

PRUEBAS DE DESEMPEÑO

Tarea #998





2000 CANCUN, QUINTANA ROO, MÉXICO

CONOCIMIENTO Y CULTURA PARA EL DESARROLLO HUMANO

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Reporte

Este reporte muestra las pruebas que se hicieron en MySQL usando la herramienta Sysbench. El objetivo era ver qué tan bien funciona la base de datos con diferentes tareas, usando 1 y 2 hilos. Las pruebas que se realizaron fueron:bulk_insert

- oltp_delete
- oltp_insert
- oltp_point_select
- oltp_read_only
- oltp_read_write
- oltp_update_index
- oltp_update_non_index
- oltp_write_only
- select_random_points
- select_random_ranges

Los resultados obtenidos para cada prueba son los siguientes:

Prueba	1 hilo	2 hilos		
	Rendimiento estable con	Incremento en el rendimiento		
bulk_insert	menor uso de CPU.	con mayor consumo.		
	Eliminación eficiente con	Reducción de latencia y mayor		
oltp_delete	latencia moderada.	eficiencia.		
	Inserciones consistentes pero			
oltp_insert	lentas.	Mayor velocidad de inserción.		
oltp_point_select	Selecciones rápidas y estables.	Selección más eficiente.		
oltp_read_only	Lectura eficiente.	Mayor velocidad de lectura.		
	Buen balance entre lectura y	Aumento del rendimiento sin		
oltp_read_write	escritura.	errores.		
		Mayor eficiencia con ligero		
oltp_update_index	Actualización eficiente.	aumento de latencia.		
		Incremento del rendimiento sin		
oltp_update_non_index	Actualización estable.	degradación.		
		Aumento significativo en la		
oltp_write_only	Escritura moderada.	velocidad de escritura.		
select_random_points	Selección aleatoria rápida.	Selección más eficiente.		
		Mayor eficiencia con tiempos		
select_random_ranges	Rango de selección rápido.	de respuesta mejorados.		

Comparando las pruebas con 1 y 2 hilos, se nota que usar 2 hilos hace que todo funcione más rápido. Las tareas como insertar, seleccionar y escribir datos mejoraron bastante. Trabajar con varios hilos al mismo tiempo hizo que el sistema fuera más eficiente sin causar problemas.

Por eso, es buena idea configurar la base de datos para usar varios hilos, ya que así se obtiene un mejor rendimiento sin afectar el funcionamiento de la base de datos.

EVIDENCIAS

Rendimiento antes de las pruebas

■ root(@nodo	o1: /home/is	srael							- 0	×
						daverage					
		otal, : 0 us, 1					stoppe		zombie 0.9 si,	0.0 st	
MiB Mem		7942.4 to			8 free,		wa, used,		.1 buff/ca		
MiB Swar		4096.0 to			o free.		used.		. 0 avail M		
	USER		NI	VIRT	RES	SHR S	%CPU	%MEM	TIME+ C		
	root		0	0	0	0 I	2.0	0.0		worker/0:0-events	
	root		0	0	0	0 S	0.3	0.0		bd2/dm-0-8	
	root			11912	5888	3712 R	0.3	0.1	0:00.77 t		
	root		0	22272	13380	9412 S	0.0	0.2	0:03.31 s		
	root		0	0	0	0 S	0.0	0.0	0:00.00 k		
	root		0	0	0	0 S	0.0	0.0		ool_workqueue_release	
	root		-20	0	0	0 I	0.0	0.0		worker/R-rcu_g	
	root			0	0	0 I	0.0	0.0		worker/R-rcu_p	
	root		-20	0	0	0 I	0.0	0.0		worker/R-slub_	
	root			0	0	0 I	0.0	0.0		worker/R-netns	
	root			0	0	0 I	0.0	0.0		worker/R-mm_pe	
	root		0	0	0	0 I	0.0	0.0		cu_tasks_kthread	
	root		0	0	0	0 I	0.0	0.0		cu_tasks_rude_kthread	
	root		0	0	0	0 I	0.0	0.0		cu_tasks_trace_kthread	
	root		0	0	0	0 S	0.0	0.0		softirqd/0	
	root		0	0	0	0 I	0.0	0.0		cu_preempt	
	root		0	0	0	0 S	0.0	0.0		igration/0	
	root		0	0	0	0 S	0.0	0.0		dle_inject/0	
	root		0	0	0	0 S	0.0	0.0	0:00.00 c		
	root		0	0	0	0 S	0.0	0.0	0:00.00 k		
	root			0	0	0 I	0.0	0.0	0:00.00 k	worker/R-inet_	
24	root	20	0	U	U	0 S	0.0	0.0	0:00.00 K	auditu	

bulk_insert

```
root@nodo1: /home/israel
top - 13:21:26 up 53 min, 4 users, load average: 0.83, 0.47, 0.21
Tasks: 132 total, 2 running, 130 sleeping, 0 stopped, 0 zombie
%Cpu(s): 15.3 us, 5.5 sy, 0.0 ni, 0.0 id, 0.6 wa, 0.0 hi, 78.5 si, 0.0 st
MiB Mem: 7942.4 total, 6988.8 free, 728.1 used, 462.7 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7214.4 avail Mem
                                                                                                                                          TIME+ COMMAND

1:08.40 mariadbd

0:01.20 sysbench

0:00.88 kworker/u2:5-events_unbound

0:05.30 kworker/0:0-kdmflush/252:0

0:00.78 jbd2/dm-0-8

0:02.10 kworker/0:0H-kblockd

0:01.95 ksoftirqd/0

0:00.51 upowerd

0:00.97 top

0:03.32 systemd

0:00.00 kthreadd

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns

0:00.00 kworker/R-mm_pe

0:00.00 rcu_tasks_kthread
        PID USER
                                       PR NI
                                                              VIRT
                                                                               RES
                                                                                               SHR S %CPU %MEM
                                                                                                                                                 TIME+ COMMAND
        2536 mysq
                                                                                          11264 S
0 I
0 I
0 S
0 I
       2628 root
                                                                          14848
                                                                                                                2.6
          54 root
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      1839 root
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        231 root
                                        20
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                                                                                                                1.0
       2076 root
                                               -20
                                                                                                                             0.0
0.1
0.1
          16 root
                                                                                           0 R
7552 S
3712 R
9412 S
0 S
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0 I
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      1453 root
2415 root
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                                                         314136
                                                           11912 22272
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4 root
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             5 root
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             6 root
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                                          0 -20
                 root
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           12 root
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           13 root
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           14 root
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                                                                                                                                            0:00.00 rcu_tasks_rude_kthread
           15 root
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                                                                                                                              0.0
                                                                                                                                            0:00.00 rcu_tasks_trace_kthread
                                                                                                                                            0:00.21 rcu_preempt
0:00.04 migration/0
                                        20
                                                   0
                                                                     0
                                                                                    0
                                                                                                                              0.0
           17 root
                                                                                                                 0.0
Threads started!
```

```
SQL statistics:
    queries performed:
        read:
                                                0
                                                47
         write:
other:
         total:
                                                47 (24377.27 per sec.)
47 (0.78 per sec.)
0 (0.00 per sec.)
0 (0.00 per sec.)
    transactions:
     queries:
     ignored errors:
    reconnects:
General statistics:
                                                60.2166s
     total time:
     total number of events:
                                                1468412
Latency (ms):
          min:
                                                          0.00
                                                      0.04
4947.02
          avg:
          max:
          95th percentile:
                                                          0.00
                                                     57813.05
Threads fairness:
    events (avg/stddev):
                                         1468412.0000/0.00
     execution time (avg/stddev): 57.8131/0.00
root@nodo1:/home/israel#
```

```
top - 14:48:17 up 6 min, 2 users, load average: 0.39, 0.32, 0.19
Tasks: 131 total, 1 running, 130 sleeping, 0 stopped, 0 zombie
%Cpu(s): 34.1 us, 20.9 sy, 0.0 ni, 6.8 id, 3.6 wa, 0.0 hi, 34.5 si, 0.0 st
MiB Mem: 7942.1 total, 7143.5 free, 596.2 used, 434.9 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7345.9 avail Mem
                                                                                     SHR S %CPU %MEM
                                                                                                                                 TIME+ COMMAND
       PID USER
                                   PR NI
                                                       VIRT
                                                                      RES
                                                                                                                4.0
0.2
0.0
                                                                                                                             0:14.27 mariadbd
0:00.70 sysbench
0:03.02 kworker/0:4-events
                                   20
20
      1030 mysql
                                            0 1748048 328328
                                                                               157056 S 164.6
      1396 root
                                                   166896
                                                                   15744
                                                                                 11264
        86 root
                                                                                                     2.3
                                                                                                                            0:00.50 jbd2/dm-0-8
0:00.50 kworker/0:2H-kblockd
        254 root
                                   20
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                                                                                                     1.3
                                                                                                                0.0
      1129 root
                                                             Ō
                                                                                         0 I
                                                                                                     1.3
                                         -20
                                                                                                                            0:04.16 ksoftirqd/1
0:01.11 kworker/u5:1-writeback
0:02.04 kworker/1:1-mm_percpu_wq
0:00.68 multipathd
                                                                                                    1.0
                                                                                         0 S
                                                                                                                0.0
         24 root
                                   20
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         31 root
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8576 S
0 I
0 I
         39 root
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0.0
0.0
0.0
                                   rt
20
                                                   289116
                                                                   27136
        376 root
                                             0
                                                                                                     0.6
                                                                                                                             0:00.39 rcu_preempt
0:00.27 kworker/u5:3-events_power_effia
0:00.03 kworker/u4:1-ext4-rsv-conversia
         17 root
                                             0
                                                                                                     0.3
         63 root
                                    20
                                                             0
                                                                                                     0.3
        387 root
                                                                                                     0.3
                                                                                                                            0:00.03 kworker/u4:1-ext4-rsv-c
0:00.11 systemd-timesyn
0:01.24 sshd
0:00.89 top
0:03.64 systemd
0:00.02 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
                                                                                                                0.1
0.1
0.1
0.2
     607 systemd+
1356 israel
                                                                                   6784 S
4992 S
                                                     91020
                                                                     7680
                                                                                                     0.3
                                   20
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                                   20
                                                      15124
                                                                     6832
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      1386 root
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            2 root
            3 root
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0 -20
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0 I
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            4 root
                                                             0
            5 root
                                                                           0
            6 root
                                         -20
                                                                            0
                                                                                                     0.0
                                                             0
                root
```

```
Threads started!
SQL statistics:
    queries performed:
        read:
        write:
        other:
         total:
                                              2897309 (47600.80 per sec.)
93 (1.53 per sec.)
0 (0.00 per sec.)
    transactions:
    queries:
    ignored errors:
    reconnects:
                                                      (0.00 per sec.)
General statistics:
    total time:
                                              60.8572s
2897309
    total number of events:
Latency (ms):
                                                       0.00
          min:
          avg:
                                                       0.04
                                                    4227.30
          max:
          95th percentile:
                                                      0.00
                                                  118158.49
          sum:
Threads fairness:
    events (avg/stddev):
                                       1448654.5000/14562.50
    execution time (avg/stddev):
                                       59.0792/0.42
root@nodo1:/home/israel#
```

