

安装部署编译

阿里云 ECS

CPU: Intel Xeon(Cascade Lake) Platinum 8269CY

4 vCPU	16 GiB 内存	2.5 GHz/3.2 GHz 处理器主频	1.5 Gbps 内网带宽	50 万 PPS 内网收发包	2.1 万存储 IOPS
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TiDB 拓扑结构:

tidb Cluster: tidb-powerful-cluster					
tidb Version: v3.1.2					
Type	Host	Ports	OS/Arch	Directories	
pd	172.26.164.45	2379/2380	linux/x86_64	/tidb-deploy/pd-2379,/tidb-data/pd-2379	
tikv	172.26.164.45	20160/20180	linux/x86_64	/tidb-deploy/tikv-20160,/tidb-data/tikv-20160	
tikv	172.26.164.45	20161/20181	linux/x86_64	/tidb-deploy/tikv-20161,/tidb-data/tikv-20161	
tikv	172.26.164.45	20162/20182	linux/x86_64	/tidb-deploy/tikv-20162,/tidb-data/tikv-20162	
tidb	172.26.164.45	4000/10080	linux/x86_64	/tidb-deploy/tidb-4000	
tiflash	172.26.164.45	9000/8123/3930/20170/20292/8234	linux/x86_64	/tidb-deploy/tiflash-9000,/tidb-data/tiflash-9000	
prometheus	172.26.164.45	9090	linux/x86_64	/tidb-deploy/prometheus-9090,/tidb-data/prometheus-9090	
grafana	172.26.164.45	3000	linux/x86_64	/tidb-deploy/grafana-3000	

1. Sysbench

测试命令:

```
sysbench --config-file=config oltp_point_select --threads=128 --tables=32 --table-size=5000000 run
```

测试结果:

SQL statistics:

queries performed:

read:	5325915
write:	0
other:	0
total:	5325915
transactions:	5325915 (8875.78 per sec.)
queries:	5325915 (8875.78 per sec.)
ignored errors:	0 (0.00 per sec.)
reconnects:	0 (0.00 per sec.)

General statistics:

total time:	600.0488s
total number of events:	5325915

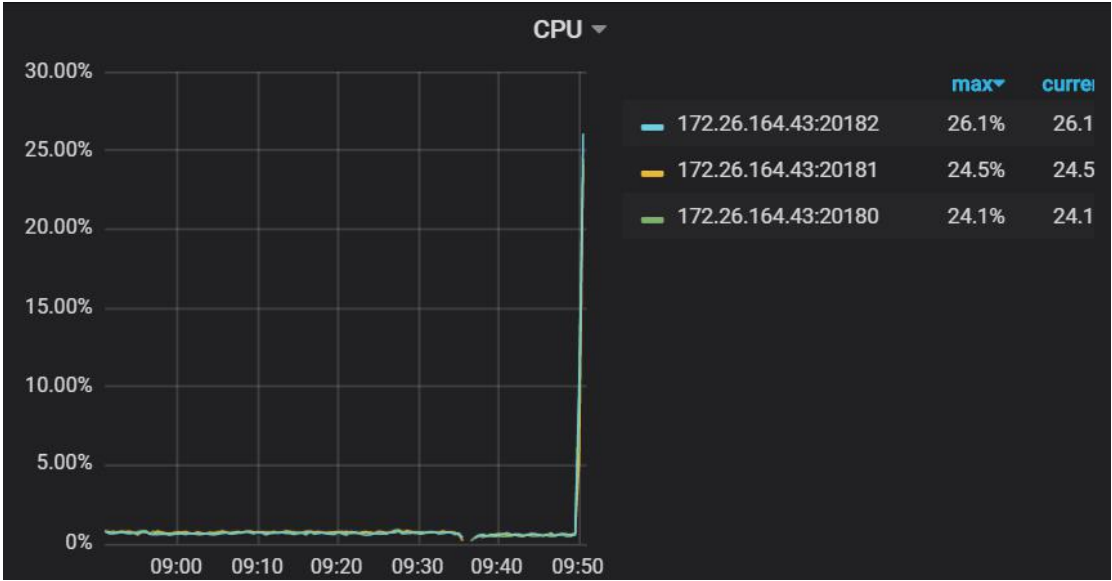
Latency (ms):

