



Yupapa Web Services

Cloud Computing Service Preliminary Performance Result

Jan 2014

MySQL 5.5 Benchmark

The follow test is done using sysbench 4.0.12 benchmark program. The database server we use in this test is a mySQL 5.5 database server running the InnoDB engine. No customization or optimization has been done to the mySQL server.

Test Setups

Pentium Dual Core 2.6Ghz 2GB DDR-2 RAM 500GB SATA Drive Debian 6.0 x86_64
VMware Virtual Machine Dual Quad Core Intel Xeon E5506 2.13Ghz (8 cores) 4GB DDR-3 RAM 10K SAS DRIVE RAID 1 CentOS 5.6 x86_64
YUPAPA Cloud Server 8 Processor Cores 2.1Ghz 4GB RAM Cloud Storage CentOS 5.6 x86_64

Commands:

```
sysbench --test=oltp --oltp-table-size=1000000 --mysql-db=test --mysql-user=root prepare
```

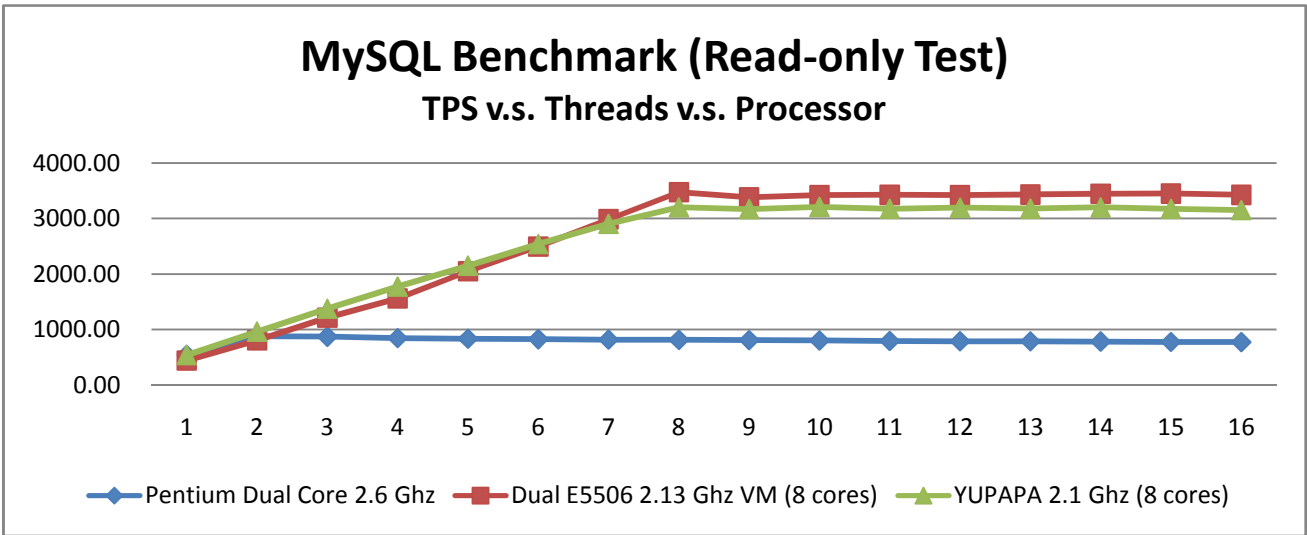
Read-Only:

```
seq 1 16 | xargs -i sysbench --test=oltp --mysql-db=test --mysql-user=root --max-time=60  
--oltp-read-only=on --max-requests=0 --num-threads={} run | grep 'transactions:'
```