oltp delete

```
root@nodo1: /home/israel
top - 13:24:00 up 55 min, 4 users, load average: 0.85, 0.62, 0.31
Tasks: 138 total, 1 running, 137 sleeping, 0 stopped, 0 zombie
%Cpu(s): 2.6 us, 30.8 sy, 0.0 ni, 0.0 id, 14.4 wa, 0.0 hi, 52.3 si, 0.0 st
MiB Mem: 7942.4 total, 6917.6 free, 763.2 used, 499.3 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7179.2 avail Mem
                                                                                           SHR S %CPU %MEM
        PID USER
                                      PR NI
                                                           VIRT
                                                                           RES
                                                                                                                                         TIME+ COMMAND
                                                                                                                                     1:52.14 mariadbd
0:00.71 sysbench
0:01.19 kworker/0:2H-kblockd
0:03.83 kworker/0:8-events
       2536 mysq
                                                                                        0 I
0 S
8704 S
0 I
      2646 root
                                      20
                                                         99364
                                                                       13952
                                                                                                           6.3
                                                                                                                        0.0
                                                                                                           4.6
      2631 root
                                            -20
                                                                                                                                    0:03.83 kworker/0:8-events
0:02.31 ksoftirqd/0
0:00.53 multipathd
0:00.40 kworker/u2:0-events_power_effi+
0:01.96 sshd
0:03.32 systemd
0:00.01 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-slub_
0:00.00 kworker/R-mm_pe
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_thread
0:00.00 rcu_tasks_thread
0:00.21 rcu_preempt
      2637 root
                                      20
                                                                                                           1.7
                                                                                                                        0.0
                                      20
                                                                                                           0.3
         16 root
                                                0
                                                                                0
     352 root
2075 root
2296 israel
                                      rt
20
                                                       289116
                                                                       27392
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                                                                                                           0.3
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                                      20
                                                         15128
                                                                          7092
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9412 S
0 S
0 S
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0 S
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                                      20
20
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                                                                        13380
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                                                                                                                       1 root
             2 root
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            3 root
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            6 root
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          12 root
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           14 root
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           15 root
                                      20
                                                                                                           0.0
                                                                                                                                     0:00.21 rcu_preempt
0:00.04 migration/0
0:00.00 idle_inject/0
           17 root
                                      20
                                                                  0
                                                                                                           0.0
           18 root
                                      rt
51
                                                                                                           0.0
           19 root
                                                0
SQL statistics:
queries performed:
                read:
                write:
                                                                                       4422
                                                                                       193923
                                                                                     19375
198345
198345 (3305.40 per sec.)
198345 (3305.40 per sec.)
0 (0.00 per sec.)
                total:
        transactions:
        queries:
        ignored errors:
        reconnects:
General statistics:
total time:
                                                                                      60.0012s
       total number of events:
                                                                                      198345
Latency (ms):
```

0.02

0.30 45.37

0.32 59628.59

198345.0000/0.00

59.6286/0.00

min: avg:

max:

Threads fairness: events (avg/stddev):

root@nodo1:/home/israel#

95th percentile:

execution time (avg/stddev):

```
top - 14:51:14 up 9 min, 2 users, load average: 0.52, 0.64, 0.36
Tasks: 138 total, 1 running, 137 sleeping, 0 stopped, 0 zombie
%Cpu(s): 14.5 us, 26.0 sy, 0.0 ni, 17.8 id, 15.4 wa, 0.0 hi, 26.2 si, 0.0 st
MiB Mem: 7942.1 total, 7052.9 free, 683.1 used, 439.8 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7259.0 avail Mem
                                                                                                                                                           TIME+ COMMAND

1:46.22 mariadbd

0:00.59 sysbench

0:06.67 ksoftirqd/1

0:00.52 kworker/0:1H-kblockd

0:02.79 sshd

0:01.37 kworker/1:0-events

0:00.06 kworker/0:5-events

0:01.38 sshd

0:02.20 top

0:03.67 systemd

0:00.02 kthreadd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-slub_

0:00.01 kworker/R-netns

0:00.31 kworker/R-netns

0:00.31 kworker/0:1-dio/dm-0

0:00.00 kworker/0:0H-kblockd

0:00.00 kworker/U4:0-ext4-rsv-conversi+

0:00.00 kworker/R-mm_pe

0:00.00 rcu_tasks_kthread
                                            PR NI
                                                                                                          SHR S %CPU %MEM
                                                                                                                                                                 TIME+ COMMAND
        PID USER
                                                                    VIRT
                                                                                       RES
                                                      1030 mysql
                                             20
                                                                                                                           86.2
                                                                                                                                             0.2
0.0
0.0
0.1
0.0
       1434 root
                                             20
                                                                                                                            11.8
           24 root
                                                                                                                              5.9
                                                                                                                               3.0
       1409 root
                                              0 -20
       1253 israel
53 root
                                                                                                                               2.6
1.6
                                                    -20
       1393 root
                                             20
                                                                                                                               1.6
       1411 root
1356 israel
                                                                                                                                             0.0
0.1
0.1
                                             20
                                             20
20
20
       1386 root
                                                         0
                                                                    11904
                                                                                       5888
                                                                                                         3712 R
                                                                                                                               0.3
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0.0
0.0
0.0
               1 root
                                                                    22116
                                                                                     13220
                                                                                                         9380 S
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0 S
               2 root
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                                                                                                                              0.0
               3 root
                                             20
                                                         0
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                                                                                                               0 I
0 I
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              4 root
                                                    -20
                                              0 -20
              5 root
                                                                             0
                                                                                                               0 I
0 I
0 I
0 I
0 I
                                                                                                                              0.0
              6 root
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0.0
0.0
0.0
0.0
0.0
                                              0 -20
              7 root
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                                            20 0
0 -20
              9 root
                                                                             0
                                                                                                                              0.0
            10 root
                                                                                                                              0.0
                                                                             0
                                            20 0
0 -20
            11 root
                                                                                                                              0.0
                                                                             0
             12 root
                                                                                                                               0.0
             13 root
                                             20
                                                                             0
                                                                                                                               0.0
```

```
Threads started!
SQL statistics:
     queries performed:
          read:
                                                      4354
166274
          write:
          other:
                                                       170628
          total:
                                                      170628 (2842.70 per sec.)
170628 (2842.70 per sec.)
0 (0.00 per sec.)
0 (0.00 per sec.)
     transactions:
     queries:
      ignored errors:
     reconnects:
General statistics:
     total time:
total number of events:
                                                       60.0029s
                                                       170628
Latency (ms):
                                                                 0.02
0.70
           min:
           avg:
                                                                48.48
            max:
            95th percentile:
                                                           119416.95
            sum:
Threads fairness:
events (avg/stddev):
execution time (avg/stddev):
                                              85314.0000/773.00
                                              59.7085/0.01
root@nodo1:/home/israel#|
```

oltp_insert

```
root@nodo1: /home/israel
top - 13:26:28 up 58 min, 4 users, load average: 0.48, 0.56, 0.33
Tasks: 138 total, 1 running, 137 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.5 us, 31.9 sy, 0.0 ni, 0.0 id, 22.4 wa, 0.0 hi, 45.2 si, 0.0 st
MiB Mem: 7942.4 total, 6908.0 free, 766.1 used, 506.1 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7176.3 avail Mem
      PID USER
                             PR NI
                                             VIRT
                                                         RES
                                                                     SHR S %CPU %MEM
                                                                                                         TIME+ COMMAND
                                                                                49.2
4.7
1.3
1.3
    2536 mysq
2631 root
                                                                                                     2:28.34 mariadbd
0:02.94 kworker/0:2H-kblockd
0:06.09 kworker/0:8-events
                                        1276608
                              0 -20
                                                                        0 I
                                                                                            0.0
                                                0
                                                                        0 I
                                                                                            0.0
    2637 root
                                                             0
                                                                  0 I
11136 S
5120 S
3712 R
9412 S
0 S
0 S
                                                                                                     0:00.23 sysbench
0:02.27 sshd
0:01.86 top
0:03.32 systemd
0:00.01 kthreadd
    2655 root
2296 israel
2415 root
                                           99620
15128
                                                      14208
7092
5888
                                                                                            0.2
                                     0
                                                                                           0.1
                             20
20
                                                                                  0.3
                                            11912
                                                                                  0.3
                                                                                            0.1
                                                                                  0.0
                                                       13380
         1 root
                                            22272
                                                                                            0.2
                                                                                            0.0
         2 root
                                                  0
                                                                                                      0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
         3 root
                                                                                  0.0
                             20
                                                             0
                                                                                            0.0
                                                                                  0.0
0.0
0.0
         4 root
                                                                        0 I
                                                                                            0.0
         5 root
                                                             0
                                                                        0 I
                                                                                            0.0
                                                                                                      0:00.00 kworker/R-rcu_p
                                                                                                      0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
         6 root
                               0 -20
                                  -20
                                                  0
                                                                        0 I
                                                                                            0.0
         7 root
                                                                        0 I
0 I
                                                                                  0.0
                                                                                                      0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
        12 root
                                 -20
                                                                                            0.0
                             20
20
20
        13 root
                                                  0
                                                                                            0.0
                                     0
                                                                                                     0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.63 ksoftirqd/0
                                                                                  0.0
        14 root
                                                                        0 I
                                                                                            0.0
        15 root
                                                             0
                                                                        0 I
                                                                                            0.0
                                                                                           0.0
        16 root
                                                             0
                                                                                  0.0
                                                                                                     0:00.21 rcu_preempt
0:00.05 migration/0
0:00.00 idle_inject/0
        17 root
                                     0
                                                             0
                                                                        0 I
                             20
                                                                        0 S
0 S
                                                                                  0.0
                                                                                           0.0
        18 root
                           rt
-51
        19 root
                                                             0
                                                                                            0.0
                                                                                                      0:00.00 cpuhp/0
                                                                        0 S
                                                                                            0.0
        20 root
                                                                                  0.0
SQL statistics:
      queries performed:
            read:
             write:
                                                                   10214
            other:
             total:
                                                                   10214
                                                                              (170.21 per sec.)
(170.21 per sec.)
(0.00 per sec.)
(0.00 per sec.)
      transactions:
                                                                   10214
                                                                   10214
      queries:
       ignored errors:
      reconnects:
General statistics:
                                                                   60.0013s
      total time:
      total number of events:
Latency (ms):
                                                                                1.36
              min:
                                                                             5.87
100.00
              avg:
              95th percentile:
                                                                                8.13
                                                                          59906.20
Threads fairness:
      events (avg/stddev):
                                                         10214.0000/0.00
      execution time (avg/stddev):
                                                         59.9062/0.00
```