min:	0.33
avg:	14.42
max:	168.31
95th percentile:	27.66
sum:	76801058.09

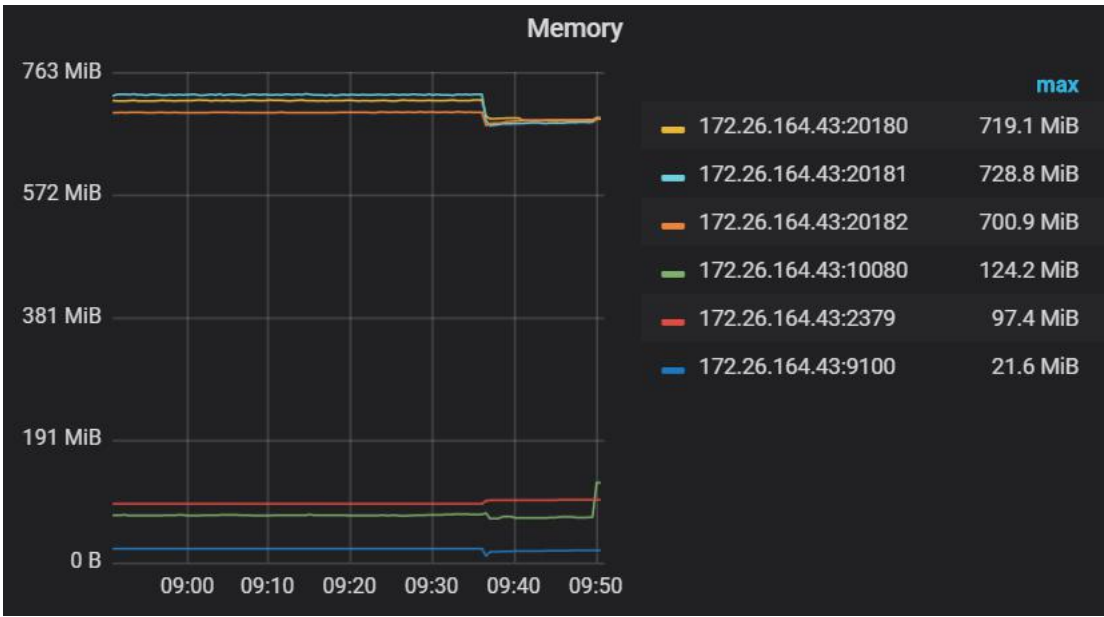
Threads fairness:

events (avg/stddev):	41608.7109/74.67
execution time (avg/stddev):	600.0083/0.01

CPU



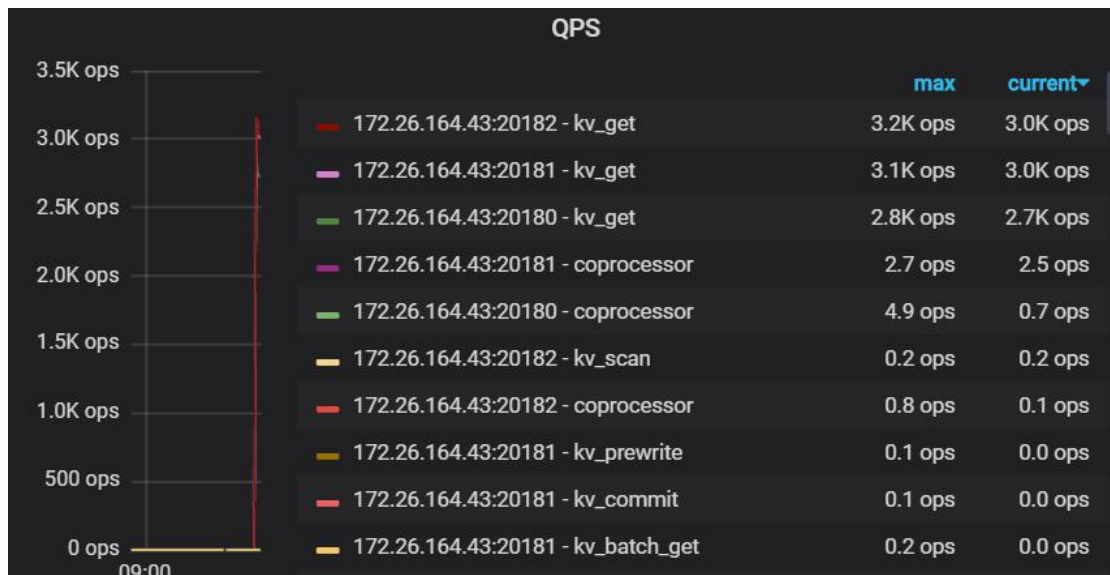
内存



MB/s



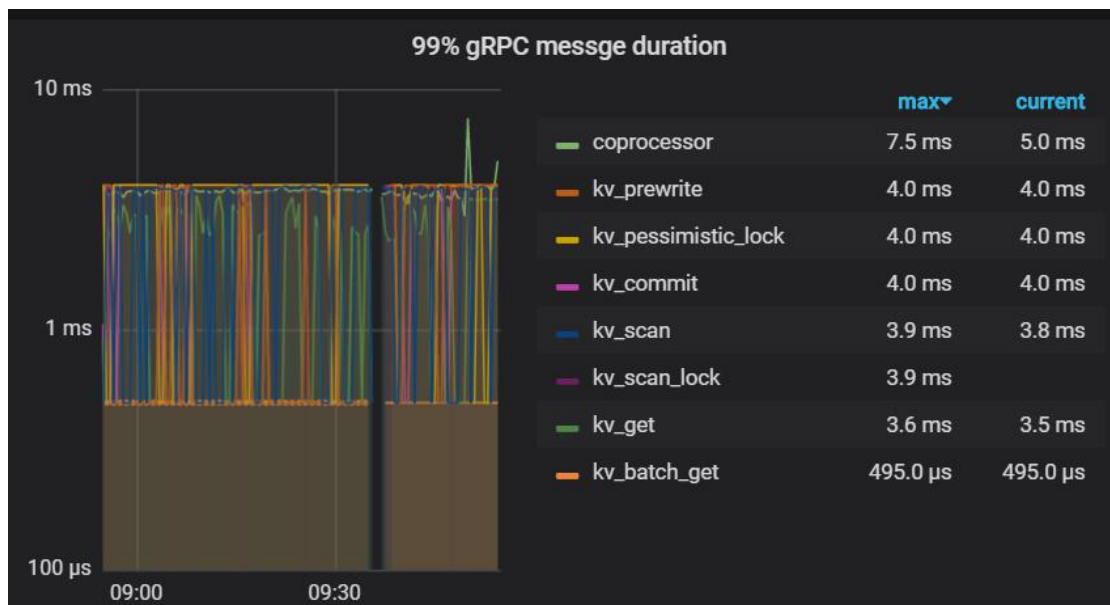
QPS



gRPC



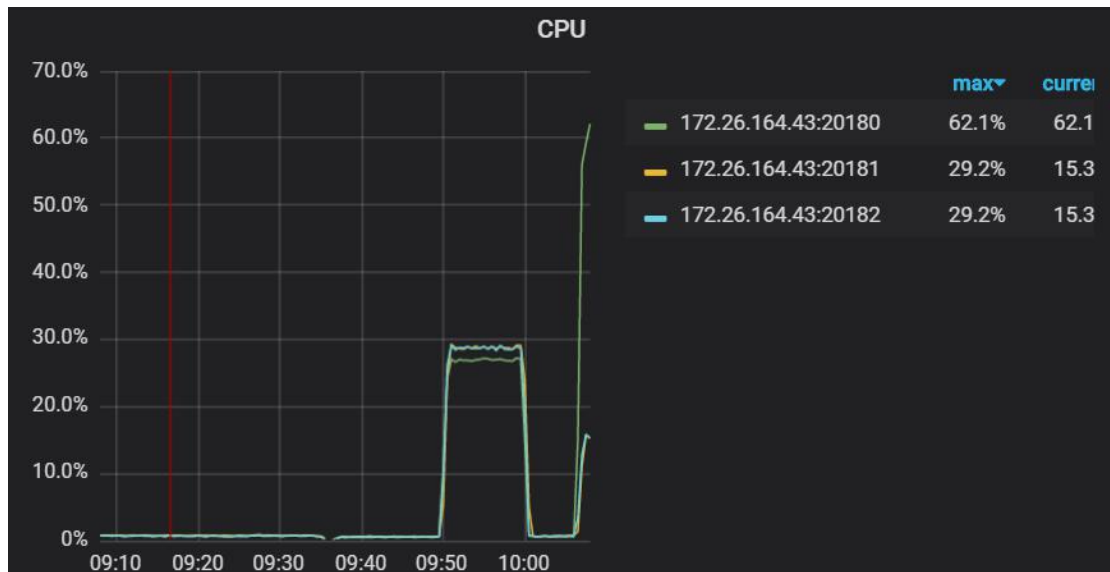