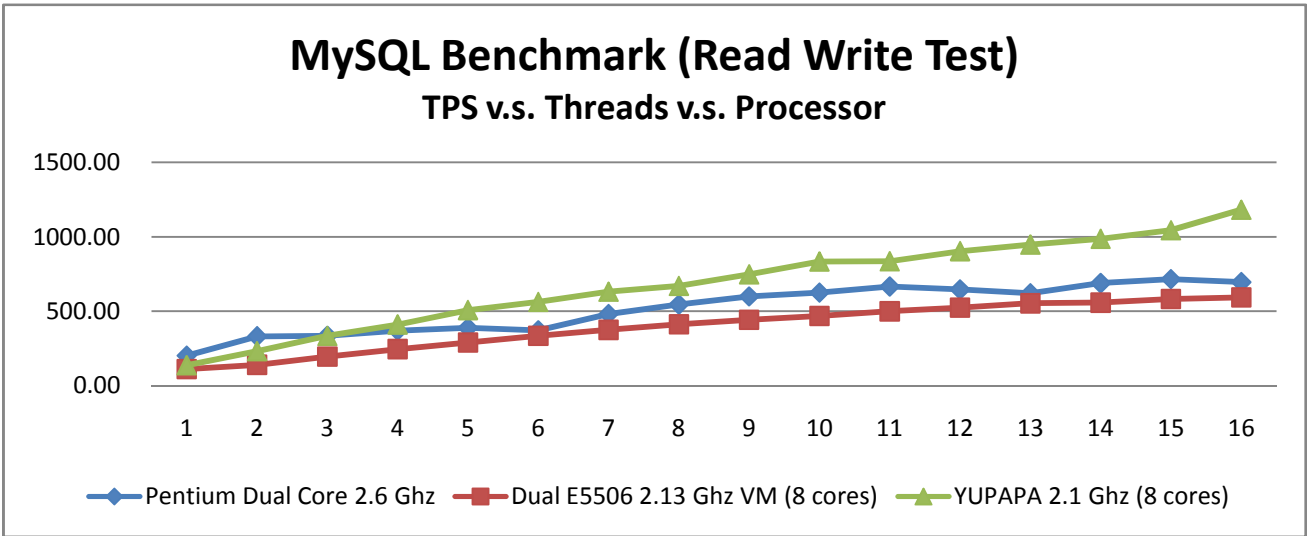
Read-Write:

```
seq 1 16 | xargs -i sysbench --test=oltp --mysql-db=test --mysql-user=root --max-time=60  
--oltp-read-only=off --max-requests=0 --num-threads={} run | grep 'transactions:'
```

```
sysbench --test=oltp --mysql-db=test --mysql-user=root cleanup
```



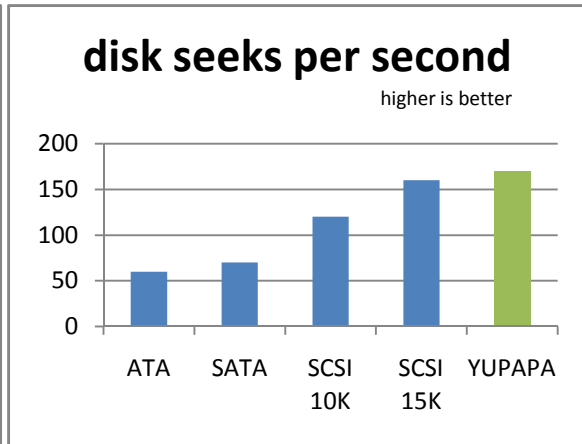
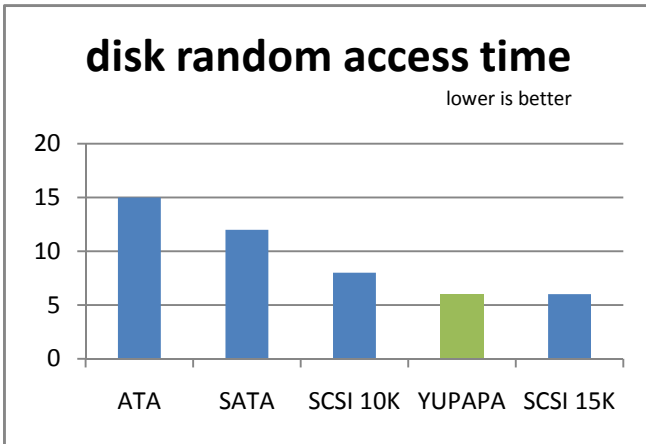
The read-only benchmark consists of a bunch of SELECT statements such as point queries, range queries with SUM() and ORDER BY statements. The result shows the Dual Xeon VMware Guest tops out at 3400 TPS whilst our cloud virtual machine peaks at 3200 TPS. We are just about 5% behind the Dual E5506 VMware Guest. With eight 2.6Ghz cores that is not listed on the chart, our cloud server could reach close to 4000 TPS.



The read-write benchmark tests complex queries with BEGIN/COMMIT statement that is used to stop and start a transaction. The test executes a multiple selection of SELECT, UPDATE, INSERT and DELETE statements within one transaction. The result reveals that we are roughly 100% (at 1181 TPS) above the Dual E5506 VMware Guest (at 593 TPS). Even though our cloud server has similar specification as the Dual E5506 VMware guest, our outperformance in this test is contributed by our fast disk storage that is able to execute write operations faster than two SAS drives in RAID 1.