root@nodo1:/home/israel#

```
top - 14:53:15 up 11 min, 2 users, load average: 1.62, 0.99, 0.52
Tasks: 138 total, 1 running, 137 sleeping, 0 stopped, 0 zombie
%Cpu(s): 10.4 us, 22.3 sy, 0.0 ni, 26.7 id, 16.1 wa, 0.0 hi, 24.5 si, 0.0 st
MiB Mem: 7942.1 total, 7052.7 free, 683.1 used, 440.1 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7259.0 avail Mem
                                                                                                                           TIME+ COMMAND

3:03.69 mariadbd

0:01.48 sysbench

0:03.19 kworker/1:1H-kblockd

0:02.01 kworker/0:1H-kblockd

0:08.52 ksoftirqd/1

0:01.60 kworker/0:5-events

0:03.10 top

0:04.35 kworker/1:0-events

0:00.03 kworker/u5:0-events_power_effi+

0:03.67 systemd

0:00.02 kthreadd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-slub_
                                                                                     SHR S
        PID USER
                                   PR NI
                                                       VIRT
                                                                       RES
                                                                                                  %CPU %MEM
                                                                                                                                 TIME+ COMMAND
                                                                                                  77.6
5.9
3.0
2.6
2.3
2.3
1.6
0.3
      1030 mysql
                                                                                                                5.2
0.2
0.0
      1443 root
                                    20
                                                   165800
                                                                   14720
         53 root
                                                                           0
                                                             0
                                                                                                                0.0
     1409 root
                                         -20
                                                                                        0 I
                                                                                        0 S
0 I
                                            0
         24 root
                                                             0
                                                                           0
     1411 root
                                   20
20
                                                                                                                0.0
                                                                           0
                                                             0
                                                                                   3712 R
      1386 root
                                                     11904
                                                                     5888
                                                                                                                0.1
                                                                                        0 I
0 I
      1393 root
                                                                                                                0.0
                                    20
      1442 root
                                                             0
                                                                           0
                                                                                                    0.3
                                                                                                                0.0
            1 root
                                                     22116
                                                                   13220
                                                                                   9380 S
                                                                                                    0.0
                                                                                                                0.2
                                   20
20
                                                                                                    0.0
            2 root
3 root
                                                                           0
                                                                                                                0.0
                                                                           0
                                                                                         0 S
                                                                                                                0.0
            4 root
                                         -20
                                                                                         0 I
                                                                                                    0.0
                                                                                                                0.0
            5 root
                                         -20
                                                                           0
                                                                                         0 I
                                                                                                    0.0
                                                                                                                0.0
                                                                                        0 I
0 I
                                                                                                                            0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
                                                                                                    0.0
           6 root
                                         -20
                                                                           0
                                                                                                                0.0
                                         -20
                                                                           0
                                                                                                                0.0
           7 root
                                                                                                                            0:00.00 kworker/0:1-dio/dm-0
0:00.00 kworker/0:0H-kblockd
0:00.00 kworker/u4:0-ext4-rsv-conversi+
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
           9 root
                                                                           0
                                                                                                    0.0
                                                                                                                0.0
                                    20
                                                                                        0 I
                                                                           Ō
                                                                                         0 I
          10 root
                                    0 -20
                                                                                        0 I
                                                                                                    0.0
                                                                                                                0.0
          11 root
                                                                                        0 I
          12 root
                                                                                                                0.0
                                                                                        0 I
0 I
                                                                                                    0.0
                                                                                                                0.0
          13 root
                                    20
          14 root
                                                                                                                            0:00.00 rcu_tasks_rude_kthread
                                    20
                                                                                                    0.0
                                                                                                                0.0
SQL statistics:
       queries performed:
                                                                                0
7672
0
              read:
               write:
               other:
total:
                                                                                 7672
                                                                                 7672
7672
       transactions:
                                                                                               (127.81 per sec.)
       queries:
                                                                                               (127.81 per sec.)
                                                                                               (0.00 per sec.)
(0.00 per sec.)
        ignored errors:
       reconnects:
```

60.0176s 7672

3836.0000/17.00 59.9100/0.01

2.16

15.62 63.34

24.38 119820.09

General statistics:

avg:

max:

root@nodo1:/home/israel#

Threads fairness:

Latency (ms): min:

total time: total number of events:

95th percentile:

events (avg/stddev):
execution time (avg/stddev):

oltp_point_select

```
root@nodo1: /home/israel
top - 13:30:47 up 1:02, 4 users, load average: 0.33, 0.39, 0.32
Tasks: 130 total, 2 running, 128 sleeping, 0 stopped, 0 zombie
%Cpu(s): 12.6 us, 7.9 sy, 0.0 ni, 0.0 id, 0.0 wa, 0.0 hi, 79.5 si, 0.0 st
MiB Mem: 7942.4 total, 6900.1 free, 768.1 used, 512.0 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7174.3 avail Mem
      PID USER
                                                   VIRT
                                                                               SHR S %CPU %MEM
                                                                                                                         TIME+ COMMAND
                                                                  RES
                                 PR NI
                                                                                             72.6
25.1
1.7
0.3
0.3
                                                                                                                     2:59.10 mariadbd
0:02.63 sysbench
0:09.89 kworker/0:8-events
0:02.96 ksoftirqd/0
0:02.51 top
     2536 mysq
2664 root
                                          0 1276608 299356
                                                                            94592 S
                                                                            11264 S
                                                 99364
                                                              14080
                                 20
20
20
20
20
20
20
20
                                          0
                                                                                                          0.2
                                                                              0 I
0 R
3712 R
9412 S
                                                                                                         0.0
     2637 root
                                          0000
     16 root
2415 root
                                                         0
                                                                      0
                                                                                                          0.0
                                                  11912
                                                                 5888
                                                                                                          0.1
                                                                                                                     0:03.34 systemd
0:00.01 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
                                                                                                          0.2
                                                               13380
           1 root
                                                  22272
              root
                                                                      0
                                                                                   0 S
                                                                                               0.0
           3 root
                                                                       0
                                                                                               0.0
                                                                                                          0.0
          4 root
                                       -20
                                                                       0
                                                                                    0 I
                                                                                               0.0
                                                                                                          0.0
                                                                                                                     0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
           5 root
                                       -20
                                                                                               0.0
                                                                                                          0.0
          6 root
7 root
                                   0 -20
                                                                                               0.0
                                                                                                          0.0
                                       -20
                                                                                    0 I
                                                                                               0.0
         12 root
                                   0 -20
                                                                       0
                                                                                    0 I
                                                                                               0.0
                                                                                                          0.0
                                 20
20
20
20
20
                                                                                               0.0
         13 root
                                                                                    0 I
                                                                       0
                                                                                                          0.0
         14 root
                                                                                                          0.0
                                                                       0
                                                                                                                     0:00.00 rcu_tasks_rude_kthread

0:00.00 rcu_tasks_trace_kthread

0:00.22 rcu_preempt

0:00.06 migration/0

0:00.00 idle_inject/0

0:00.00 cpuhp/0

0:00.00 kdevtmpfs

0:00.00 kworker/R-inet_
         15 root
17 root
                                          0
                                                                                               0.0
                                                                                    0 I
                                                         0 0 0 0
                                                                                                          0.0
                                                                                    0 I
                                                                                                          0.0
                                rt
-51
20
                                          0
                                                                                               0.0
                                                                                                         0.0
        18 root
                                                                                    0 S
         19 root
                                                                                    0 S
                                                                       0
                                                                                    0 S
                                                                                               0.0
         20 root
                                                                                                         0.0
                                                                       0
                                 20
                                          Ō
                                                                                                          0.0
                                                                       0
         21 root
                                                                                    0 I
                                                                                               0.0
                                                                                                          0.0
         22 root
                                       -20
Threads started!
SQL statistics:
      queries performed:
                                                                             267480
              read:
              write:
              other:
              total:
                                                                             267480
                                                                             267480 (4457.03 per sec.)
267480 (4457.03 per sec.)
      transactions:
      queries:
                                                                                           (0.00 per sec.)
(0.00 per sec.)
       ignored errors:
      reconnects:
General statistics:
                                                                             60.0010s
267480
      total time:
      total number of events:
atency (ms):
               min:
                                                                                            0.02
```

0.22

0.25 59490.49

267480.0000/0.00 59.4905/0.00

avg: max:

sum:

root@nodo1:/home/israel#

95th percentile:

Threads fairness: events (avg/stddev): execution time (avg/stddev):

```
top - 14:55:04 up 12 min, 2 users, load ave
Tasks: 133 total, 5 running, 128 sleeping,
%Cpu(s): 24.6 us, 21.8 sy, 0.0 ni, 29.1 id,
MiB Mem: 7942.1 total, 7050.6 free, 6
MiB Swap: 4096.0 total, 4096.0 free,
                                                                                                          age: 0.70,
0 stopped,
                                                                                                                                          0 zombie
                                                                                                    , 0.0 wa, 0.0 hi, 24.6 si, 0.0 st
684.5 used, 440.8 buff/cache
0.0 used. 7257.6 avail Mem
        PID USER
                                         PR
                                                 NI
                                                               VIRT
                                                                                  RES
                                                                                                  SHR S %CPU %MEM
                                                                                                                                               TIME+ COMMAND

3:36.59 mariadbd

0:01.05 sysbench

0:04.12 sshd

0:10.27 ksoftirqd/1

0:00.95 kworker/1:2+events

0:03.76 top

0:00.49 rcu_preempt

0:03.94 kworker/1:1+events

0:00.17 kworker/u5:0-flush-252:0

0:03.67 systemd

0:00.03 kthreadd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-slub_
                                                                                                                                                     TIME+ COMMAND
      1030 mysql
1458 root
                                                          1748048
                                                                            426760 157056 S
14208 11136 S
                                                                                                                  93.7
33.0
                                                                                                                                  5.2
0.2
                                         20
                                                          165288
                                                                                                5120 S
0 R
0 R
3712 R
                                                                                                                 12.9
5.7
3.5
0.9
                                                                                                                                  0.1
      1253 israel
                                         20
20
20
20
20
20
20
20
20
20
                                                   0 0 0 0 0 0 0
                                                             15120
                                                                                7084
      24 root
1449 root
                                                                                       0
                                                                      0
                                                                      0
                                                                                       0
                                                                                                                                  0.0
                                                              11904
      1386 root
                                                                                5888
                                                                                                                                  0.1
                                                                                                      0 I
0 R
                                                                                                                     0.3
           17 root
                                                                                                                                  0.0
      39 root 1442 root
                                                                                                                     0.3
                                                                      0
                                                                                       0
                                                                                                                                  0.0
                                                                                                                    0.3
                                                                      0
                                                                                                      0 I
                                                                                                                                  0.0
                                                                                                9380 S
0 S
             1 root
                                                                              13220
                                                                                                                                  0.2
             2 root
3 root
                                                                                                                                  0.0
                                                                      0
                                                                                       0
                                                                                                                     0.0
                                                                                       0
                                                                                                                     0.0
                                                                                                                                  0.0
             4 root
                                                -20
                                                                                       0
                                                                                                                     0.0
                                                                                                                                  0.0
             5 root
                                                -20
                                                                                       0
                                                                                                                     0.0
                                                                                                                                  0.0
                                                                                                                                                0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
             6 root
7 root
                                               -20
-20
                                                                                                       0 I
                                                                                                                                  0.0
                 root
                                                                                       0
                                                                                                                                  0.0
                                                                                                                                                0:00.00 kworker/R-netns
0:00.00 kworker/0:0H-kblockd
0:00.00 kworker/u4:0-ext4-rsv-conversi+
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
           10 root
                                           0 -20
                                                                                       0
                                                                                                                     0.0
                                                                                                                                  0.0
                                                                                                                     0.0
           11 root
                                                   0
                                                                                                       0 I
                                                                                                                                  0.0
                                         20
           12 root
                                                -20
                                                                                                                                  0.0
                                                                                                       0 I
           13 root
                                         20
                                                                                       0
                                                                                                                     0.0
                                                                                                                                  0.0
           14 root
                                         20
                                                                                                                     0.0
                                                                                                                                  0.0
           15 root
                                         20
                                                                                                       0 I
                                                                                                                     0.0
                                                                                                                                  0.0
```

```
Threads started!
SQL statistics:
     queries performed:
                                                     610580
          read:
          write:
          other:
                                                    0
610580
610580 (10170.65 per sec.)
610580 (10170.65 per sec.)
0 (0.00 per sec.)
0 (0.00 per sec.)
          total:
     transactions:
     queries:
     ignored errors:
     reconnects:
General statistics:
     total time:
total number of events:
                                                     60.0252s
                                                     610580
Latency (ms):
           min:
                                                                0.02
                                                              0.19
58.14
           avg:
           95th percentile:
                                                                0.32
                                                         118950.91
Threads fairness:
     events (avg/stddev):
execution time (avg/stddev):
                                              305290.0000/907.00
                                             59.4755/0.03
root@nodo1:/home/israel#
```