gRPC duration



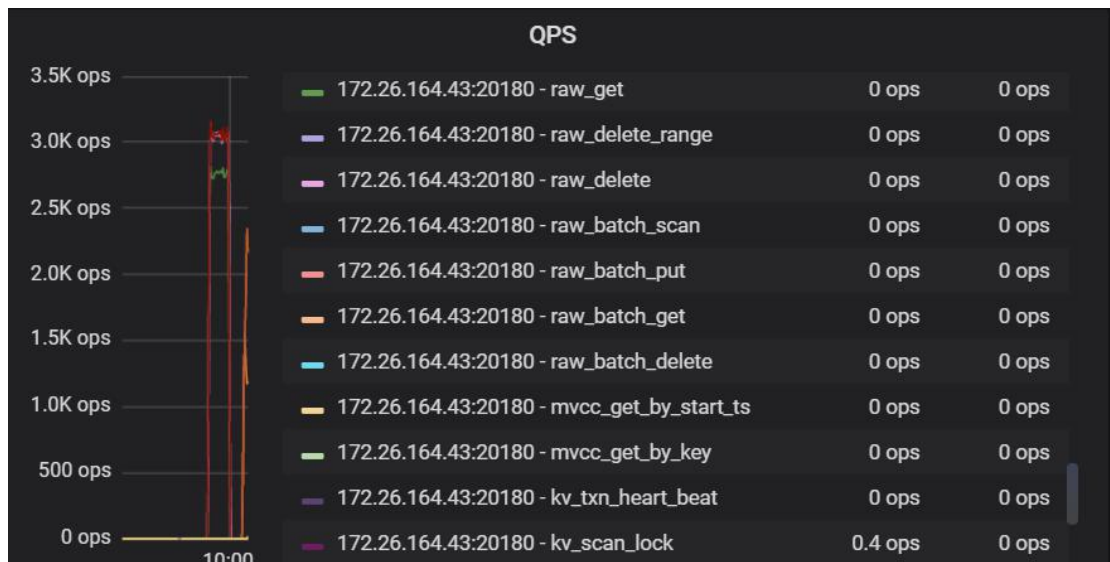
2. Go-ycsb

```
./bin/go-ycsb load mysql -P workloads/workloada -p recordcount=10000000 -p
mysql.host=172.26.164.43 p mysql.port=4000 --threads 256
```

