5 nodes

```
storage-tuner-benchmark version 2.1.0
Testgroup "current"
===   1 file series   ===
1 file, 1 thread, seq 1M writes, simple: 57 write iops (31% HDD)1 file, 1 thread, rnd 16k
writes, simple: 15 write iops (2% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 7
write iops (1% HDD)
1 file, 16 threads, rnd 4k writes, posixaio: 17 write iops (4% HDD)1 file, 16 threads, rnd 8k
writes, posixaio: 19 write iops (4% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 16
write iops (3% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 16 write iops (3%
HDD)
===  16 file series   ===16 files, 1 thread each, seq 1M writes, simple: 35 write iops (23%
HDD)
16 files, 1 thread each, rnd 16k writes, simple: 111 write iops (16% HDD)16 files, 1 thread
each, rnd 16k writes, simple, take 2: 322 write iops (51% HDD)16 files, 1 thread each, rnd
16k writes, posixaio: 311 write iops (66% HDD)16 files, 16 threads each, rnd 16k writes,
posixaio: 1016 write iops (189% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take
2: 1551 write iops (309% HDD)
===   O_SYNC series   ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 14 write iops (9%
HDD)
1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 14 write iops (5% HDD)16 files, 1
thread each, rnd 16k writes, simple, o_sync: 271 write iops (53% HDD)16 files, 16 threads
each, rnd 16k writes, posixaio, o_sync: 156 write iops (30% HDD)
===    read series    ===
1 file, 1 thread, seq 1M reads, simple: 657 read iops (17% HDD)1 file, 16 threads, rnd 16k
reads, posixaio: 1347 read iops (787% HDD)16 files, 1 thread each, seq 1M reads, simple: 175
read iops (4% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 67676 read iops (14399%
HDD)
16 files, 16 threads each, rnd 16k reads, posixaio: 75265 read iops (15174% HDD)=== native
aio series ===
1 file, 16 threads, rnd 16k writes, native aio: 19 write iops (3% HDD)16 files, 16 threads
each, rnd 16k writes, native aio: 358 write iops (71% HDD)1 file, 16 threads, rnd 16k reads,
native aio: 1486 read iops (1134% HDD)16 files, 16 threads each, rnd 16k reads, native aio:
78257 read iops (15841% HDD)
```

Testgroup "current"

=== 1 file series ===

1 file, 1 thread, seq 1M writes, simple: 72 write iops (39% HDD)1 file, 1 thread, rnd 16k writes, simple: 20 write iops (2% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 17 write iops (2% HDD)

1 file, 16 threads, rnd 4k writes, posixaio: 18 write iops (5% HDD)1 file, 16 threads, rnd 8k writes, posixaio: 12 write iops (2% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 22 write iops (4% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 17 write iops (3% HDD)

=== 16 file series ===16 files, 1 thread each, seq 1M writes, simple: 35 write iops (23% HDD)

16 files, 1 thread each, rnd 16k writes, simple: 382 write iops (58% HDD)16 files, 1 thread each, rnd 16k writes, simple, take 2: 366 write iops (58% HDD)16 files, 1 thread each, rnd 16k writes, posixaio: 343 write iops (73% HDD)16 files, 16 threads each, rnd 16k writes, posixaio: 1301 write iops (242% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take 2: 1126 write iops (224% HDD)

=== O_SYNC series ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 14 write iops (9% HDD)

1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 11 write iops (4% HDD)16 files, 1 thread each, rnd 16k writes, simple, o_sync: 376 write iops (74% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, o_sync: 198 write iops (38% HDD)

=== read series ===

1 file, 1 thread, seq 1M reads, simple: 228 read iops (6% HDD)1 file, 16 threads, rnd 16k reads, posixaio: 807 read iops (471% HDD)16 files, 1 thread each, seq 1M reads, simple: 173 read iops (4% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 63355 read iops (13479% HDD)

16 files, 16 threads each, rnd 16k reads, posixaio: 70160 read iops (14145% HDD)=== native aio series ===

1 file, 16 threads, rnd 16k writes, native aio: 22 write iops (3% HDD)16 files, 16 threads each, rnd 16k writes, native aio: 450 write iops (89% HDD)1 file, 16 threads, rnd 16k reads, native aio: 782 read iops (596% HDD)16 files, 16 threads each, rnd 16k reads, native aio: 73098 read iops (14797% HDD)

Tests complete on karatasi @ 2019-09-23 23:05:57.Files remain. To clean up, add argument "cleanup".

