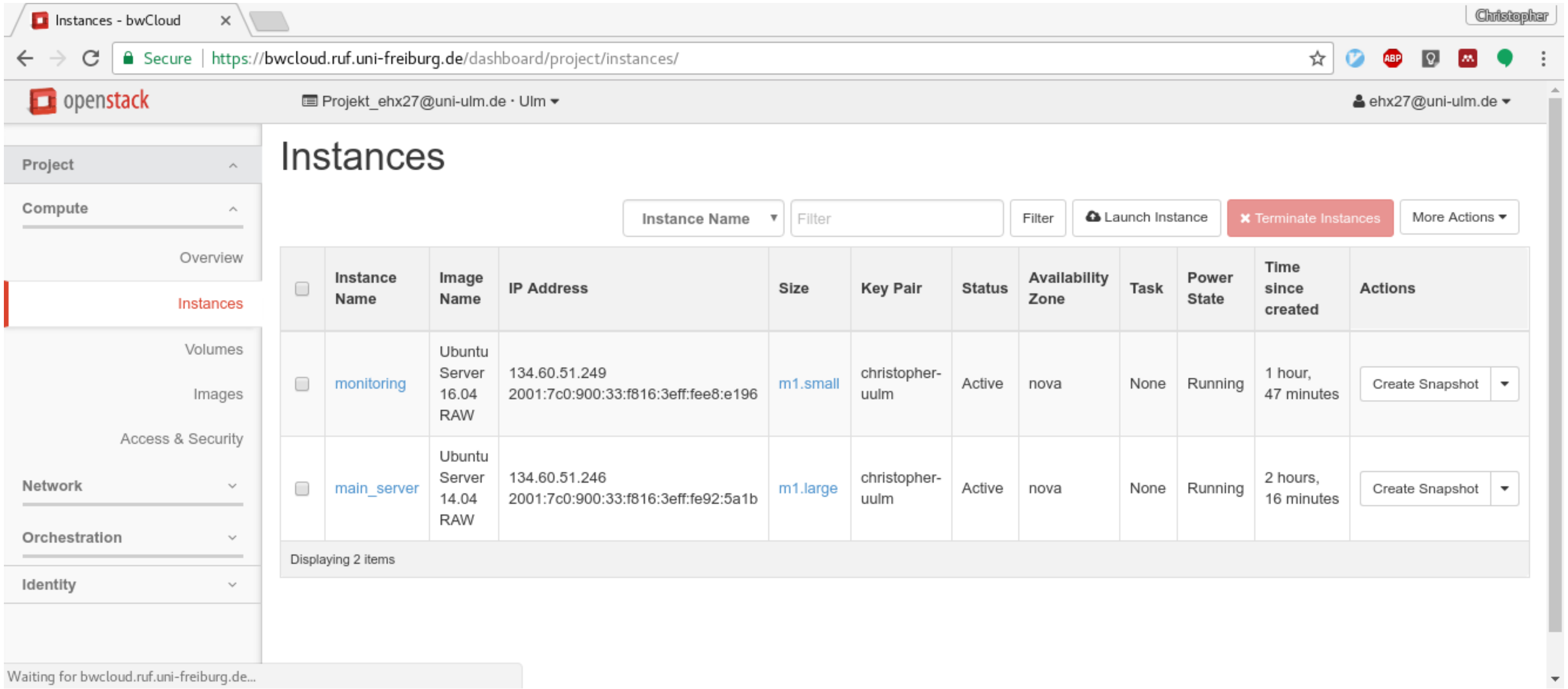
Exercise 2: Monitoring and Stressing

- You should have two VMs now



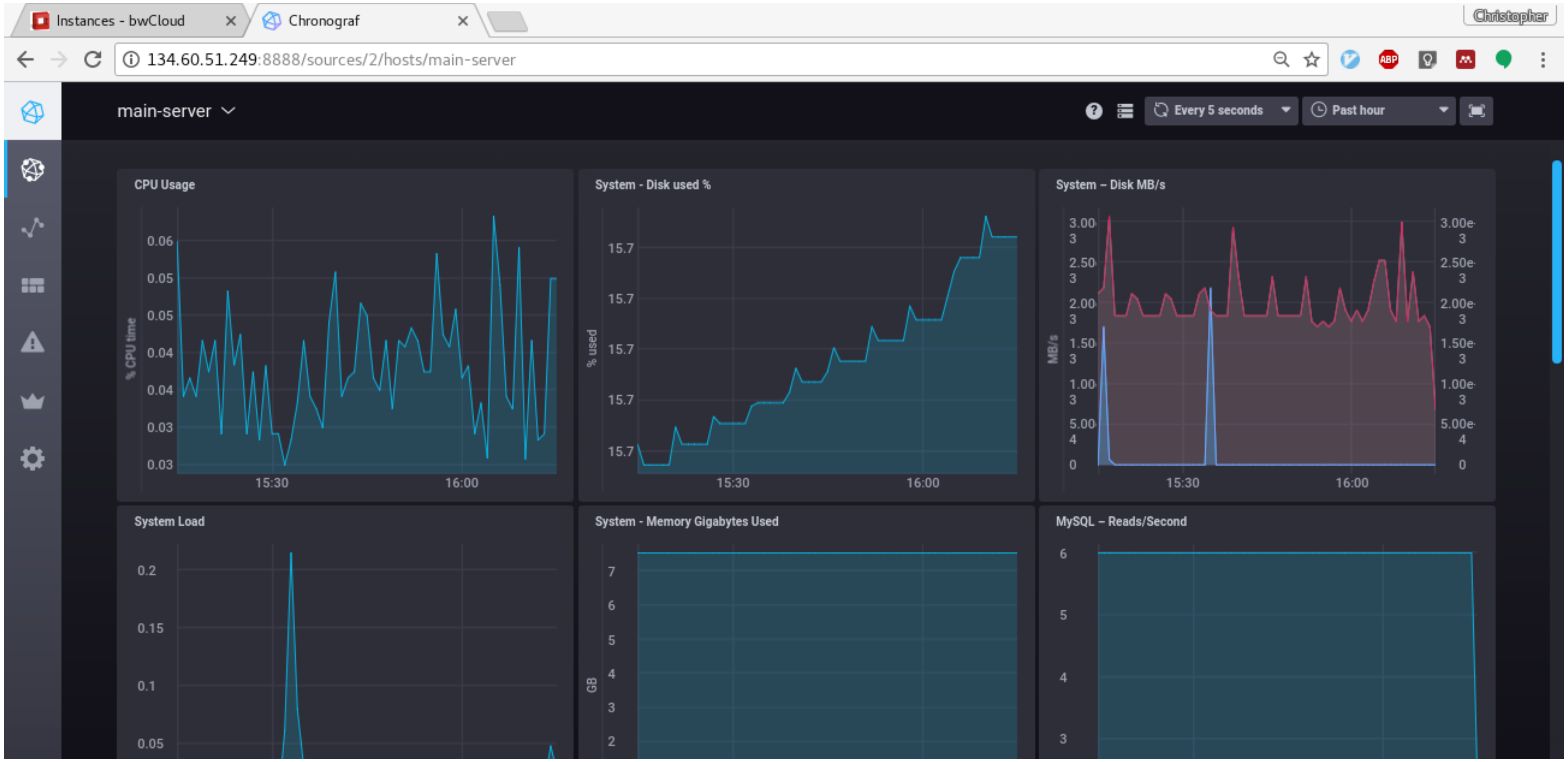
Instances

□	Instance Name	Image Name	IP Address	Size	Key Pair	Status	Availability Zone	Task	Power State	Time since created	Actions
□	monitoring	Ubuntu Server 16.04 RAW	134.60.51.249 2001:7c0:900:33:f816:3eff:fee8:e196	m1.small	christopher-uulm	Active	nova	None	Running	1 hour, 47 minutes	Create Snapshot
□	main_server	Ubuntu Server 14.04 RAW	134.60.51.246 2001:7c0:900:33:f816:3eff:fe92:5a1b	m1.large	christopher-uulm	Active	nova	None	Running	2 hours, 16 minutes	Create Snapshot