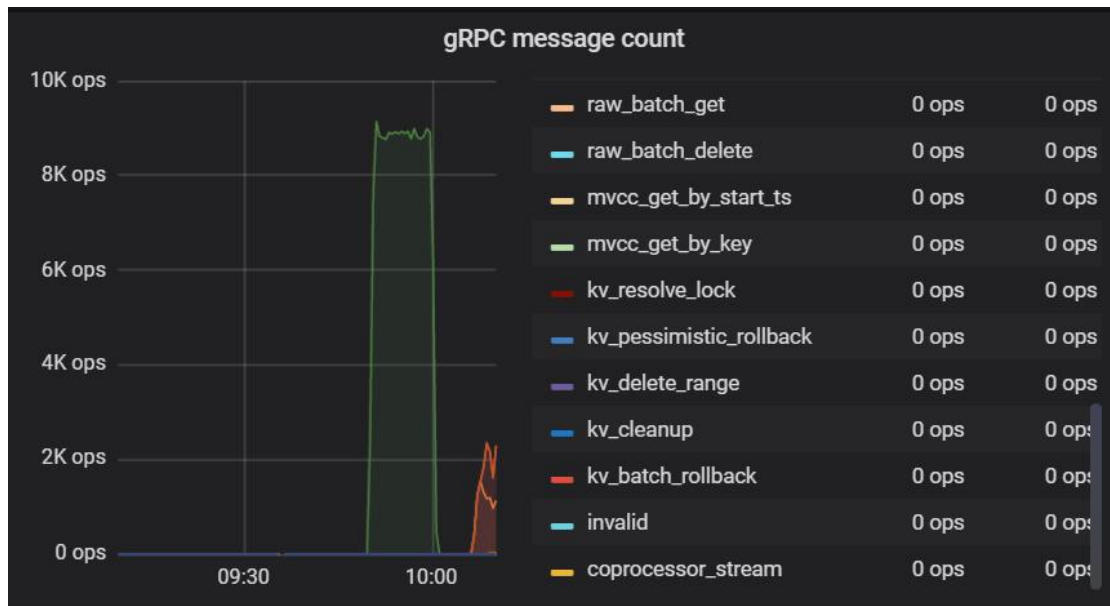
CPU



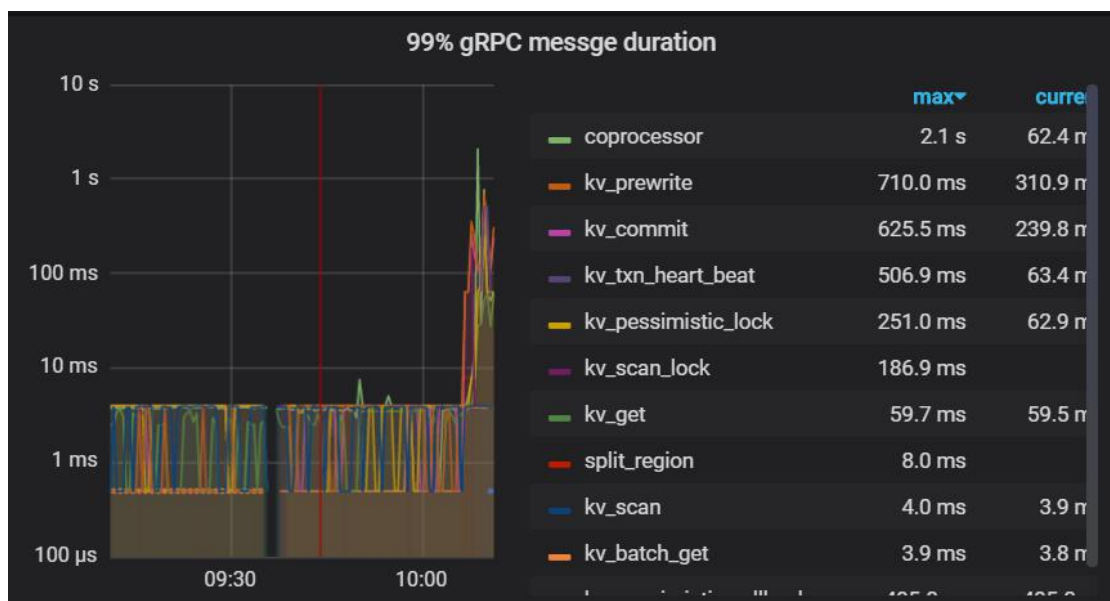
QPS



gRPC



gRPC duration