Creating test directory "stb-testdir"Running tests in "./stb-testdir" on mwanafunzi @ 2019-09-25 21:54:20 ...

storage-tuner-benchmark version 2.1.0

Testgroup "current"

```
===   1 file series   ===
1 file, 1 thread, seq 1M writes, simple: 85 write iops (46% HDD)1 file, 1 thread, rnd 16k
writes, simple: 24 write iops (3% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 30
write iops (4% HDD)
1 file, 16 threads, rnd 4k writes, posixaio: 27 write iops (7% HDD)1 file, 16 threads, rnd 8k
writes, posixaio: 25 write iops (5% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 32
write iops (7% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 25 write iops (4%
HDD)
===  16 file series   ===16 files, 1 thread each, seq 1M writes, simple: 34 write iops (22%
HDD)
16 files, 1 thread each, rnd 16k writes, simple: 947 write iops (144% HDD)16 files, 1 thread
each, rnd 16k writes, simple, take 2: 902 write iops (143% HDD)16 files, 1 thread each, rnd
16k writes, posixaio: 949 write iops (203% HDD)16 files, 16 threads each, rnd 16k writes,
posixaio: 2767 write iops (515% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take
2: 2729 write iops (544% HDD)
===   O_SYNC series   ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 25 write iops (16%
HDD)
1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 28 write iops (11% HDD)16 files, 1
thread each, rnd 16k writes, simple, o_sync: 893 write iops (176% HDD)16 files, 16 threads
each, rnd 16k writes, posixaio, o_sync: 650 write iops (127% HDD)
===    read series    ===
1 file, 1 thread, seq 1M reads, simple: 105 read iops (2% HDD)1 file, 16 threads, rnd 16k
reads, posixaio: 468 read iops (273% HDD)16 files, 1 thread each, seq 1M reads, simple: 7409
read iops (183% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 151158 read iops
(32161% HDD)16 files, 16 threads each, rnd 16k reads, posixaio: 440291 read iops (88768% HDD)
=== native aio series ===1 file, 16 threads, rnd 16k writes, native aio: 25 write iops (4%
HDD)
16 files, 16 threads each, rnd 16k writes, native aio: 818 write iops (163% HDD)1 file, 16
threads, rnd 16k reads, native aio: 508 read iops (387% HDD)16 files, 16 threads each, rnd
16k reads, native aio: 508793 read iops (102994% HDD)Tests complete on mwanafunzi @ 2019-09-
25 21:57:13.
Files remain. To clean up, add argument "cleanup".
```

Laptop was running at 100 mb instead of 1Gb. Took that node offline and ran with 4 including
imara2

```
Running tests in "./stb-testdir" on mwanafunzi @ 2019-09-25 21:58:11 ...storage-tuner-
benchmark version 2.1.0
Testgroup "current"
===   1 file series   ===
```

1 file, 1 thread, seq 1M writes, simple: 79 write iops (43% HDD)1 file, 1 thread, rnd 16k writes, simple: 25 write iops (3% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 25 write iops (3% HDD)

1 file, 16 threads, rnd 4k writes, posixaio: 28 write iops (7% HDD)1 file, 16 threads, rnd 8k writes, posixaio: 27 write iops (6% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 28 write iops (6% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 26 write iops (5% HDD)

=== 16 file series   ===16 files, 1 thread each, seq 1M writes, simple: 87 write iops (58% HDD)

16 files, 1 thread each, rnd 16k writes, simple: 1267 write iops (193% HDD)16 files, 1 thread each, rnd 16k writes, simple, take 2: 1267 write iops (202% HDD)16 files, 1 thread each, rnd 16k writes, posixaio: 1276 write iops (273% HDD)16 files, 16 threads each, rnd 16k writes, posixaio: 5135 write iops (956% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take 2: 5267 write iops (1051% HDD)

===   O_SYNC series   ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 25 write iops (16% HDD)

1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 22 write iops (9% HDD)16 files, 1 thread each, rnd 16k writes, simple, o_sync: 1180 write iops (233% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, o_sync: 850 write iops (166% HDD)

