

Some write speed tests on different Unix FS

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testsystem debian 9.11 Jessie install on vmware 6.5, nothing fancy, no load, 1CPU 1 GB RAM on a Xeon E5-2690 v4,

Storage on a Dell Compellent 5020 all flash array with raw 14*7TB SSDs (+compression and dedupe,

SAN connected via 4x10GBit iSCSI, multipath, on VMFS 6.0), with only the test host running on it.

As i had some time before going into prod with the system, I went to test some disk writes on different filesystems with default options.

time to create a 50 GB file

	XFS	EXT4	BTRFS	ZFSol Stretch *	ZFSol Buster **	ZFSnative ***
512	8m6.799s	7m3.175s	7m42.553s	32m1.321s		9m25.898s
1024	4m18.668s	3m52.743s	4m54.397s	17m46.575s		5m9.074s
2048	2m41.528s	2m22.762s	3m1.718s	9m20.834s		2m53.576s
4096	1m39.691s	1m25.329	1m31.303s	5m12.680s		1m46.882s
8192	1m9.436s	1m15.280s	1m16.461s	3m0.966s		1m15.644s
16384	0m55.044s	1m4.419s	1m4.662s	2m20.436s		0m59.150s
32'768	0m49.977s	0m57.332s	0m58.882s	1m38.544s		0m50.164s
65'536	0m45.636s	0m55.312s	0m54.781s	1m24.496s		0m46.127s

Blocksize

write troughput in MB/s

	XFS	EXT4	BTRFS	ZFSol Stretch *	ZFSol Buster **	ZFSnative ***
512	110	127	116	27.9		90.5
1024	208	231	183	50.3		166
2048	333	377	296	95.8		295
4096	539	630	590	172		479
8192	773	713	702	297		677
16384	977	834	833	383		866
32'768	1100	938	915	545		1021
65'536	1200	972	985	637		1080

Some more tests, with a more real-world like vm

vmware 6.5, 4 CPU cores 8GB RAM a Xeon E5-2690 v4, NO deduplication, NO compression on Storage volume

	XFS	EXT4	BTRFS	ZFSol Stretch *	ZFSol Buster **	ZFSnative ***
512						
1024						
2048					2m50.804s	2m18.258s
4096					1m52.471s	1m22.838s
8192					1m29.054s	0m51.967s
16384					1m19.341s	0m38.853s
32'768					1m12.164s	0m32.356s
65'536					1m8.280s	0m28.727s

	XFS	EXT4	BTRFS	ZFSol Stretch *	ZFSol Buster **	ZFSnative ***
512						
1024						
2048					314	370
4096					477	618/615/610/621
8192					603	986
16384					677	1290
32'768					744	1550
65'536					786	1720/1740

on vmware 6.5, 4 CPU cores 8GB RAM a Xeon E5-2690 v4, WITH deduplication, AND compression on Storage volume

	XFS	EXT4	BTRFS	ZFSonL Stretch *	ZFSonL Buster **	ZFSnative ***
512						
1024						
2048					2m46.747s	2m22.618s
4096					1m48.922s	1m22.840s
8192					1m29.102s	0m53.337s
16384					1m18.712s	0m38.936s
32'768					1m12.234s	0m32.212s
65'536					1m8.254s	0m28.715s

	XFS	EXT4	BTRFS	ZFSonL Stretch *	ZFSonL Buster **	ZFSnative ***
512						
1024						
2048					322	359
4096					493/492	618
8192					603/603	960
16384					682	1280
32'768					743	1550
65'536					787/789	1740/1740/1730

* ZFS on Linux Debian Stretch nonfree and contrib repo zfs v0.6.5.9-5

** ZFS on Linux Debian Buster backports repo zfs v0.8.2-3

*** Tested on an Omniosce v11 r151032

1/2/3 means multiple runs to estimate precision of the measurements. Looks pretty accurate on each run.