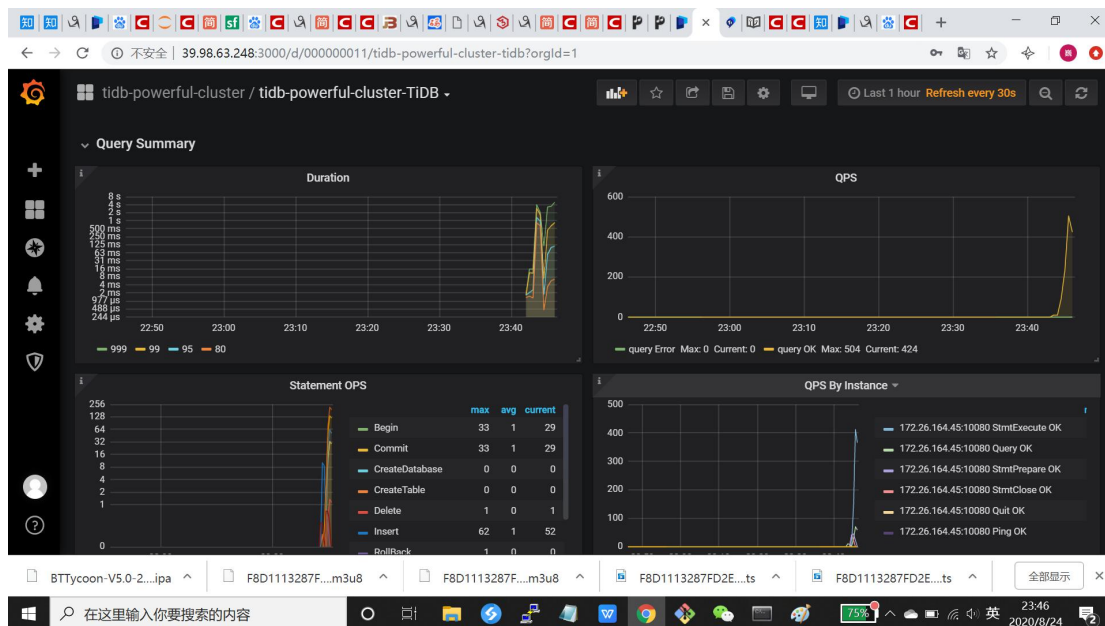
3. Go-tpc

注意：刚开始使用 2 核，8G 内存服务器，使用 GO-TPC 测试，服务器 io 飙升，内存吃光。如下图所示。使用 iostat 和 iotop 发现磁盘换入换出非常高。之后升级服务器更换测试策略。