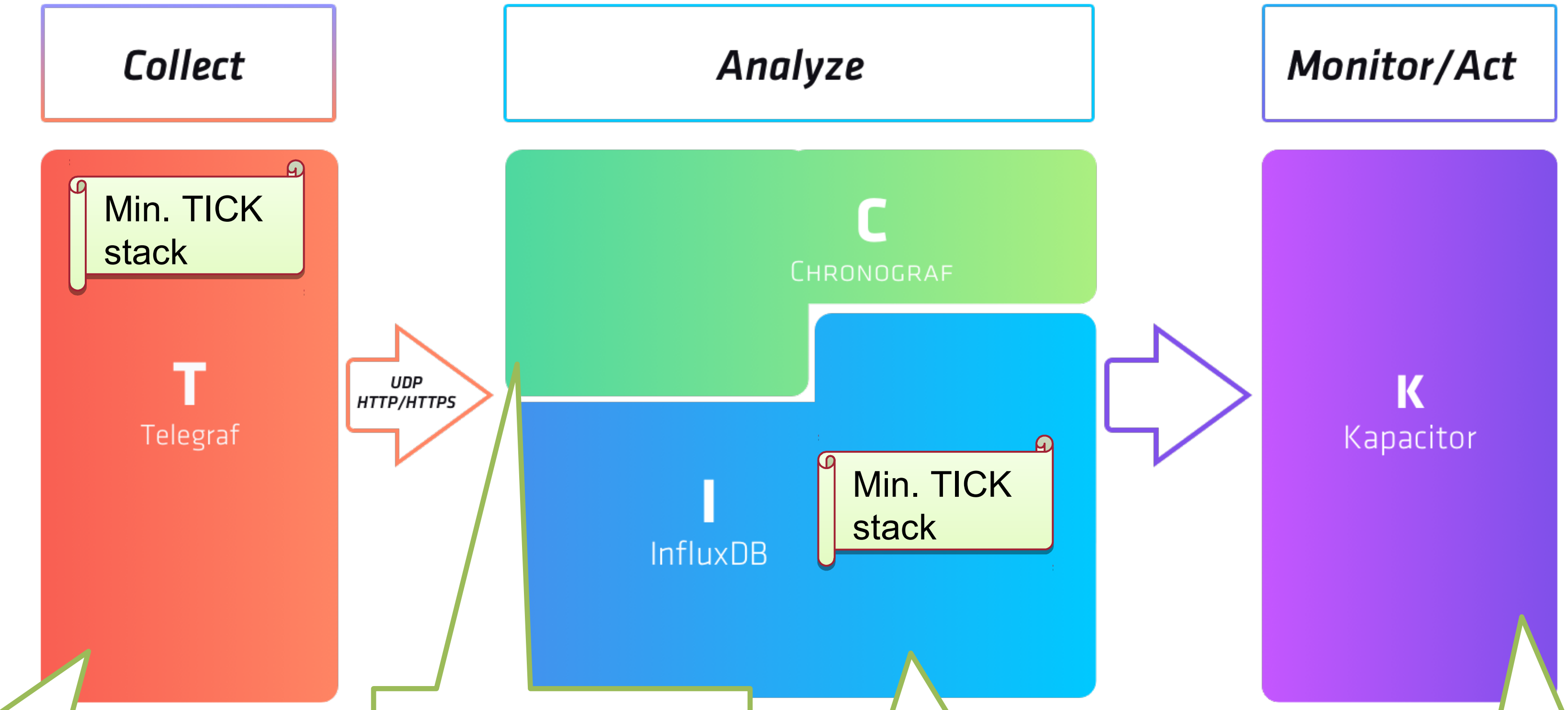
Displaying 2 items

Exercise 2: Monitoring and Stressing

- The Chronograf Dashboard has monitoring data of main_server



Exercise 2: Monitoring and Stressing



Monitoring agent / data collector

Web dashboard

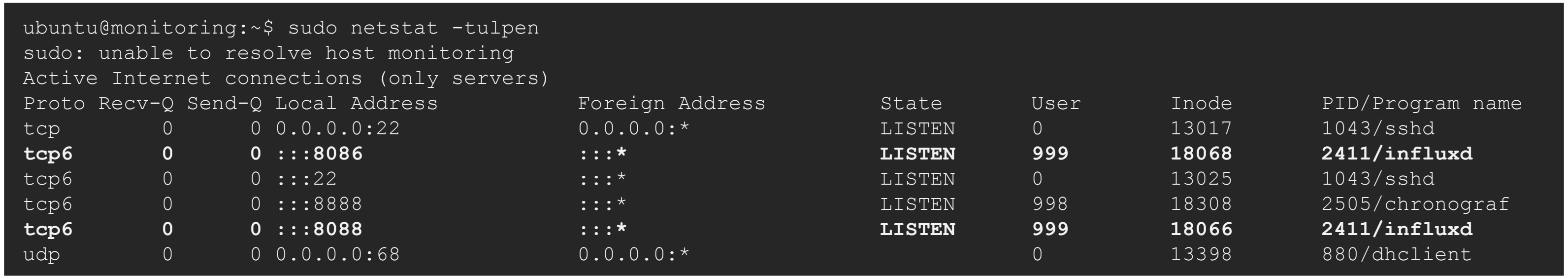
Time-series database, monitoring data store

Data processor and alerting

Exercise 2: Monitoring and Stressing

By default, InfluxDB uses the following network ports:

- TCP port 8086 is used for client-server communication over InfluxDB’s HTTP API
