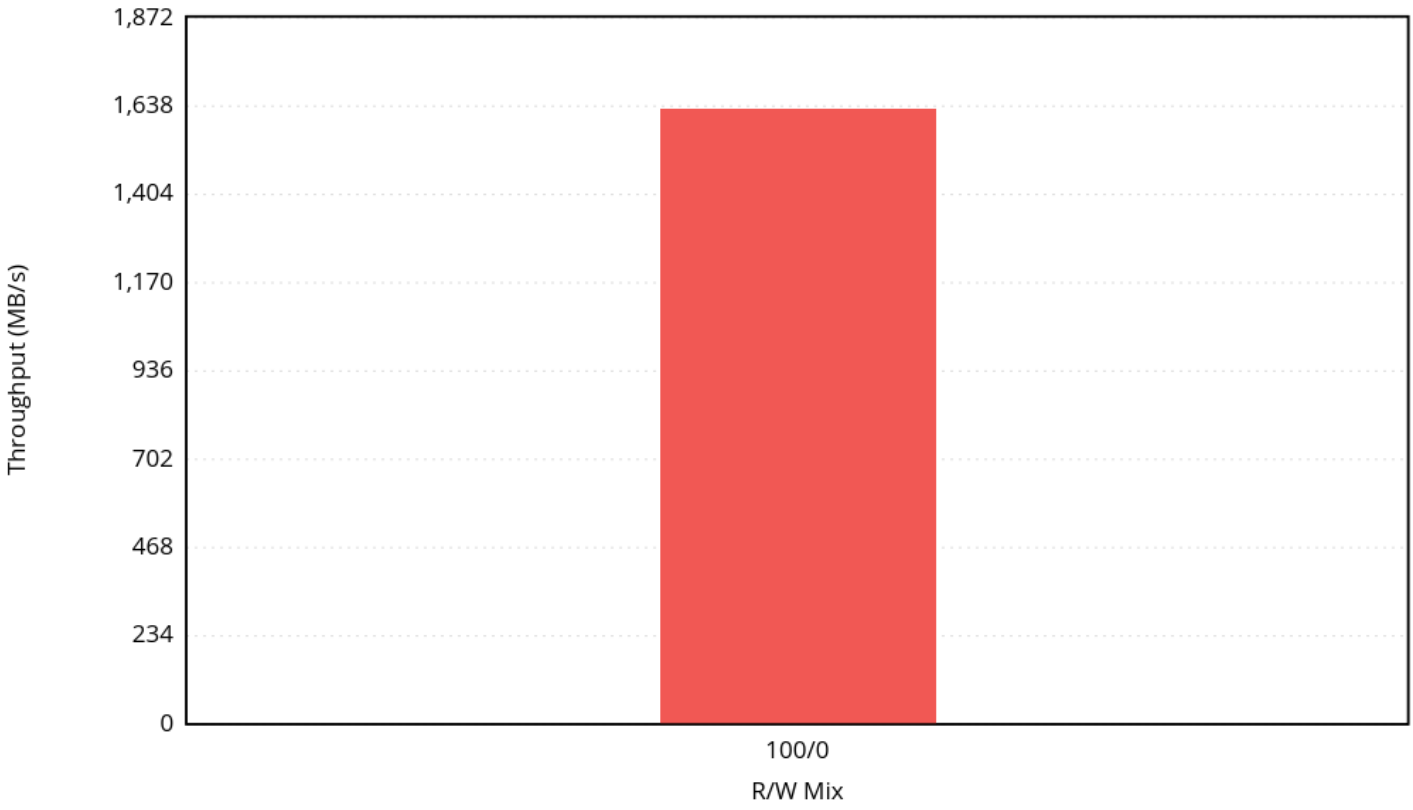
THROUGHPUT Test - Report Page

SNIA SSS TWG	Solid State Storage Performance Test Spec	TP - SEQ 1024KiB / 128KiB	Rev.	PTS-E 1.1
			Page.	10 of 10

Service:	Linode Cloud Hosting	Instance Type:	1gb	Tested By:	CloudHarmony transparency for the cloud

Test Platform		Storage Platform		Setup Parameters		Test Parameters	
Provider	Linode	Storage Config	Not Specified	Data Pattern	RND	Data Pattern	RND
Service	Linode Cloud Hosting	# Devices	1	AR	100%	AR & Amount	100%
Region	newark	Devices	/dev/xvdb	AR Segments	N/A	Test Stimulus 1	SEQ 1024KiB
Instance ID	1gb	Device Capacities	16 GB	Pre Condition 1	SEQ 128K W	RW Mix	100:0 / 0:100
CPU	Intel Xeon E5-2680 v2 2.80GHz [1 cores]	Purge Methods	None	TOIO - TC/QD	TC 1/QD 1	Block Sizes	SEQ 1024KiB
Memory	991 MB	Drive Model		Duration	2X Device Capacity	TOIO - TC/QD	TC 1/QD 32
Operating System	Ubuntu 14.04 LTS	Drive Type	SSD	Pre Condition 2	SEQ 128K W	Steady State	1 - 5
Test SW		Drive Interface		TOIO - TC/QD	TC 1/QD 32	Test Stimulus 2	SEQ 128KiB
Test ID	linode-0814-01	Notes		SS Rouds	1 - 5	TOIO - TC/QD	TC 1/QD 32
Notes				Notes		Steady State	1 - 5

Throughput -All RW Mix & BS - 2D Plot 128KiB



Plot A.22 - Throughput -All RW Mix & BS - 2D Plot 128KiB