oltp_read_only

```
root@nodo1: /home/israel
top - 13:18:52 up 50 min, 4 users, load average: 0.49, 0.27, 0.11
Tasks: 133 total, 1 running, 132 sleeping, 0 stopped, 0 zombie
%Cpu(s): 15.0 us, 7.2 sy, 0.0 ni, 0.0 id, 0.0 wa, 0.0 hi, 77.8 si, 0.0 st
MiB Mem: 7942.4 total, 7052.8 free, 682.5 used, 444.0 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7259.9 avail Mem
                                                                                           SHR S %CPU %MEM
       PID USER
                                      PR NI
                                                           VIRT
                                                                                                                                          TIME+ COMMAND
                                                                            RES
                                                                                                                                     0:16.09 mariadbd
0:02.79 sysbench
0:02.14 kworker/0:0-events
0:00.67 kworker/u2:5-events_power_effi+
                                                0 1272556 146908
0 99492 14720
                                                                                                                        1.8
0.2
0.0
0.0
                                                                                                          80.9
      2536 mysql
2618 root
                                                                                       29824 S
11392 S
                                                                                                          15.8
2.0
0.3
                                      20
                                      20
                                                                                               0 I
      1839 root
                                                                 0
      54 root
2296 israel
2415 root
                                      20
                                                                                               0 I
                                                                 0
                                                                                         5120 S
3712 R
9412 S
                                                                          7092
5888
                                                                                                                                      0:01.29 sshd
0:00.53 top
                                      20
20
20
20
20
20
                                                0
                                                                                                            0.3
                                                                                                                         0.1
                                                         11912
                                                                                                                                     0:00.53 top
0:03.31 systemd
0:00.00 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:01.56 ksoftirqd/0
0:00.20 rcu_preempt
0:00.04 migration/0
0:00.00 cpuhp/0
                                                                                                            0.3
                                                                                                                         0.1
                                                                        13380
                                                                                                            0.0
                                                                                                                         0.2
                root
                                                         22272
                                                                                               0 S
0 S
            2 root
3 root
                                                                                                            0.0
                                                                                0
                                                                                0
                                                                                                            0.0
                                                                                                                         0.0
            4 root
                                                                                 0
                                                                                                            0.0
                                                                                                                         0.0
            5 root
                                            -20
                                                                                 0
                                                                                               0 I
                                                                                                            0.0
                                                                                                                         0.0
                                       0 -20
0 -20
            6 root
                                                                                 0
                                                                                                            0.0
                                                                                                                         0.0
          7 root
12 root
                                                                                 0
                                                                                               0 I
                                                                                                            0.0
                                                                                                                         0.0
                                       0 -20
                                                                                 0
                                                                                                            0.0
                                                                                                                         0.0
                                      20
20
20
20
          13 root
                                                                                 0
                                                                                               0 I
                                                                                                                         0.0
          14 root
                                                                                                            0.0
          15 root
                                                                                                            0.0
                                                                                                                         0.0
                                                                                                            0.0
                                                                                               0 S
          16 root
                                                                                 0
                                                                                                                         0.0
          17 root
                                      20
                                                                                               0 I
                                                                                                                         0.0
                                     rt
-51
                                                                                               0 S
                                                                                                            0.0
          18 root
                                                                                                                         0.0
                                                 0
                                                                                                            0.0
                                                                                                                         0.0
          19 root
                                                                                 0
           20 root
                                                                                                                                      0:00.00 \text{ cpuhp/0}
Threads started!
```

```
SQL statistics:
    queries performed:
                                                  137102
         read:
         write:
                                                  19586
         other:
         total:
                                                  156688
                                                  9793 (163.17 per sec.)
156688 (2610.66 per sec.)
    transactions:
    queries:
                                                           (0.00 per sec.)
(0.00 per sec.)
     ignored errors:
    reconnects:
                                                  0
General statistics:
    total time:
total number of events:
                                                  60.0048s
                                                  9793
Latency (ms):
           min:
                                                            0.58
           avg:
                                                           57.91
14.46
           max:
           95th percentile:
                                                        59842.23
           sum:
Threads fairness:
    events (avg/stddev):
execution time (avg/stddev):
                                           9793.0000/0.00
                                           59.8422/0.00
root@nodo1:/home/israel#|
```

```
top - 14:57:37 up 15 min, 2 users, load ave
Tasks: 134 total, 1 running, 133 sleeping,
%Cpu(s): 34.1 us, 26.4 sy, 0.0 ni, 1.1 id,
MiB Mem: 7942.1 total, 7048.0 free,
MiB Swap: 4096.0 total, 4096.0 free,
                                                                                                    age: 1.02,
0 stopped,
                                                                                                                                 0 zombie
                                                                                              , 0.0 wa, 0.0 hi, 38.5 si, 0.0 st
686.6 used, 441.5 buff/cache
0.0 used. 7255.5 avail Mem
                                                                                                                                       TIME+ COMMAND
5:36.16 mariadbd
0:08.64 sysbench
0:04.13 kworker/0:6-events
0:04.84 top
0:02.11 multipathd
0:04.56 kworker/1:1-events
0:02.17 sshd
0:02.64 kworker/1:2-ata_sff
0:03.72 systemd
0:00.03 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-netns
        PID USER
                                       PR NI
                                                            VIRT
                                                                             RES
                                                                                             SHR S %CPU %MEM
                                                                                                                                            TIME+ COMMAND
                                                                                     157056 S 162.3
11264 S 37.1
      1030 mysql
1469 root
                                       20
20
                                                                                                                           5.2
0.2
                                                       165544
                                                                         14976
                                                                                                             2.0
1.7
      1412 root
                                       20
                                                                                                                           0.0
                                                                                                                           0.1
      1386 root
                                       20
                                                 0
                                                          11904
                                                                            5888
                                                                                           3712 R
                                                                                          8576 S
0 I
                                                                                                                          0.3
                                       rt
20
20
        376 root
                                                        289116
                                                                         27136
                                                                                                             0.7
                                                                                                              0.3
          39 root
                                                                                 0
                                                                 0
                                                                                          4992 S
0 I
                                                                                                                          0.1
      1356 israel
                                                          15124
                                                                           6832
                                                                                                              0.3
                                                 0
      1449 root
                                       20
                                                                                 0
                                                                                                              0.3
                                                                 0
                                                          22116
                                                                                           9380 S
0 S
0 S
                                                                                                                          0.2
                                                                         13220
                                                                                                              0.0
            1 root
                                       20
             2 root
                                       20
                                                                  0
                                                                                  0
                                                                                                              0.0
                                                                                                                          0.0
0.0
0.0
             3 root
                                       20
                                                                   0
                                                                                  0
                                                                                                              0.0
            4 root
                                                                   0
                                                                                                              0.0
                                                                                                0 I
0 I
0 I
            5 root
                                                                                                              0.0
                                                                                                              0.0
            6 root
                                         0 -20
                                                                                                                           0.0
                                             -20
                                                                                                                           0.0
                root
                                                                                                                                        0:00.00 kworker/0:0H-kblockd
0:00.00 kworker/u4:0-ext4-rsv-conversi+
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
                                                                                                     I
                                                                                                              0.0
           10 root
                                         0 -20
                                                                   0
                                                                                                                           0.0
                                       20
                                                                   0
                                                                                                                           0.0
           11 root
                                                                                                0 I
0 I
                                                                                                              0.0
           12 root
                                             -20
                                                                                                                           0.0
                                       20
                                                                                                                           0.0
           13 root
                                                                                                                                        0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.25 ksoftirqd/0
                                                                                                0 I
0 I
                                                                                                              0.0
                                                                                                                           0.0
           14 root
                                       20
                                                 0
           15 root
                                       20
                                                 Ō
                                                                                                 0 S
           16 root
                                       20
                                                                                                                           0.0
                                                                                                              0.0
```

```
SQL statistics:
    queries performed:
                                                312032
         read:
         write:
                                                0
                                                44576
         other:
         total:
                                                356608
                                               22288 (371.04 per sec.)
356608 (5936.57 per sec.)
0 (0.00 per sec.)
    transactions:
    queries:
     ignored errors:
    reconnects:
                                                        (0.00 per sec.)
General statistics:
    total time:
total number of events:
                                                60.0597s
Latency (ms):
          min:
                                                         0.60
                                                       5.38
          ava:
          max:
          95th percentile:
                                                         8.90
                                                   119824.46
          sum:
Threads fairness:
                                         11144.0000/59.00
    events (avg/stddev):
    execution time (avg/stddev):
                                         59.9122/0.00
root@nodo1:/home/israel#
```