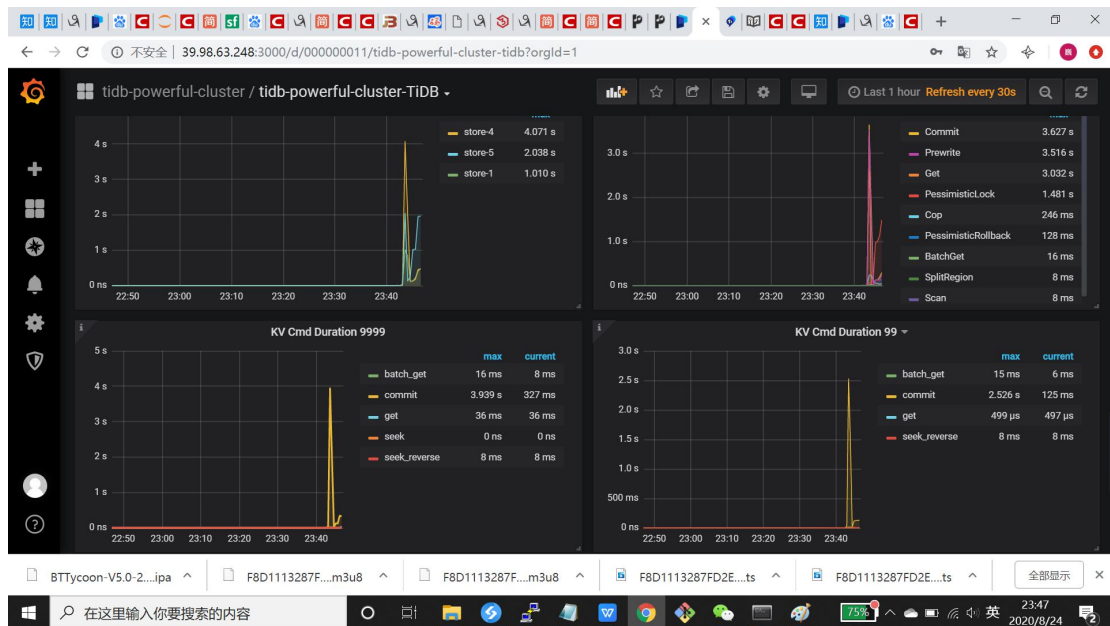
```
root@iZ8vb175yfq4zpr3wbraz: ~
Total DISK READ : 64.08 M/s | Total DISK WRITE : 51.91 K/s
Actual DISK READ: 63.90 M/s | Actual DISK WRITE: 77.87 K/s
TID PRIO USER DISK READ DISK WRITE SWAPIN IO> COMMAND
6378 be/4 root 5.71 M/s 2044.52 B/s 0.00 % 99.61 % bin/tidb-server -P 4000 --status=10080 --host=0.0.0.0 --log-file=/tidb-deploy/tidb-4000/log/tidb.log
6380 be/4 root 5.58 M/s 3.99 K/s 0.00 % 99.49 % bin/tidb-server -P 4000 --status=10080 --host=0.0.0.0 --log-file=/tidb-deploy/tidb-4000/log/tidb.log
11953 be/4 root 5.53 M/s 0.00 B/s 0.00 % 98.83 % bin/prometheus/prometheus --config.file=/tidb-deploy/prometheus-9090 --storage.tsdb.retention=30d
7299 be/4 root 5.03 M/s 0.00 B/s 0.00 % 97.90 % bin/prometheus/prometheus --config.file=/tidb-deploy/prometheus-9090 --storage.tsdb.retention=30d
11060 be/4 root 2.38 M/s 0.00 B/s 0.00 % 95.00 % flash_cluster_manager --config conf/tiflash.toml
5235 be/4 root 3.66 M/s 2044.52 B/s 0.00 % 78.59 % bin/pd-server --name=pd-172.26.164.44-2379 --cli.toml --log-file=/tidb-deploy/pd-2379/log/pd.log
11034 be/4 root 2.55 M/s 0.00 B/s 0.00 % 73.77 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
7409 be/4 root 2.50 M/s 0.00 B/s 0.00 % 61.02 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
5792 be/4 root 2.47 M/s 0.00 B/s 0.00 % 52.85 % bin/pd-server --name=pd-172.26.164.44-2379 --cli.toml --log-file=/tidb-deploy/pd-2379/log/pd.log
11015 be/4 root 2.13 M/s 0.00 B/s 0.00 % 47.84 % python3 /usr/sbin/iotop
11046 be/4 root 1589.28 K/s 17.97 K/s 0.00 % 46.27 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
5246 be/4 root 1561.34 K/s 0.00 B/s 0.00 % 37.09 % bin/pd-server --name=pd-172.26.164.44-2379 --cli.toml --log-file=/tidb-deploy/pd-2379/log/pd.log
10615 be/3 root 816.61 K/s 0.00 B/s 0.00 % 33.29 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [gc-manager]
10282 be/4 root 427.27 K/s 0.00 B/s 0.00 % 32.59 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
23642 be/4 root 936.41 K/s 21.96 K/s 0.00 % 31.71 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
23729 be/4 root 29.31 K/s 0.00 B/s 0.00 % 29.73 % bin/pd-server --name=pd-172.26.164.44-2379 --cli.toml --log-file=/tidb-deploy/pd-2379/log/pd.log
10627 be/3 root 1806.92 K/s 0.00 B/s 0.00 % 28.43 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [status-server-0]
6667 be/4 root 686.83 K/s 0.00 B/s 0.00 % 24.34 % bin/tiflash/tiflash server --config-file conf/tiflash.toml [BackgProcPool]
10354 be/4 root 321.45 K/s 0.00 B/s 0.00 % 21.38 % bin/tikv-server --addr 0.0.0.0:20161 --advertise=tidb-deploy/tikv-20161/log/tikv.log [raftstore-1-1]
7284 be/4 root 1297.79 K/s 0.00 B/s 0.00 % 20.08 % bin/blackbox_exporter/blackbox_exporter --web.listen-addr 0.0.0.0:9100 --log.level=info --config.file=conf/blackbox.yml