- TCP port 8088 is used for the RPC service for backup and restore



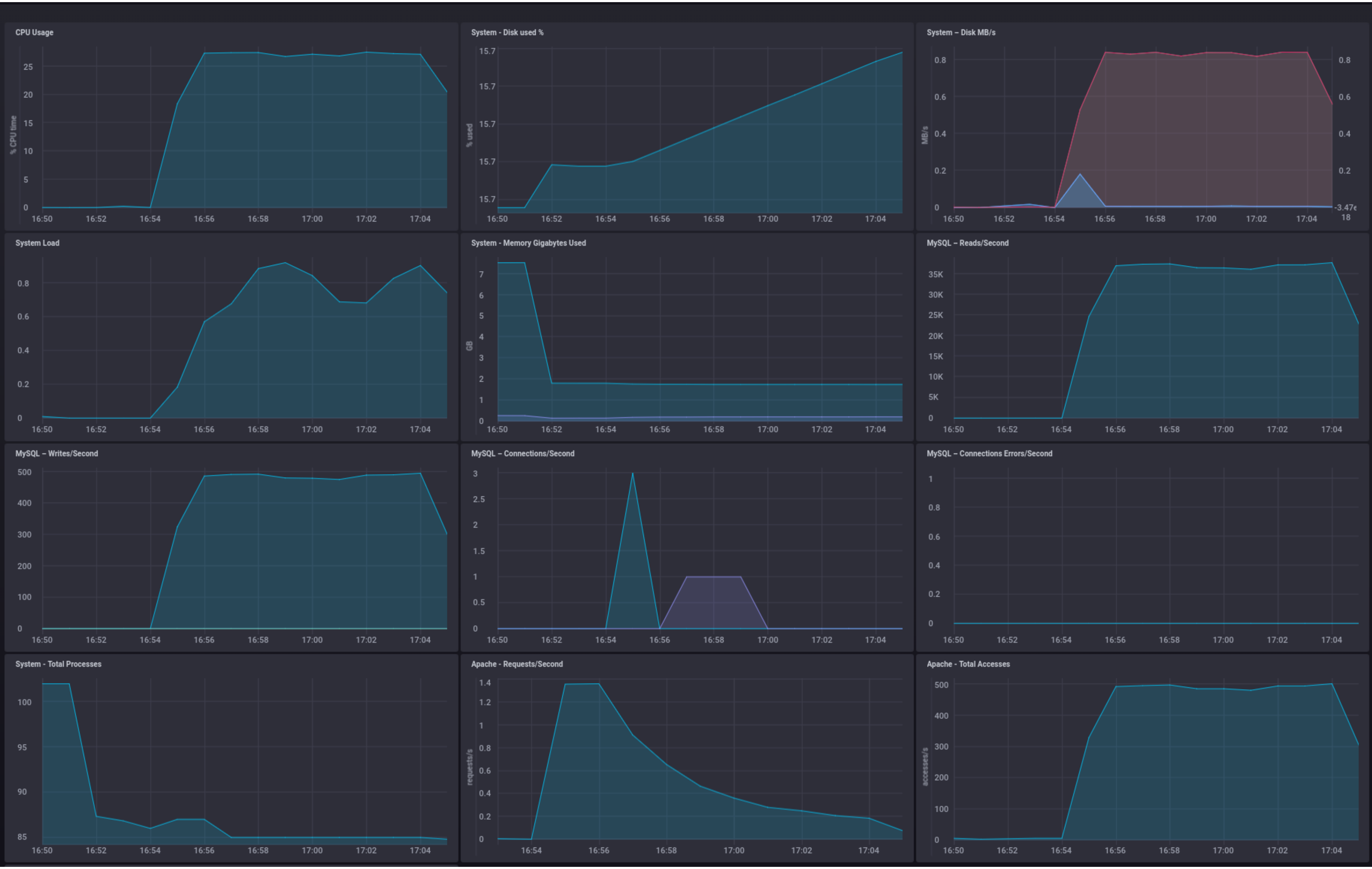
```
ubuntu@monitoring:~$ sudo netstat -tulpen
sudo: unable to resolve host monitoring
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       User       Inode      PID/Program name
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      0          13017      1043/sshd
tcp6       0      0 :::8086                 :::*                    LISTEN      999        18068      2411/influxd
tcp6       0      0 :::22                   :::*                    LISTEN      0          13025      1043/sshd
tcp6       0      0 :::8888                 :::*                    LISTEN      998        18308      2505/chronograf
tcp6       0      0 :::8088                 :::*                    LISTEN      999        18066      2411/influxd
udp        0      0 0.0.0.0:68              0.0.0.0:*                           0          13398      880/dhclient
```