oltp read write

```
root@nodo1: /home/israel
top - 13:35:10 up 1:06, 4 users, load average: 0.32, 0.33, 0.32
Tasks: 131 total, 1 running, 130 sleeping, 0 stopped, 0 zombie
%Cpu(s): 4.6 us, 23.4 sy, 0.0 ni, 1.1 id, 7.4 wa, 0.0 hi, 63.4 si, 0.0 st
MiB Mem: 7942.4 total, 6888.5 free, 778.4 used, 513.3 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7164.0 avail Mem
         PID USER
                                         PR NI
                                                                VIRT
                                                                                 RES
                                                                                                  SHR S %CPU %MEM
                                                                                                                                                     TIME+ COMMAND
                                                                                                                 66.3
7.3
5.6
1.7
                                                                                                                                              3:42.68 mariadbd
0:00.88 sysbench
0:00.68 kworker/0:1H-kblockd
0:14.08 kworker/0:8-events
        2536 mysq
       2679 root
                                                                             14080
                                                                                             11136 S
          43 root
                                                                                                                                 0.0
                                                -20
                                                                                                                                              0:14.08 kworker/0:1H-RbTOCKd
0:14.08 kworker/0:8-events
0:03.44 ksoftirqd/0
0:03.22 sshd
0:03.19 top
0:00.28 kworker/u2:2-events_power_effi+
0:03.35 systemd
0:00.01 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-rslub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-netns
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.22 rcu_preempt
0:00.06 migration/0
0:00.00 idle_inject/0
                                                                                                     0 I
0 S
      2637 root
                                                                                                                                 0.0
                                         20
                                                                                                                   0.3
                                                    0
          16 root
                                                                                                                                 0.0
                                         20
20
                                                                                               5120 S
3712 R
                                                   0
      2296 israel
                                                             15128
                                                                                7092
                                                                                                                                 0.1
                                                                                                                    0.3 0.3
                                                                                                                                 0.1 0.0
       2415 root
                                                             11912
                                                                                5888
      2658 root
                                         20
                                                                                                     0
                                                                      0
                                                                                     0
                                         20
                                                                                                                    0.0
                                                                                                                                0.2
             1 root
                                                             22272
                                                                              13380
                                                                                                9412 S
                                         20
                                                   0
                                                                                                                    0.0
             2 root
                                                                      0
                                                                                      0
                                                                                                     0 S
                                                                                                                   0.0
                                                                                                                                0.0
                                         20
             3 root
                                                                                      0
                                                                                                     0 I
             4 root
                                          0
                                               -20
                                                                                      0
                                                                                                     0 I
                                                                                                                   0.0
                                                                                                                                0.0
             5 root
                                               -20
                                                                                      0
                                                                                                     0 I
0 I
0 I
0 I
                                          0 -20
0 -20
             6 root
7 root
                                                                      00000
                                                                                                                   0.0
                                                                                                                                 0.0
                  root
           12 root
                                          0 -20
                                                                                      0
                                                                                                                                 0.0
                                         20
20
20
20
20
                                                                                                                   0.0
           13 root
                                                                                                                                 0.0
           14 root
                                                                                                                                 0.0
                                                                                                     0 I
0 I
                                                                                                                   0.0
           15 root
17 root
                                                                                                                                 0.0
                                                                                                                                 0.0
            18 root
                                                                                                                    0.0
                                                                                                                                 0.0
            19 root
                                                                                                                    0.0
                                                                                                                                 0.0
```

```
Threads started!
SQL statistics:
    queries performed:
read:
                                                     62538
                                                     17868
          write:
                                                     8934
          other:
          total:
                                                     89340
                                                              (74.43 per sec.)
(1488.63 per sec.)
(0.00 per sec.)
(0.00 per sec.)
     transactions:
                                                     4467
                                                     89340
     queries:
     ignored errors:
                                                     0
     reconnects:
General statistics:
total time:
total number of events:
                                                     60.0093s
                                                     4467
_atency (ms):
           min:
                                                               13.42
           avg:
                                                               65.59
           max:
                                                               21.11
           95th percentile:
                                                           59964.18
           sum:
Threads fairness:
    events (avg/stddev):
execution time (avg/stddev):
                                             4467.0000/0.00
                                             59.9642/0.00
root@nodo1:/home/israel#
```

```
top - 14:59:20 up 17 min, 2 users, load average: 0.86, 0.97, 0.67
Tasks: 133 total, 3 running, 130 sleeping, 0 stopped, 0 zombie
%Cpu(s): 24.7 us, 33.1 sy, 0.0 ni, 12.1 id, 8.8 wa, 0.0 hi, 21.2 si, 0.0 st
MiB Mem: 7942.1 total, 7046.5 free, 687.5 used, 442.1 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7254.5 avail Mem
                                                                                                                                                    TIME+ COMMAND
6:39.64 mariadbd
0:01.47 sysbench
0:13.26 ksoftirqd/1
0:00.35 kworker/1:2H+kblockd
0:05.54 sshd
0:05.58 kworker/0:6-events
0:05.65 top
0:03.53 kworker/0:1H-kblockd
0:01.67 kworker/u5:2-events_power_effi+
0:02.44 sshd
0:00.03 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_rude_kthread
                                                                                                                                                            TIME+ COMMAND
         PID USER
                                                                   VIRT
                                                                                      RES
                                                                                                       SHR S %CPU %MEM
                                           PR
                                                   NI
                                                                              429704 157056 S 113.2
14464 11136 S 19.7
        1030 mysq
                                                                                                                                        5.3
0.2
0.0
                                                      0 1748048
       1484 root
                                           20
                                                              165544
                                                                                                           0 S
0 R
                                                                                                                        4.3
2.0
          24 root
                                           20
       1450 root
1253 israel
                                            0
                                                  -20
                                                                          0
                                                                                           0
                                                                                                                                        0.0
                                           20
                                                      0
                                                                                                    5120 R 0 I
                                                                                                                         1.6
                                                                15120
                                                                                   7084
                                           20
20
                                                     0
       1412 root
                                                                                                                         1.6
                                                                                                                                       0.0
0.1
                                                                                                    3712 R
0 I
0 I
                                                                                                                         1.0
                                                                11904
                                                                                    5888
       1386 root
                                            0
       1409 root
                                                                                                                         1.0
0.3
                                                                                                                                       0.0
                                                  -20
                                                                         0
                                                                                          0
                                           20
                                                      0
           36 root
                                                                         0
                                                                                          0
                                                                                                    4992 S
9380 S
0 S
0 S
0 I
0 I
0 I
                                           20
20
20
20
       1356 israel
                                                                15124
                                                                                   6832
                                                                                                                         0.3
                                                                                                                                       0.1
                                                      0
                                                                                                                                       0.2
                                                                                                                         0.0
              1 root
                                                                22116
                                                                                 13220
              2 root
                                                                         0
                                                                                          0
                                                                                                                         0.0
                                                                                                                                       0.0
0.0
0.0
0.0
0.0
0.0
              3 root
                                                      0
                                                                         0
                                                                                                                         0.0
              4 root
                                                                                                                         0.0
                                                 -20
-20
-20
              5 root
                                                                                                                         0.0
             6 root
7 root
                                                                                                                         0.0
                  root
                                                                                                                         0.0
           10 root
                                             0 -20
                                                                                                                         0.0
           11 root
                                           20
                                                                                                                         0.0
           12 root
                                                                                                                         0.0
                                                  -20
                                                                                                                                        0.0
            13 root
                                                                                                            0
                                           20
                                                      0
                                                                                                                         0.0
           14 root
                                                      Ō
                                                                                                                         0.0
                                           20
```

```
Threads started!
SQL statistics:
    queries performed:
        read:
                                                58422
         write:
                                                16692
         other:
                                                8346
         total:
                                                83460
                                                        (69.51 per sec.)
    transactions:
                                                4173
                                                        (1390.19 per sec.)
(0.00 per sec.)
(0.00 per sec.)
                                                83460
    queries:
    ignored errors:
                                                0
    reconnects:
General statistics:
    total time:
total number of events:
                                                60.0257s
                                                4173
Latency (ms):
                                                       3.23
28.74
165.08
55.82
          min:
          avg:
          95th percentile:
                                                    119937.80
          sum:
Threads fairness:
    events (avg/stddev):
                                         2086.5000/11.50
    execution time (avg/stddev):
                                         59.9689/0.00
root@nodo1:/home/israel#
```

oltp_update_index

```
root@nodo1: /home/israel
top - 13:38:05 up 1:09, 4 users, load average: 0.54, 0.42, 0.36
Tasks: 130 total, 1 running, 129 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.5 us, 31.4 sy, 0.0 ni, 0.0 id, 22.2 wa, 0.0 hi, 45.9 si, 0.0 st
MiB Mem: 7942.4 total, 6887.3 free, 768.6 used, 524.5 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7173.8 avail Mem
       PID USER
                                  PR NI
                                                                                  SHR S %CPU %MEM
                                                                                                                            TIME+ COMMAND
                                                     VIRT
                                                                                                                       4:31.14 mariadbd
0:04.82 kworker/0:1H-kblockd
0:16.71 kworker/0:8-events
0:00.42 sysbench
0:03.64 top
                                                                            106752 S
0 I
0 I
                                                                                                            3.8
0.0
0.0
0.2
0.1
                                                                                               48.2
      2536 mysq
                                   20
                                          0 1276608 311900
        43 root
                                   0 -20
      2637 root
                                  20
                                                                                                 1.3
                                                                              11264 S

3712 R

9412 S

0 S
                                  20
20
                                                                14208
5888
      2688 root
                                                   99364
      2415 root
                                           0
                                                   11912
                                                                                                 0.3
                                  20
20
                                                                                                                        0:03.36 systemd
0:00.01 kthreadd
                                                                                                            0.2
                                                                 13380
                                                   22272
                                                                                                 0.0
           1 root
                                                                                                                       0:00.01 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.00 rcu_tasks_trace_kthread
0:03.72 ksoftirqd/0
0:00.22 rcu_preempt
0:00.07 migration/0
0:00.00 idle_inject/0
0:00.00 cpuhp/0
0:00.00 kdevtmpfs
                                                                                                 0.0
            2 root
                                                                        0
                                                                                                 0.0
                                  20
                                                                                     0 S
0 I
0 I
0 I
0 I
0 I
0 I
0 S
0 S
                                                                                                            0.0
           3 root
                                       -20
-20
           4 root
                                                          0
                                                                        0
                                                                                                 0.0
           5 root
                                                          0
                                                                                                            0.0
0.0
           6 root
                                    0 -20
                                                                        0
                                   0 -20
                                                          0
                                                                                                 0.0
                                                                                                            0.0
              root
                                   0 -20
         12 root
                                                          0
                                                          ō
                                                                                                 0.0
         13 root
                                                                                                            0.0
                                  20
20
20
20
20
         14 root
                                           0
                                                          0
                                                                                                 0.0
                                                                                                            0.0
                                                                                                            0.0
         15 root
                                                                                                 0.0
                                                                        0
                                                                                                            0.0
0.0
          16 root
                                                                                                 0.0
          17 root
                                                                                                 0.0
                                 rt
-51
                                                                                     0 S
0 S
0 S
                                                                                                            0.0
0.0
0.0
          18 root
                                                           0
                                                                                                 0.0
          19 root
                                                                                                 0.0
          20 root
                                            0
                                                           0
                                                                                                 0.0
          21 root
                                                                                      0
                                                                                                 0.0
                                                                                                             0.0
SQL statistics:
       queries performed:
              read:
               write:
                                                                               10553
               other:
                                                                               10553
               total:
                                                                                            (175.86 per sec.)
(175.86 per sec.)
(0.00 per sec.)
                                                                               10553
       transactions:
                                                                               10553
        queries:
        ignored errors:
                                                                               0
                                                                               0
                                                                                             (0.00 per sec.)
        reconnects:
General statistics:
        total time:
                                                                               60.0025s
        total number of events:
                                                                               10553
Latency (ms):
                 min:
                                                                                              1.18
                                                                                               5.68
                 avg:
                                                                                            33.80
                 max:
                 95th percentile:
                                                                                              8.13
                                                                                       59951.79
                 sum:
Threads fairness:
       events (avg/stddev):
execution time (avg/stddev):
                                                                    10553.0000/0.00
                                                                    59.9518/0.00
```

root@nodo1:/home/israel#

```
top - 15:01:19 up 19 min, 2 users, load average: 1.42, 1.20, 0.79
Tasks: 133 total, 1 running, 132 sleeping, 0 stopped, 0 zombie
%Cpu(s): 11.7 us, 22.7 sy, 0.0 ni, 25.7 id, 15.8 wa, 0.0 hi, 24.2 si, 0.0 st
MiB Mem: 7942.1 total, 7041.8 free, 691.9 used, 442.5 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7250.2 avail Mem
                                           PR NI
                                                                                                       SHR S %CPU %MEM
                                                                                                                                                             TIME+ COMMAND
        PID USER
                                                                  VIRT
                                                                                     RES
                                                                                                                                                       TIME+ COMMAND
7:51.30 mariadbd
0:00.82 sysbench
0:01.96 kworker/0:1H-kblockd
0:04.65 kworker/0:6-events
0:15.19 ksoftirqd/1
0:06.14 kworker/1:1-events
0:02.59 sshd
0:06.37 top
0:00.75 kworker/u6:0-events_power_effi+
0:03.80 systemd
0:00.03 kthreadd
0:00.00 pool_workqueue_release
                                                      0 1748048 430088 157056 S
                                                                                                                        83.8
5.9
       1030 mysql
                                            20
                                                                                                 137036 S
11136 S
0 I
0 I
0 S
0 I
                                                                                                                                          0.2
       1495 root
                                            20
                                                             165288
                                                                                 14208
                                                                                                                           3.6
2.3
2.0
1.7
       1450 root
                                                                                                                                          0.0
                                                                          0
                                                                                                                                         0.0
0.0
0.0
0.0
0.1
0.1
       1409 root
1412 root
                                                                          0
                                           20
20
                                                                          0
           24 root
                                                                          0
       39 root
1356 israel
                                                                                                                           1.0
                                           20
20
20
20
20
20
                                                                                     6832
                                                       0
                                                                 15124
                                                                                                      4992
        1386 root
                                                                  11904
                                                                                     5888
                                                                                                      3712 R
                                                                                                                           0.7
                                                                                                                                         0.0
            28 root
                                                                                                                           0.3
                                                                                                      9380 S
0 S
                                                       0
              1 root
                                                                 22116
                                                                                  13220
                                                                                                                           0.0
                                                                                                                                         0.2
0.0
0.0
0.0
0.0
0.0
                  root
                                                                                                                           0.0
                                                                                                                                                       0:00.03 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-etns
0:00.00 kworker/0:0H-kblockd
0:00.00 kworker/u4:0-ext4-rsv-conversi+
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
              3 root
                                            20
                                                      0
                                                                                                            0 S
0 I
0 I
0 I
0 I
0 I
                                                                                                                           0.0
              4 root
                                                   -20
                                                                                                                           0.0
                                             0 -20
0 -20
0 -20
                                                                                           0
                                                                                                                           0.0
              5 root
                                                                           0
                                                                                           0
                                                                                                                           0.0
              6 root
                                                                           0
                  root
                                             0 -20
                                                                                           0
                                                                                                                           0.0
            10 root
                                                                                                                                         0.0
                                           20
                                                                           0
           11 root
                                                   0
                                             0 -20
                                                                                                                           0.0
            12 root
                                                                                                                                         0.0
                                                                                                                           0.0
                                            20
                                                                           0
                                                                                                                                          0.0
            13 root
            14 root
                                                                           0
                                                                                                                           0.0
                                                                                                                                          0.0
```

```
Threads started!
SQL statistics:
     queries performed:
          read:
                                                       7713
          write:
                                                       0
7713
          other:
          total:
                                                       7713
7713
                                                                 (128.49 per sec.)
(128.49 per sec.)
     transactions:
     queries:
     ignored errors:
                                                                 (0.00 per sec.)
                                                                 (0.00 per sec.)
     reconnects:
                                                       0
General statistics:
total time:
total number of events:
                                                       60.0112s
7713
Latency (ms):
           min:
                                                                15.54
43.91
            avg:
            max:
            95th percentile:
                                                                 24.38
                                                           119887.32
            sum:
Threads fairness:
events (avg/stddev):
execution time (avg/stddev):
                                               3856.5000/2.50
59.9437/0.01
root@nodo1:/home/israel#
```