===   read series   ===

1 file, 1 thread, seq 1M reads, simple: 230 read iops (6% HDD)1 file, 16 threads, rnd 16k reads, posixaio: 480 read iops (280% HDD)16 files, 1 thread each, seq 1M reads, simple: 10396 read iops (257% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 152363 read iops (32417% HDD)16 files, 16 threads each, rnd 16k reads, posixaio: 443535 read iops (89422% HDD)

=== native aio series ===1 file, 16 threads, rnd 16k writes, native aio: 23 write iops (3% HDD)

16 files, 16 threads each, rnd 16k writes, native aio: 1262 write iops (251% HDD)1 file, 16 threads, rnd 16k reads, native aio: 448 read iops (341% HDD)16 files, 16 threads each, rnd 16k reads, native aio: 480207 read iops (97207% HDD)Tests complete on mwanafunzi @ 2019-09-25 22:00:54.

Files remain. To clean up, add argument "cleanup".

Creating test directory "stb-testdir"Running tests in "./stb-testdir" on mwanafunzi @ 2019-09-25 22:01:40 ...

storage-tuner-benchmark version 2.1.0

Testgroup "current"

===   1 file series   ===

1 file, 1 thread, seq 1M writes, simple: 103 write iops (56% HDD)1 file, 1 thread, rnd 16k writes, simple: 33 write iops (4% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 34

```
write iops (5% HDD)

1 file, 16 threads, rnd 4k writes, posixaio: 37 write iops (10% HDD)1 file, 16 threads, rnd
8k writes, posixaio: 37 write iops (8% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 32
write iops (7% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 38 write iops (7%
HDD)

===  16 file series   ===16 files, 1 thread each, seq 1M writes, simple: 86 write iops (57%
HDD)

16 files, 1 thread each, rnd 16k writes, simple: 641 write iops (98% HDD)16 files, 1 thread
each, rnd 16k writes, simple, take 2: 603 write iops (96% HDD)16 files, 1 thread each, rnd
16k writes, posixaio: 566 write iops (121% HDD)16 files, 16 threads each, rnd 16k writes,
posixaio: 3117 write iops (580% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take
2: 2441 write iops (487% HDD)

===  O_SYNC series   ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 33 write iops (21%
HDD)

1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 30 write iops (12% HDD)16 files, 1
thread each, rnd 16k writes, simple, o_sync: 600 write iops (118% HDD)16 files, 16 threads
each, rnd 16k writes, posixaio, o_sync: 154 write iops (30% HDD)

===    read series    ===
1 file, 1 thread, seq 1M reads, simple: 122 read iops (3% HDD)1 file, 16 threads, rnd 16k
reads, posixaio: 529 read iops (309% HDD)16 files, 1 thread each, seq 1M reads, simple: 9609
read iops (237% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 110624 read iops
(23537% HDD)16 files, 16 threads each, rnd 16k reads, posixaio: 544756 read iops (109829% HDD)

=== native aio series ===1 file, 16 threads, rnd 16k writes, native aio: 36 write iops (5%
HDD)

16 files, 16 threads each, rnd 16k writes, native aio: 662 write iops (132% HDD)1 file, 16
threads, rnd 16k reads, native aio: 311 read iops (237% HDD)16 files, 16 threads each, rnd
16k reads, native aio: 525425 read iops (106361% HDD)Tests complete on mwanafunzi @ 2019-09-
25 22:04:27.

Files remain. To clean up, add argument "cleanup".
```

```
Creating test directory "stb-testdir"Running tests in "./stb-testdir" on mwanafunzi @ 2019-09-
25 22:12:45 ...

storage-tuner-benchmark version 2.1.0

Testgroup "current"

===   1 file series   ===
1 file, 1 thread, seq 1M writes, simple: 108 write iops (59% HDD)1 file, 1 thread, rnd 16k
writes, simple: 47 write iops (6% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 40
write iops (6% HDD)

1 file, 16 threads, rnd 4k writes, posixaio: 37 write iops (10% HDD)1 file, 16 threads, rnd
```

8k writes, posixaio: 52 write iops (12% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 47 write iops (10% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 51 write iops (10% HDD)