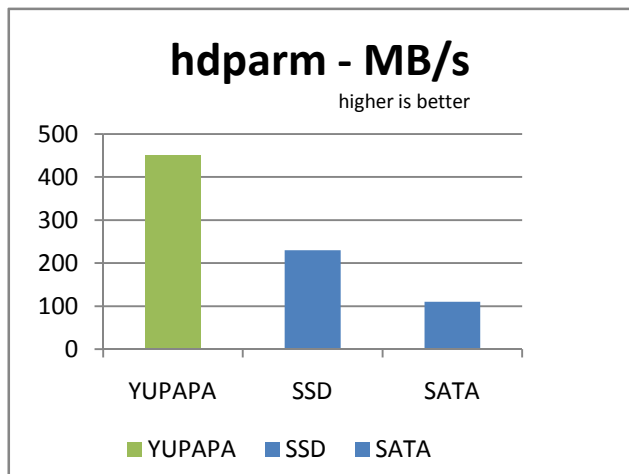
Disk Seeks & Latency

Below shows our disk seeks and latency relative to different type of hard drives. Our disk seeks and random access time is very close to the performance of a single 15K SCSI. Benchmark is done using seeker provided at http://www.linuxinsight.com/how_fast_is_your_disk.html



Buffer Cache

The hdparm is a utility for testing the speed of reading through the buffer cache to the disk without any prior caching of data. It indicates of how fast the drive can sustain sequential data reads under Linux, without any filesystem overhead.



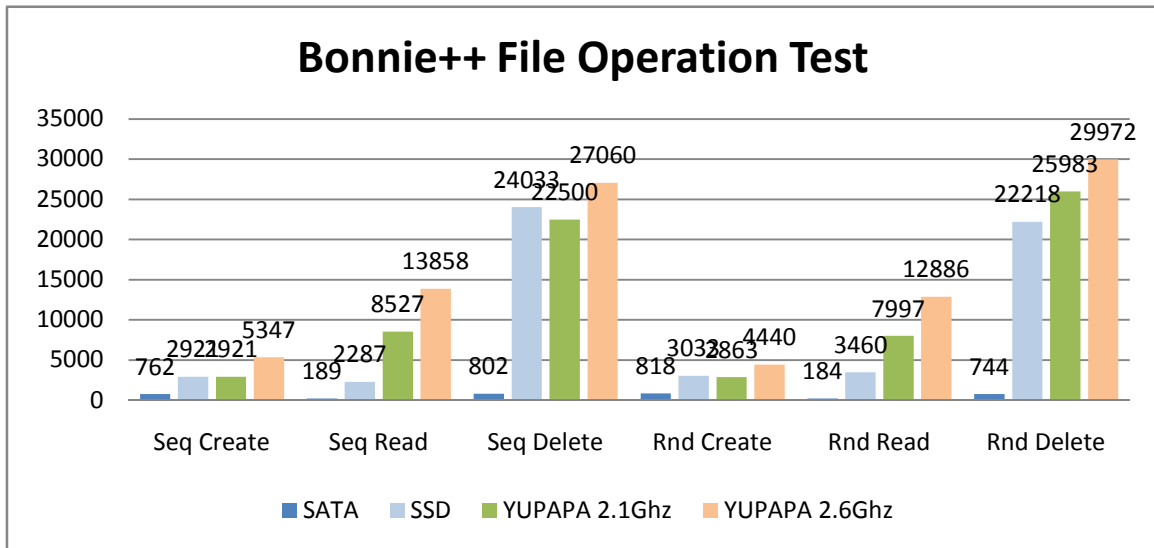
Bonnie++ File Operations

The following test is completed using the bonnie++ program. Bonnie++ tests the file operation by creating, reading (stat) and deleting 102,400 of files ranging in the size of 1MB to 70MB. Actual bonnie command is provided down below if you would like to compare your result with ours. Notice r and s parameters are set to 0 because we are only doing file operation test and skipping the throughput test. To do a fair comparison, the specification of the server (such as memory, processors) needs to be matched.

Command: `bonnie++ -u {user} -r 0 -s 0 -n 100:70000:1000`

```
[root@demovm bonnie++-1.96]# time ./bonnie++ -u root -r 0 -s 0 -n 100:70000:1000
Using uid:0, gid:0.
create files in sequential order...done.
stat files in sequential order...done.
delete files in sequential order...done.
create files in random order...done.
stat files in random order...done.
delete files in random order...done.
Version 1.96
-----Sequential Create----- -----Random Create-----
demovm.cloud.cabin. -Create-- --Read--- -Delete-- -Create-- --Read--- -Delete--
files:max:min      /sec %CP /sec %CP /sec %CP /sec %CP /sec %CP /sec %CP
100:70000:1000    2921 22 8527 39 22500 83 2863 20 7997 42 25983 86
Latency           2626ms 139ms 157ms 2626ms 137ms 155ms
1.96,1.96,demovm.cloud.cabin.com.hk,1,1393330526,,,,,,,,,,,,,100,70000,1000,,,2921,22,8527,39,22500,83,2863,20,7997,42,25983,86,,,,,
,,2626ms,139ms,157ms,2626ms,137ms,155ms

real    1m44.403s
user    0m0.552s
sys     0m32.492s
[root@demovm bonnie++-1.96]#
```