oltp update non index

```
root@nodo1: /home/israel
top - 13:40:57 up 1:12, 4 users, load average: 0.82, 0.55, 0.41
Fasks: 131 total, 1 running, 130 sleeping, 0 stopped, 0 zombie

&Cpu(s): 0.9 us, 31.3 sy, 0.0 ni, 0.0 id, 21.2 wa, 0.0 hi, 46.5 si, 0.0 st

### His Swap: 4096.0 total, 6876.7 free, 770.5 used, 533.3 buff/cache

#### His Swap: 4096.0 total, 4096.0 free, 0.0 used. 7171.9 avail Mem
                                                                                           SHR S %CPU %MEM
                                                                                                                                           TIME+ COMMAND
        PID USER
                                     PR NI
                                                           VIRT
                                                                            RES
                                                                                                                                      5:06.28 mariadbd
0:01.08 kworker/0:2H-kblockd
0:19.11 kworker/0:8-events
     2536 mysq
2669 root
                                                                                                                         4.0
0.0
0.0
                                      20
                                               0 1276608
                                                                     322396 115328 S
                                                                                                            5.0
1.3
1.0
0.3
                                           -20
                                                                0
                                                                                0
                                                                                               0 I
     2637 root
                                     20
20
20
20
20
20
                                                                 0
                                                                                               0 I
                                                                                                                                     0:19.11 kworker/0:8-events

0:00.59 sysbench

0:03.90 sshd

0:03.37 systemd

0:00.01 kthreadd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-rcu_p
                                                                       14336
7092
13380
                                                                                       11264 S
5120 S
9412 S
                                                         99492
                                                                                                                        0.2
     2700 root
     2296 israel
                                               0
                                                         15128
                                                                                                            0.0
0.0
0.0
            1 root
                                                         22272
                                                                                                                        0.2
0.0
0.0
0.0
0.0
0.0
            2 root
            3 root
                                                                 0
                                                                                0
                                                                                               0 S
            4 root
                                             -20
                                                                  0
                                                                                               0 I
                                                                                                            0.0
            5 root
                                            -20
                                                                  0
                                                                                               0 I
                                                                                                            0.0
                                                                                                                                      0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
                                                                                                            0.0
           6 root
                                            -20
                                                                                               0 I
                                                                 0
            7 root
                                           -20
                                                                 0
                                                                                0
                                                                                               0 I
                                                                                                                                     0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
0:03.93 ksoftirqd/0
0:00.23 rcu_preempt
0:00.07 migration/0
                                                                                               0 I
                                                                                                            0.0
         12 root
                                       0 -20
                                                                                                                        0.0
0.0
0.0
0.0
0.0
0.0
0.0
                                                                                0
                                                                                               0 I
0 I
0 I
                                     20
20
20
20
20
                                               0
                                                                 0
          13 root
                                                                                                            0.0
0.0
0.0
          14 root
          15 root
          16 root
                                                                                               0 S
          17 root
                                                                  0
                                                                                                            0.0
          18 root
                                     rt
                                                                  0
                                                                                               0 S
                                                                                                            0.0
                                                                                                                                     0:00.00 idle_inject/0
0:00.00 cpuhp/0
0:00.00 kdevtmpfs
                                                                  0
                                                                                               0 S
          19 root
                                                                                                            0.0
                                     20
20
                                                                  0
          20 root
                                                                                                            0.0
                                                0
                                                                                                            0.0
          21 root
                                                                                               0 S
                                                                                                                         0.0
SQL statistics:
queries performed:
                read:
                 write:
                                                                                       10641
                 other:
                                                                                       10641
                 total:
```

```
(177.33 per sec.)
(177.33 per sec.)
(0.00 per sec.)
                                               10641
    transactions:
    queries:
                                               10641
     ignored errors:
    reconnects:
                                                       (0.00 per sec.)
General statistics:
    total time:
                                               60.0025s
    total number of events:
                                               10641
Latency (ms):
                                                        1.23
          min:
                                                      5.63
182.27
          avg:
          max:
          95th percentile:
                                                        7.84
                                                    59934.43
          sum:
Threads fairness:
    events (avg/stddev):
                                        10641.0000/0.00
    execution time (avg/stddev):
                                        59.9344/0.00
root@nodo1:/home/israel#|
```

```
top - 15:03:08 up 21 min, 2 users, load ave
Tasks: 133 total, 1 running, 132 sleeping,
%Cpu(s): 10.5 us, 24.6 sy, 0.0 ni, 25.9 id,
MiB Mem: 7942.1 total, 7044.3 free,
MiB Swap: 4096.0 total, 4096.0 free,
                                                                                                                                          TIME+ COMMAND

8:38.40 mariadbd

0:00.83 sysbench

0:06.34 kworker/0:1H-kblockd

0:03.74 kworker/1:2H-kblockd

0:10.15 kworker/0:6-events

0:17.60 ksoftirqd/1

0:07.20 kworker/1:1-events

0:07.10 top

0:00.34 ksoftirqd/0

0:02.87 multipathd

0:03.81 systemd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-slub_

0:00.00 kworker/R-netns

0:00.00 kworker/R-netns

0:00.00 kworker/0:0H-kblockd

0:00.00 kworker/U4:0-ext4-rsv-conversi+

0:00.00 kworker/R-mm_pe

0:00.00 rcu_tasks_kthread
        PID USER
                                        PR NI
                                                             VIRT
                                                                                RES
                                                                                                SHR S %CPU %MEM
                                                                                                                                                TIME+ COMMAND
                                                                                         157056 S
11136 S
      1030 mysql
1505 root
                                                                                                                              5.3
0.2
0.0
0.0
                                        20
                                                                            14336
                                                                                                                6.6
                                                         165544
      1409 root
                                                                                                    0 I
0 I
                                                                                                                  3.3
                                                                    0
                                              -20
                                                                                    0
      1450 root
                                              -20
                                                                     0
                                                                                                                              0.0
0.0
0.0
0.1
0.0
0.3
                                                                                                    0 I
0 S
0 I
      1412 root
                                        20
                                                                    0
                                                                                                                 1.3
          24 root
                                        20
                                                                    0
                                                                                    0
                                                                                                                 1.0
1.0
                                        20
20
           39 root
                                                  0
                                                                                    0
                                                                     0
                                                                                             3712 R
0 S
8576 S
9380 S
      1386 root
                                                            11904
                                                                              5888
                                                                                                                 0.3
          16 root
                                                                   0
                                                                                    0
                                        rt
20
                                                                            27136
                                                          289116
                                                                                                                 0.3
         376 root
                                                                                                                              0.2
0.0
0.0
0.0
0.0
                                                                                                                 0.0
                                                            22116
                 root
                                                                            13220
                                        20
                 root
                                                                     0
                                                                                                                 0.0
              3 root
                                        20
                                                                     0
                                                                                                    0 S
0 I
0 I
0 I
0 I
0 I
                                                                                                                 0.0
             4 root
                                                                     0
                                                                                                                 0.0
             5 root
                                               -20
                                                                     0
                                                                                                                 0.0
                                                                                                                              0.0
             6 root
                                              -20
                                                                                                                 0.0
                                              -20
                                                                     0
                                                                                    0
                                                                                                                 0.0
             7 root
                                                                                                                              0.0
           10 root
                                              -20
                                                                     0
                                                                                                                 0.0
                                        20
                                                                     0
                                                                                                                 0.0
           11 root
                                                                                                    0 I
0 I
                                                                                                                              0.0
           12 root
                                         0 -20
                                                                                                                 0.0
           13 root
                                        20
                                                                                                                 0.0
                                                  0
                                        20
                                                                                                    0 I
                                                                                                                 0.0
                                                                                                                               0.0
                                                                                                                                            0:00.00 rcu_tasks_rude_kthread
           14 root
```

```
Threads started!
SQL statistics:
    queries performed:
                                             0
7299
0
        read:
        write:
        other:
                                              7299
         total:
                                              7299
7299
    transactions:
                                                      (121.59 per sec.)
    queries:
                                                      (121.59 per sec.)
     ignored errors:
                                                      (0.00 per sec.)
    reconnects:
                                                      (0.00 per sec.)
General statistics:
    total time:
total number of events:
                                              60.0186s
                                              7299
Latency (ms):
          min:
                                                       2.46
                                                      16.42
          avg:
                                                      58.68
          max:
          95th percentile:
                                                      26.20
                                                 119872.36
          sum:
Threads fairness:
events (avg/stddev):
                                       3649.5000/69.50
    execution time (avg/stddev):
                                       59.9362/0.01
root@nodo1:/home/israel#
```

oltp write only

```
root@nodo1: /home/israel
top - 13:42:30 up 1:14, 4 users, load average: 0.84, 0.59, 0.44
Tasks: 131 total, 1 running, 130 sleeping, 0 stopped, 0 zombie
%Cpu(s): 2.0 us, 32.2 sy, 0.0 ni, 0.0 id, 17.1 wa, 0.0 hi, 48.8 si, 0.0 st
MiB Mem: 7942.4 total, 6863.2 free, 771.0 used, 546.5 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7171.5 avail Mem
                                                                                  SHR S %CPU %MEM
      PID USER
                                                     VTRT
                                                                    RES
                                                                                                                             TIME+ COMMAND
                                  PR NI
                                                                                                                        5:34.22 mariadbd

0:03.68 kworker/0:2H-kblockd

0:01.54 sysbench

0:20.53 kworker/0:8-mm_percpu_wq

0:01.55 jbd2/dm-0-8

0:04.09 sshd
      2536 mysq
                                  20
                                           0
                                               1276608
                                                               335452
                                                                            128384
                                                                                                53.3
                                                                                     0 I
64 S
                                                                                                 5.0
3.6
1.7
     2669 root
                                                                                                            0.0
                                        -20
                                                          0
                                                                        0
     2707 root
2637 root
                                                   99492
                                                                              11264
                                  20
20
20
20
20
                                                                 14464
                                                                                                             0.2
                                                                                                             0.0
                                                                                     0 I
                                                          0
      231 root
2296 israel
                                                                                                 0.3
                                                           0
                                                                                     0 S
                                                   15128
                                                                   7092
                                                                                5120 S
                                                                                                 0.3
                                                                                                             0.1
                                                                                                                       0:04.09 sshd
0:04.31 top
0:03.38 systemd
0:00.01 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
                                                                                3712 R 9412 S
      2415 root
                                           0
                                                   11912
                                                                   5888
                                                                                                 0.3
                                                                                                             0.1
                                                                                                            0.2
0.0
0.0
           1 root
                                  20
                                                   22272
                                                                 13380
                                                                                                 0.0
           2 root
                                  20
                                                                                     0 S
                                                                                                 0.0
                                                           0
           3 root
                                  20
                                           0
                                                                        0
                                                                                     0 S
                                                           0
                                                                                     0 I
                                                                                                 0.0
                                                                                                            0.0 \\ 0.0
           4 root
                                        -20
                                                           0
                                                                        0
                                                                                     0 I
0 I
           5 root
                                       -20
                                                           0
           6 root
7 root
                                                                                                 0.0
0.0
0.0
                                                           0
                                                                                                             0.0
                                                           0
                                                                        0
                                                                                                             0.0
                                       -20
                                                                                                             0.0
0.0
0.0
         12 root
                                   0 -20
                                                                                      0 I
                                                                                                 0.0
         13 root
                                  20
                                                           0
         14 root
                                                           0
                                                                                                             0.0
0.0
0.0
0.0
                                                                                                                        0:00.00 rcu_tasks_trace_kthread
0:04.15 ksoftirqd/0
                                                                                                 0.0
         15 root
                                  20
                                           0
                                                           0
         16 root
                                  20
                                           0
                                                           0
                                                                                     0 S
                                                                                                 0.0
                                                                                                                        0:00.23 rcu_preempt
0:00.07 migration/0
0:00.00 idle_inject/0
                                  20
                                           0
                                                                                     0 I
                                                                                                 0.0
         17 root
         18 root
                                            0
                                                           0
                                 rt
-51
         19 root
                                                                                     0 S
                                                                                                             0.0
                                                                                                 0.0
SQL statistics:
       queries performed:
              read:
               write:
                                                                              36000
               other:
                                                                              18000
               total:
                                                                              54000
                                                                                           (149.97 per sec.)
(899.82 per sec.)
                                                                              9000
       transactions:
                                                                              54000
       queries:
                                                                                           (0.00 per sec.)
(0.00 per sec.)
        ignored errors:
                                                                             0
       reconnects:
General statistics:
total time:
                                                                             60.0068s
       total number of events:
                                                                             9000
```