=== 16 file series ===16 files, 1 thread each, seq 1M writes, simple: 95 write iops (63% HDD)

16 files, 1 thread each, rnd 16k writes, simple: 1187 write iops (181% HDD)16 files, 1 thread each, rnd 16k writes, simple, take 2: 1164 write iops (185% HDD)16 files, 1 thread each, rnd 16k writes, posixaio: 676 write iops (145% HDD)16 files, 16 threads each, rnd 16k writes, posixaio: 3062 write iops (570% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take 2: 2219 write iops (442% HDD)

=== O_SYNC series ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 45 write iops (29% HDD)

1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 40 write iops (16% HDD)16 files, 1 thread each, rnd 16k writes, simple, o_sync: 409 write iops (80% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, o_sync: 312 write iops (61% HDD)

=== read series ===

1 file, 1 thread, seq 1M reads, simple: 91 read iops (2% HDD)1 file, 16 threads, rnd 16k reads, posixaio: 555 read iops (324% HDD)16 files, 1 thread each, seq 1M reads, simple: 7014 read iops (173% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 2688 read iops (571% HDD)

16 files, 16 threads each, rnd 16k reads, posixaio: 5759 read iops (1161% HDD)=== native aio series ===

1 file, 16 threads, rnd 16k writes, native aio: 41 write iops (6% HDD)16 files, 16 threads each, rnd 16k writes, native aio: 958 write iops (191% HDD)1 file, 16 threads, rnd 16k reads, native aio: 252 read iops (192% HDD)16 files, 16 threads each, rnd 16k reads, native aio: 221980 read iops (44935% HDD)

Tests complete on mwanafunzi @ 2019-09-25 22:15:27.Files remain. To clean up, add argument "cleanup".

=== 1 file series ===

1 file, 1 thread, seq 1M writes, simple: 103 write iops (56% HDD)1 file, 1 thread, rnd 16k writes, simple: 30 write iops (4% HDD)1 file, 1 thread, rnd 16k writes, simple, take 2: 30 write iops (4% HDD)

1 file, 16 threads, rnd 4k writes, posixaio: 37 write iops (10% HDD)1 file, 16 threads, rnd 8k writes, posixaio: 34 write iops (8% HDD)1 file, 16 threads, rnd 16k writes, posixaio: 30 write iops (6% HDD)1 file, 16 threads, rnd 16k writes, posixaio, take 2: 30 write iops (5% HDD)

=== 16 file series ===16 files, 1 thread each, seq 1M writes, simple: 91 write iops (60% HDD)

16 files, 1 thread each, rnd 16k writes, simple: 636 write iops (97% HDD)16 files, 1 thread

each, rnd 16k writes, simple, take 2: 660 write iops (105% HDD)16 files, 1 thread each, rnd 16k writes, posixaio: 581 write iops (124% HDD)16 files, 16 threads each, rnd 16k writes, posixaio: 3014 write iops (561% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, take 2: 2336 write iops (466% HDD)

=== O_SYNC series ===1 file, 1 thread, rnd 16k writes, simple, o_sync: 29 write iops (18% HDD)

1 file, 16 threads, rnd 16k writes, posixaio, o_sync: 32 write iops (13% HDD)16 files, 1 thread each, rnd 16k writes, simple, o_sync: 609 write iops (120% HDD)16 files, 16 threads each, rnd 16k writes, posixaio, o_sync: 379 write iops (74% HDD)

=== read series ===

1 file, 1 thread, seq 1M reads, simple: 1198 read iops (32% HDD)1 file, 16 threads, rnd 16k reads, posixaio: 594 read iops (347% HDD)16 files, 1 thread each, seq 1M reads, simple: 7023 read iops (173% HDD)16 files, 1 thread each, rnd 16k reads, posixaio: 230192 read iops (48977% HDD)16 files, 16 threads each, rnd 16k reads, posixaio: 588258 read iops (118600% HDD)

=== native aio series ===1 file, 16 threads, rnd 16k writes, native aio: 34 write iops (5% HDD)

16 files, 16 threads each, rnd 16k writes, native aio: 610 write iops (121% HDD)1 file, 16 threads, rnd 16k reads, native aio: 600 read iops (458% HDD)16 files, 16 threads each, rnd 16k reads, native aio: 605657 read iops (122602% HDD)