6154 be/4 root 1054.20 K/s 0.00 B/s 0.00 % 20.01 % bin/tikv-server --addr 0.0.0.0:20160 --advertise=tidb-deploy/tikv-20160/log/tikv.log [pd-worker]
10346 be/4 root 888.49 K/s 0.00 B/s 0.00 % 19.65 % bin/tikv-server --addr 0.0.0.0:20161 --advertise=tidb-deploy/tikv-20161/log/tikv.log [grpc-server-0]
10599 be/4 root 846.56 K/s 0.00 B/s 0.00 % 15.21 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [raftstore-4-1]
6674 be/4 root 798.64 K/s 0.00 B/s 0.00 % 15.20 % bin/tiflash/tiflash server --config-file conf/tiflash.toml [BackgProcPool]
6139 be/4 root 592.99 K/s 0.00 B/s 0.00 % 15.16 % bin/tikv-server --addr 0.0.0.0:20160 --advertise=tidb-deploy/tikv-20160/log/tikv.log [grpc-server-1]
6661 be/4 root 724.75 K/s 0.00 B/s 0.00 % 15.01 % bin/tiflash/tiflash server --config-file conf/tiflash.toml
6678 be/4 root 145.75 K/s 0.00 B/s 0.00 % 14.83 % bin/tiflash/tiflash server --config-file conf/tiflash.toml [BackgProcPool]
10364 be/4 root 549.06 K/s 0.00 B/s 0.00 % 14.78 % bin/tikv-server --addr 0.0.0.0:20161 --advertise=tidb-deploy/tikv-20161/log/tikv.log [pd-worker]
5393 be/4 root 493.16 K/s 0.00 B/s 0.00 % 14.78 % bin/node_exporter/node_exporter --web.listen-addr 0.0.0.0:9100 --collector.vmstat.fields=*. --log.level=info
10592 be/4 root 259.56 K/s 0.00 B/s 0.00 % 14.37 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [grpc-server-0]
7408 be/4 root 455.22 K/s 0.00 B/s 0.00 % 14.16 % bin/bin/grafana-server --homepath=/tidb-deploy/g-onfig=/tidb-deploy/grafana-3000/conf/grafana.ini
10368 be/3 root 241.59 K/s 0.00 B/s 0.00 % 13.40 % bin/tikv-server --addr 0.0.0.0:20161 --advertise=tidb-deploy/tikv-20161/log/tikv.log [gc-manager]
6144 be/4 root 225.62 K/s 0.00 B/s 0.00 % 13.20 % bin/tikv-server --addr 0.0.0.0:20160 --advertise=tidb-deploy/tikv-20160/log/tikv.log [raftstore-5-1]
10598 be/4 root 650.89 K/s 0.00 B/s 0.00 % 11.01 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [raftstore-4-0]
5918 be/2 root 708.75 K/s 0.00 B/s 0.00 % 10.16 % AliYunDun
9438 be/4 root 529.10 K/s 0.00 B/s 0.00 % 10.02 % sshd: root@pts/1
6852 be/4 root 269.54 K/s 0.00 B/s 0.00 % 9.82 % bin/tiflash/tiflash server --config-file conf/tiflash.toml [pd-worker]
10616 be/3 root 557.05 K/s 0.00 B/s 0.00 % 9.78 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [rocksdb-metrics]
6836 be/4 root 425.28 K/s 0.00 B/s 0.00 % 9.74 % bin/tiflash/tiflash server --config-file conf/tiflash.toml [raftstore-46-0]
10593 be/4 root 251.57 K/s 0.00 B/s 0.00 % 9.58 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [grpc-server-1]
23607 be/4 root 245.58 K/s 0.00 B/s 0.00 % 9.36 % bin/tikv-server --addr 0.0.0.0:20162 --advertise=tidb-deploy/tikv-20162/log/tikv.log [grpc-global-tim]
```

升级服务器，测试恢复正常。

QPS



KV duration



4. tiDB 集群性能瓶颈分析

- A. tiKV 上的 RaftStore，包括 Raft Log 和心跳，
- B. RocketDB 本身的延迟，经观察有事达到 50ms；
- C. Prometheus 本查也会带来一定的查询压力

5. 心得体会

熟悉 tiDB 集群的部署以及压测方案，对于故障排查和性能分析逐步掌握。