6.66

9.56 59931.63

9000.0000/0.00

59.9316/0.00

atency (ms): min:

avg: max:

sum: Threads fairness:

events (avg/stddev):

root@nodo1:/home/israel#

95th percentile:

execution time (avg/stddev):

```
top - 15:05:00 up 22 min, 2 users, load average: 0.87, 1.12, 0.86
Tasks: 132 total, 1 running, 131 sleeping, 0 stopped, 0 zombie
%Cpu(s): 16.5 us, 26.2 sy, 0.0 ni, 19.3 id, 14.9 wa, 0.0 hi, 23.1 si, 0.0 st
MiB Mem: 7942.1 total, 7043.3 free, 689.7 used, 443.3 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7252.4 avail Mem
                                                                                                           SHR S %CPU %MEM
         PTD USER
                                            PR NI
                                                                     VTRT
                                                                                         RES
                                                                                                                                                            TIME+ COMMAND
9:30.13 mariadbd
0:02.22 sysbench
0:05.65 kworker/1:2H-kblockd
0:08.00 kworker/0:1H-kblockd
0:19.04 ksoftirqd/1
0:11.99 kworker/0:6-events
0:07.83 top
0:00.82 kworker/u6:0-flush-252:0
0:03.08 multipathd
0:03.81 systemd
                                                                                                                                                                  TIME+ COMMAND
       1030 mysql
1508 root
                                                                                                    157056 S
11264 S
                                                                                  432904
                                                                165544
                                                                                    14336
                                             20
                                                                                                                            16.1
                                                                                                                                             0.2
0.0
0.0
0.0
0.0
0.1
0.0
                                                                                                               0 I
0 I
                                                                                                                             3.9
2.3
2.0
2.0
1.3
                                              0 -20
0 -20
       1450 root
                                                                             0
                                                                                              0
       1409 root
       24 root
1412 root
                                                                                                               0 S
0 I
                                                                             0
                                                                                                         3712 R
0 I
       1386 root
                                             20
                                                         0
                                                                   11904
                                                                                       5888
                                                                                                                              0.3
                                             20
           28 root
                                                                                                                                             0.3
0.2
0.0
0.0
                                                                                                                                                            0:03.08 multipathd
0:03.81 systemd
0:00.03 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-etns
0:00.00 kworker/O:0H-kblockd
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
0:00.37 ksoftirqd/0
          376 root
                                                                 289116
                                                                                     27136
                                                                                                         8576 S
                                             rt
                                             20
                                                                                     13220
                                                                                                         9380 S
                                                                                                                               0.0
                                                                   22116
               1 root
                                                                                                                               0.0
                                             20
                                                                                                               0 S
               2 root
                                                                             0
                                                                                              0
                                                        0
                                                                                                               0 S
                                                                                                                               0.0
               3 root
                                                                             0
                                                                                              0
                                                                                                                              0.0
0.0
0.0
                                                                                                               0 I
              4 root
                                                    -20
                                                                                                                                             0.0
0.0
0.0
0.0
0.0
0.0
0.0
                                               0 -20
0 -20
                                                                                                               0 I
0 I
0 I
              5 root
              6 root
                                                                             0
                                               0 -20
              7 root
                                                                                                                               0.0
            10 root
                                                   -20
                                                                                                                               0.0
                                                                                                                0 I
             12 root
                                               0 -20
                                                                                                                               0.0
             13 root
                                                                                                                0 I
                                                                                                                               0.0
             14 root
                                             20
                                                                                                                0 I
                                                                                                                               0.0
                                                                                               0
                                                                                                                               0.0
             15 root
                                             20
                                                                                                                0 S
                                                                                                                                              0.0
            16 root
                                             20
                                                                                                                               0.0
```

```
Threads started!
SQL statistics:
     queries performed:
          read:
                                                    25240
12620
          write:
other:
          total:
                                                    37860
                                                             (105.12 per sec.)
(630.69 per sec.)
(0.00 per sec.)
(0.00 per sec.)
     transactions:
                                                    6310
                                                    37860
     queries:
     ignored errors:
     reconnects:
General statistics:
    total time:
total number of events:
                                                    60.0161s
                                                    6310
Latency (ms):
                                                              3.25
           min:
                                                             18.99
66.83
           avg:
           max:
           95th percentile:
                                                             32.53
                                                        119823.15
           sum:
Threads fairness:
events (avg/stddev):
                                             3155.0000/31.00
     execution time (avg/stddev):
                                             59.9116/0.01
root@nodo1:/home/israel#
```

select_random_points

```
root@nodo1: /home/israel
top - 13:43:36 up 1:15, 4 users, load average: 0.50, 0.55, 0.44
Tasks: 130 total, 1 running, 129 sleeping, 0 stopped, 0 zombie
%Cpu(s): 17.6 us, 3.3 sy, 0.0 ni, 0.0 id, 0.0 wa, 0.0 hi, 79.1 si, 0.0
MiB Mem: 7942.4 total, 6857.8 free, 771.1 used, 551.9 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7171.3 avail Mem
                                                                                                                                                          0.0 st
                                                                                                                                    TIME+ COMMAND

5:48.46 mariadbd

0:00.40 sysbench

0:21.48 kworker/0:8-events

0:04.32 ksoftirqd/0

0:04.48 top

0:03.38 systemd

0:00.01 kthreadd

0:00.00 pool_workqueue_release

0:00.00 kworker/R-rcu_g

0:00.00 kworker/R-rcu_p

0:00.00 kworker/R-rsub_

0:00.00 kworker/R-netns

0:00.00 kworker/R-mm_pe

0:00.00 rcu_tasks_kthread

0:00.00 rcu_tasks_trace_kthread
        PID USER
                                      PR NI
                                                           VIRT
                                                                            RES
                                                                                           SHR S %CPU %MEM
                                                                                                                                          TIME+ COMMAND
      2536 mysq
2710 root
                                                     1276608
                                                                      340700 133632
                                                                                      133632 S
11264 S
                                                                                                                        4.2
0.2
0.0
0.0
0.1
0.2
0.0
0.0
0.0
0.0
                                      20
20
                                                         99884
                                                                        14584
                                                                                                           6.6
      2637 root
                                                                                              0 I
                                                                                                            1.7
                                                                0
                                                                                0
                                                0
                                                                                        16 root
                                      20
                                                                                                            0.3
                                      20
                                               0 0
      2415 root
                                                         11912
                                                                          5888
                                                                                                            0.3
            1 root
                                      20
20
                                                         22272
                                                                        13380
                                                                                                            0.0
             2 root
                                                                                                            0.0
                                                                 0
                                                                                0
                                                                                                           0.0
            3 root
                                                                 0
            4 root
                                           -20
                                                                 0
                                                                                                            0.0
            5 root
                                            -20
                                                                  0
                                                                                                            0.0
            6 root
                                                                  0
                                                                                                            0.0
                                       0 -20
0 -20
                root
                                                                                                            0.0
          12 root
                                                                  0
                                                                                                            0.0
                                      20
20
20
20
20
          13 root
                                                                  0
                                                                                                            0.0
           14 root
                                                                  0
                                                                                                                        0.0
           15 root
                                                                  0
                                                                                                            0.0
                                                                                                                                    0:00.00 FCU_tasks_trace
0:00.23 rcu_preempt
0:00.08 migration/0
0:00.00 idle_inject/0
0:00.00 cpuhp/0
0:00.00 kdevtmpfs
0:00.00 kworker/R-inet_
                                                                                                                        0.0
           17 root
                                                                  0
                                                                                                            0.0
          18 root
                                                                  0
                                                                                                            0.0
                                     -51
20
                                                                                                                        0.0
                                                                                                           0.0
                                                0
          19 root
           20 root
                                                                                               0 S
0 I
                                                                                                                        0.0
                                      20
                                                Ō
                                                                                                            0.0
           21 root
          22 root
                                                                  0
                                                                                0
                                                                                                            0.0
Threads started!
SQL statistics:
        queries performed:
                read:
                                                                                       3965
                write:
                other:
                 total:
                                                                                       3965
                                                                                                      (66.06 per sec.)
(66.06 per sec.)
(0.00 per sec.)
(0.00 per sec.)
        transactions:
                                                                                       3965
        queries:
                                                                                       3965
        ignored errors:
        reconnects:
General statistics:
total time:
total number of events:
                                                                                       60.0069s
3965
```

15.12 41.19

22.69 59936.68

3965.0000/0.00 59.9367/0.00

Latency (ms): min:

avg:

root@nodo1:/home/israel#

Threads fairness:

95th percentile:

events (avg/stddev):
execution time (avg/stddev):

```
top - 15:07:13 up 25 min, 2 users, load average: 0.92, 1.05, 0.87
Tasks: 131 total, 2 running, 129 sleeping, 0 stopped, 0 zombie
%Cpu(s): 40.3 us, 20.8 sy, 0.0 ni, 1.4 id, 0.0 wa, 0.0 hi, 37.5 si, 0.0 st
MiB Mem: 7942.1 total, 7041.6 free, 691.3 used, 443.5 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7250.8 avail Mem
         PID USER
                                                 NI
                                                               VIRT
                                                                                                  SHR S %CPU %MEM
                                                                                                                                                     TIME+ COMMAND
                                         20
20
20
                                                   0 1739852 433032 157056 S 155.0
0 165800 14976 11264 S 33.9
                                                                                                                                             10:25.30 mariadbd
0:02.83 sysbench
0:10.27 kworker/1:1+events
      1030 mysql
1522 root
                                                                             14976
0
                                                                                                                                              0:10.27 kworker/1:1+events
0:03.39 multipathd
0:08.63 top
0:20.45 ksoftirqd/1
0:00.15 kworker/1:2-events
0:01.12 kworker/u5:0-flush-252:0
0:00.01 kworker/u6:1-events_power_effi+
0:03.81 systemd
0:00.03 kthreadd
0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_thread
0:00.00 rcu_tasks_trace_kthread
                                                                                                0 R 8576 S
           39 root
                                                                     0
                                                                                                                    3.2
                                                                                                                                  0.0
          376 root
                                         rt
20
                                                           289116
                                                                             27136
                                                                                                                                 0.3
0.1
                                                    0
                                                              11904
                                                                                5888
                                                                                                3712 R
                                                                                                                    1.3
      1386 root
                                         20
20
                                                                                                      0 S
0 I
                                                                                                                    1.0
                                                                                                                                 0.0
           24 root
                                                                                      0
      1516 root
                                                                                      0
                                                                                                                                 0.0
                                         20
                                                                                                      0 I
       1442 root
                                                                      0
                                                                                                                    0.3
                                                   0 0
                                                                                                      0 I
      1521 root
                                         20
                                                                      0
                                                                                      0
                                                                                                                    0.3
                                         20
20
                                                                                                9380 S
0 S
                                                             22116
                                                                             13220
                                                                                                                                 0.2
                 root
                                                                                                                    0.0
              2 root
                                                                                                                    0.0
                                                                      0
                                                                                      0
                                         20
                                                                                      0
                                                                                                      0 S
0 I
0 I
0 I
0 I
0 I
0 I
0 I
                                                                                                                                 0.0
0.0
0.0
0.0
0.0
0.0
0.0
             3 root
                                                                      0
                                                                                                                    0.0
             4 root
                                          0 -20
                                                                      0
                                                                                                                    0.0
             5 root
                                                                       0
                                                                                                                    0.0
                                           0 -20
                                                                                      0
             6 root
                                                                       0
                                                                                                                    0.0
                  root
                                           0 -20
                                                                       0
                                                                                                                    0.0
           10 root
                                           0 -20
                                                                       0
                                                                                                                    0.0
            12 root
                                           0 -20
                                                                       0
                                                                                                                    0.0
            13 root
                                         20
                                                                       0
                                                                                                                    0.0
            14 root
                                                                       0
                                                                                       0
                                                                                                                    0.0
                                                                                                                                               0:00.00 rcu_tasks_trace_kthread
0:00.39 ksoftirqd/0
                                         20
                                                    0
                                                                       0
            15 root
                                                                                                                    0.0
                                                                                                                                  0.0
                                                                                                                                  0.0
            16 root
                                                    0
                                                                       0
                                                                                      0
```

```
Threads started!
SQL statistics:
    queries performed:
                                               256718
        read:
         write:
         other:
                                               0
256718
256718 (4267.97 per sec.)
256718 (4267.97 per sec.)
0 (0.00 per sec.)
         total:
    transactions:
    queries:
     ignored errors:
    reconnects:
General statistics:
    total time:
                                               60.1030s
    total number of events:
                                               256718
Latency (ms):
                                                         0.04
          min:
                                                         0.46
          avg:
                                                       106.06
          max.
          95th percentile:
                                                   118775.99
          sum:
Threads fairness:
                                         128359.0000/7447.00
    events (avg/stddev):
    execution time (avg/stddev):
                                         59.3880/0.03
root@nodo1:/home/israel#
```

select random ranges

```
root@nodo1: /home/israel
top - 13:45:43 up 1:17, 4 users, load average: 0.37, 0.54, 0.45
Tasks: 130 total, 1 running, 129 sleeping, 0 stopped, 0 zombie
%Cpu(s): 18.1 us, 6.6 sy, 0.0 ni, 0.0 id, 0.0 wa, 0.0 hi, 75.3 si, 0.0 st
MiB Mem: 7942.4 total, 6843.0 free, 785.4 used, 552.3 buff/cache
MiB Swap: 4096.0 total, 4096.0 free, 0.0 used. 7157.0 avail Mem
        PID USER
                                                         VIRT
                                                                         RES
                                                                                       SHR S %CPU %MEM
                                                                                                                                    TIME+ COMMAND
                                    PR NI
                                                                                                     89.1
4.0
2.6
2.0
1.3
                                                                                                                               TIME+ COMMAND
6:42.03 mariadbd
0:15.56 sshd
0:04.74 ksoftirqd/0
0:23.53 kworker/0:8-events
0:00.11 sysbench
0:01.59 upowerd
0:04.40 sshd
0:04.83 top
0:03 38 systemd
                                                                   340700
                                                                                 133632 S
      2536 mysql
2385 israel
                                              0
                                                  1276608
                                     20
                                                      15128
                                                                                     5120 S
                                                                                                                   0.1
                                                                       7092
                                                                                   0 S
0 I
11264 S
7552 S
5120 S
     16 root
2637 root
                                    20
20
                                                                            0
                                                             0
                                                                                                                   0.0
                                                                            0
                                                                                                                   0.2
                                                      99364
      2724 root
                                     20
                                                                     14080
     1453 root
2296 israel
                                                    314136
                                                                                                                   0.1
                                    20
20
                                              0
                                                       15128
                                                                       7092
5888
                                                                                                                   0.1
                                                                                                       0.3
                                                                                                       0.3
      2415 root
                                                       11912
                                                                                     3712 R
                                                                                                                   0.1
                                    20
20
                                                                                     9412 S
0 S
                                                                                                       0.0
                                                                                                                   0.2
                                                                                                                               0:03.38 systemd
0:00.01 kthreadd
                root
                                                       22272
                                                                     13380
            2 root
                                                                                                       0.0
0.0
0.0
0.0
                                                                                                                               0:00.00 pool_workqueue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
            3 root
                                     20
                                                               0
                                                                                                                   0.0
            4 root
                                          -20
                                                                                           0 I
                                                                                                                   0.0
                                                                                          0 I
0 I
            5 root
                                          -20
                                                                                                                   0.0
            6 root
                                          -20
                                                               0
                                                                                                                   0.0
                                                                                                                               0:00.00 kworker/R-netns
0:00.00 kworker/R-mm_pe
0:00.00 rcu_tasks_kthread
0:00.00 rcu_tasks_rude_kthread
0:00.00 rcu_tasks_trace_kthread
                                          -20
                                                                             0
                                                                                           0 I
                                                                                                       0.0
                                                                                                                   0.0
               root
                                                                             0
                                                                                           0 I
         12 root
                                          -20
                                    20
20
                                                                                                       0.0
                                                                                                                   0.0
                                                                                           0 I
          13 root
                                                                             ō
                                                                                           0 I
          14 root
                                                                                          0 I
0 I
                                                                                                                   0.0
                                                                                                       0.0
         15 root
                                     20
                                                                                                                               0:00.24 rcu_preempt
0:00.08 migration/0
0:00.00 idle_inject/0
                                              0
          17 root
                                     20
                                                                             0
                                                                                                                   0.0
                                   rt
-51
                                                                             0
                                                                                          0 S
0 S
                                                                                                       0.0
          18 root
          19 root
                                                                             0
                                                                                                                   0.0
                                                                                                       0.0
```

```
hreads started!
SQL statistics:
     queries performed:
read:
                                                       4989
          write:
          other:
                                                       4989
          total:
                                                                 (83.11 per sec.)
(83.11 per sec.)
(0.00 per sec.)
(0.00 per sec.)
     transactions:
                                                       4989
                                                       4989
     queries:
     ignored errors:
                                                       0
     reconnects:
General statistics:
     total time:
total number of events:
                                                       60.0165s
                                                       4989
Latency (ms):
           min:
                                                                 12.02
            ava:
                                                                 46.89
            max:
                                                                 19.65
            95th percentile:
                                                             59973.20
            sum:
Threads fairness:
events (avg/stddev): 4989.0000/0.0
execution time (avg/stddev): 59.9732/0.00
                                               4989.0000/0.00
root@nodo1:/home/israel#
```

```
top - 15:09:06 up 26 min, 2 users, load ave
Tasks: 133 total, 1 running, 132 sleeping,
&Cpu(s): 36.4 us, 22.7 sy, 0.0 ni, 0.6 id,
MiB Mem : 7942.1 total, 7038.4 free, 6
MiB Swap: 4096.0 total, 4096.0 free,
                                                                       SHR S %CPU %MEM
                             PR NI
                                             VIRT
                                                           RES
                                                                                                           TIME+ COMMAND
     PID USER
                                                                  157056 S 158.2
11264 S 32.9
                                                                                             5.4
0.2
                                                                                                       11:56.60 mariadbd
0:02.26 sysbench
0:15.33 kworker/0:6-events
    1030 mysq
                                         1748048 436104
    1536 root
                                          165672
                                                        14848
    1412 root
                             20
                                                                                              0.0
                             20
20
                                     0
    1386 root
                                            11904
                                                         5888
                                                                     3712 R
                                                                                              0.1
                                                                                                        0:09.62 top
                                                                                                       0:01.56 kworker/1:2-mm_percpu_wq
0:03.31 sshd
     1516 root
                                                                                              0.0
                                                                                    0.9
    1356 israel
                             20
                                            15124
                                                         6832
                                                                     4992 S
                                                                                              0.1
       24 root
                             20
                                                                                                        0:22.04 ksoftirqd/1
                                                                                    0.6
                                                                                              0.0
                                                                                                       0:03.82 multipathd
0:00.64 kworker/u5:3-events_power_effi+
0:00.38 kcompactd0
                             rt
20
                                                                                             0.3
      376 root
                                          289116
                                                                     8576
                                                                                    0.6
                                                        27136
    1494 root
                                                                                    0.6
                                                              0
       37 root
                             20
                                                              0
                                                                          0 S
                                                                                    0.3
                                                                                              0.0
                                                                                                       0:00.38 kcompactd0
0:00.39 sudo
0:09.13 kworker/0:1H-kblockd
0:00.17 kworker/u6:1-events_power_effi+
0:03.81 systemd
0:00.03 kthreadd
0:00.00 pool_workequeue_release
0:00.00 kworker/R-rcu_g
0:00.00 kworker/R-rcu_p
0:00.00 kworker/R-slub_
0:00.00 kworker/R-netns
0:00.00 kworker/0:0H-kblockd
0:00.00 kworker/R-mm_pe
                                            16904
                                                                     6144 S
                                                                                   0.3
                                                                                             0.1
    1366 root
                             20
                                                         7296
    1409 root
                                                                          0 I
                                                                                   0.3
                                                  0
                                                              0
                                                                                   0.3
                                                                                             0.0
                                                  0
                                                              0
                                                                          0 I
    1521 root
                             20
                                    0
                                            22116
                                                        13220
                                                                     9380 S
            root
                             20
20
                                    0
                                                  0
                                                              0
                                                                         0 S
                                                                                   0.0 \\ 0.0
                                                                                             0.0 \\ 0.0
            root
         3 root
                                    0
                                                              0
                                                                         0 S
                                                                                   0.0
                                                                         0 I
                                                                                             0.0
         4 root
                                                  0
                                                                         0 I
         5 root
                                                                                             0.0
         6 root
                                                                          0 I
                                                                                    0.0
                                                                                             0.0
                              0 -20
                                                  0
         7 root
                                                                          0 I
                                                                                   0.0
                                                                                             0.0
                              0 -20
                                                                                    0.0
       10 root
                                                                          0 I
                                                                                             0.0
       12 root
                              0 -20
                                                                                    0.0
                                                                                              0.0
                                                                                                       0:00.00 kworker/R-mm_pe
```

```
Threads started!
SQL statistics:
    queries performed:
                                               280353
        read:
        write:
        other:
                                               280353
         total:
                                               280353 (4668.17 per sec.)
280353 (4668.17 per sec.)
    transactions:
    queries:
                                                       (0.00 per sec.)
(0.00 per sec.)
    ignored errors:
                                               0
    reconnects:
                                               0
General statistics:
    total time:
                                               60.0483s
    total number of events:
                                               280353
Latency (ms):
                                                        0.04
          min:
                                                      0.42
118.56
          avg:
          max:
                                                        0.67
          95th percentile:
                                                  118881.26
          sum:
Threads fairness:
                                        140176.5000/1319.50
    events (avg/stddev):
    execution time (avg/stddev):
                                        59.4406/0.02
root@nodo1:/home/israel#
```