Bonnie++ Test Setups

Physical Server	VMware Virtual Machine	YUPAPA Cloud Server	YUPAPA Cloud Server
Intel Xeon E5620 2.40 Ghz CPU	Intel Xeon E5506 2.13 Ghz CPU	2.10 Ghz CPU	2.60 Ghz CPU
4 Processor Cores with 4 threads	8 Processor Cores	8 Processor Cores	8 Processor Cores
4GB DDR-3 RAM	4GB DDR-3 RAM	4GB RAM	4GB RAM
300GB WD 10K SATA Drive	RAID-1 SSD	Cloud Storage	Cloud Storage
CentOS 5.6 x86_64 O/S	CentOS 5.6 x86_64 O/S	CentOS 5.6 x86_64 O/S	CentOS 5.6 x86_64 O/S

IO Response

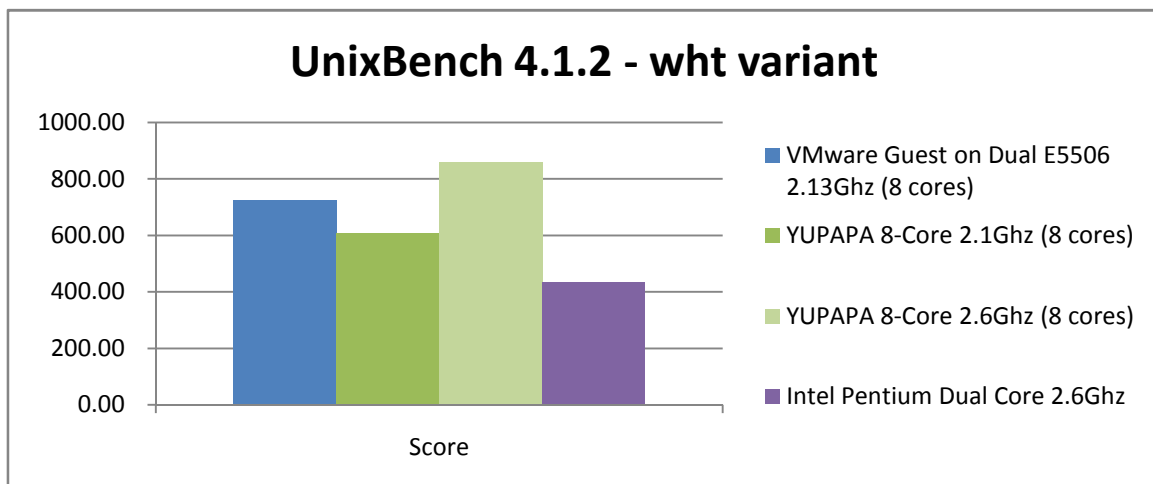
Follow tests are performed using Google's IO-Ping tool on two of our cloud servers.

<http://code.google.com/p/ioping/>

IO PING – Response Time

Yupapa Cloud Server 2.10Ghz, 4GB RAM	Yupapa Cloud Server 2.60Ghz, 4GB RAM
Response Time	
Command: <code>./ioping -c 50 /</code> Result: 200 to 250 us	Command: <code>./ioping -c 50 /</code> Result: 100 to 200 us
IOPS	
Command: <code>./ioping -R /</code> 50 requests completed in 49.0 s, 4.4 k iops, 17.2 MiB/s min/avg/max/mdev = 212 us / 226 us / 288 us / 12 us	Command: <code>./ioping -R</code> 43.5 k requests completed in 3.0 s, 15.0 k iops, 58.7 MiB/s min/avg/max/mdev = 53 us / 66 us / 331 us / 5 us

UnixBench 4.1.2



The clock speed of the processors and the number of cores are important factors in this test. Having the fastest clock speed and a good number of cores wins the best score.

Conclusion

The benchmarks provided above show our performance strength compared with the performance of hard disks, servers and cloud providers that we can find in the market today. The performance is recorded as at Q1 of 2014 and is subject to change based on our utilization as well as the environment over time.