Stressing the Wiki – Part 1

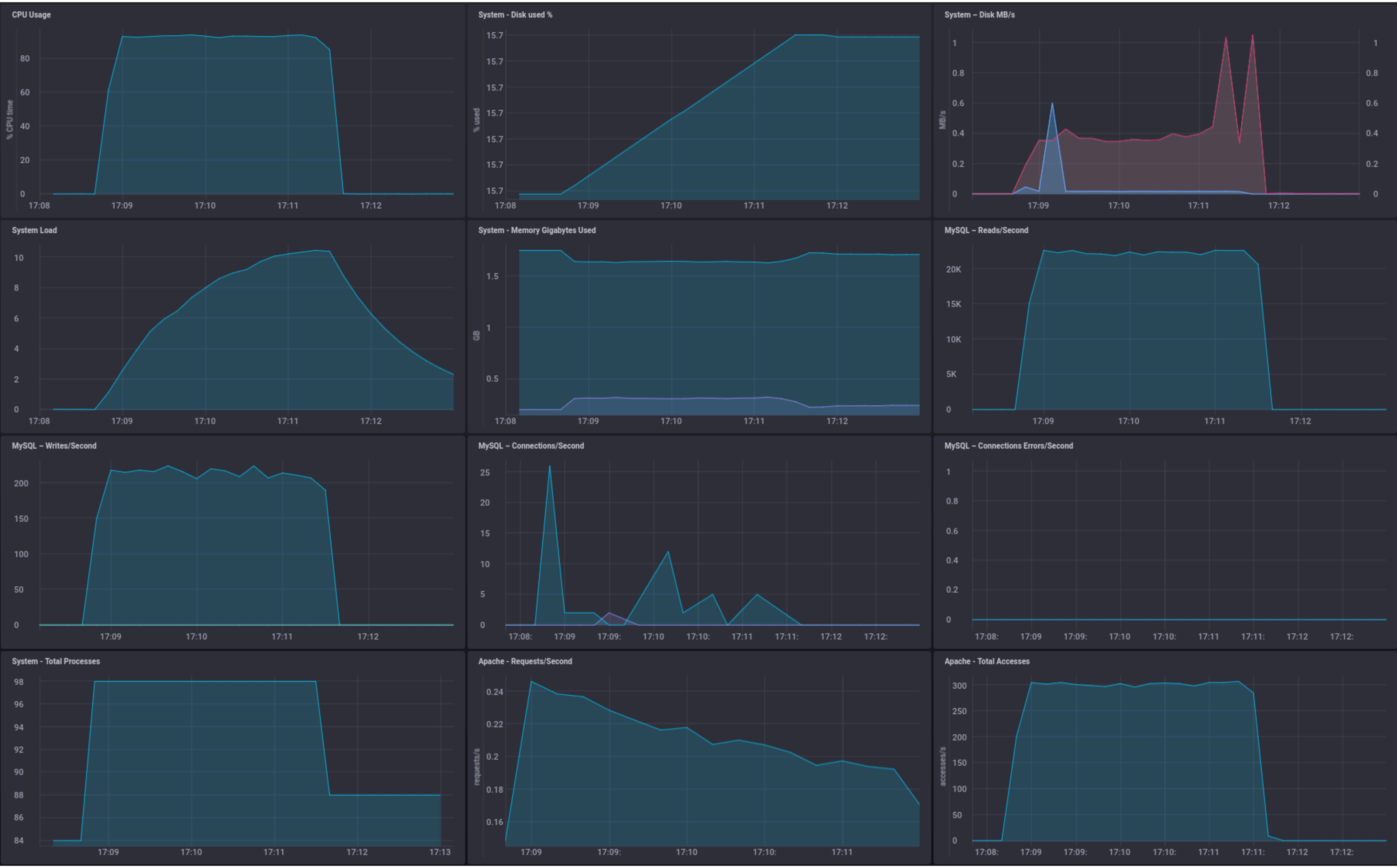
```
Concurrency Level:      1
Time taken for tests:   618.219 seconds
Complete requests:      5000
Failed requests:        4958
   (Connect: 0, Receive: 0, Length: 4958, Exceptions: 0)
Non-2xx responses:      5000
Total transferred:      58650042 bytes
HTML transferred:       56685042 bytes
Requests per second:    8.09 [#/sec] (mean)
Time per request:       123.644 [ms] (mean)
Time per request:       123.644 [ms] (mean, across all
concurrent requests)
Transfer rate:          92.65 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.8      0      12
Processing:   101  123  21.5    121    1124
Waiting:       55   71  14.2     68     813
Total:        101  124  21.5    121    1124

Percentage of the requests served within a certain time
(ms)
  50%    121
  66%    125
  75%    127
  80%    129
  90%    135
  95%    142
  98%    152
  99%    162
 100%   1124 (longest request)
```

```
Concurrency Level:      10
Time taken for tests:   165.952 seconds
Complete requests:      5000
Failed requests:        4
   (Connect: 0, Receive: 0, Length: 4, Exceptions: 0)
Non-2xx responses:      5000
Total transferred:      58654996 bytes
HTML transferred:       56689996 bytes
Requests per second:    30.13 [#/sec] (mean)
Time per request:       331.903 [ms] (mean)
Time per request:       33.190 [ms] (mean, across all
     concurrent requests)
Transfer rate:          345.16 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.5      0      11
Processing:    89  332  57.8    333     501
Waiting:       76  284  50.9    285     442
Total:         90  332  57.8    333     501

Percentage of the requests served within a certain time
     (ms)
  50%    333
  66%    357
  75%    372
  80%    380
  90%    406
  95%    425
  98%    447
  99%    459
 100%    501 (longest request)
```

No concurrency



10x concurrency



Vertical Scaling!

=> enlarge the machine you have by adding more resources.

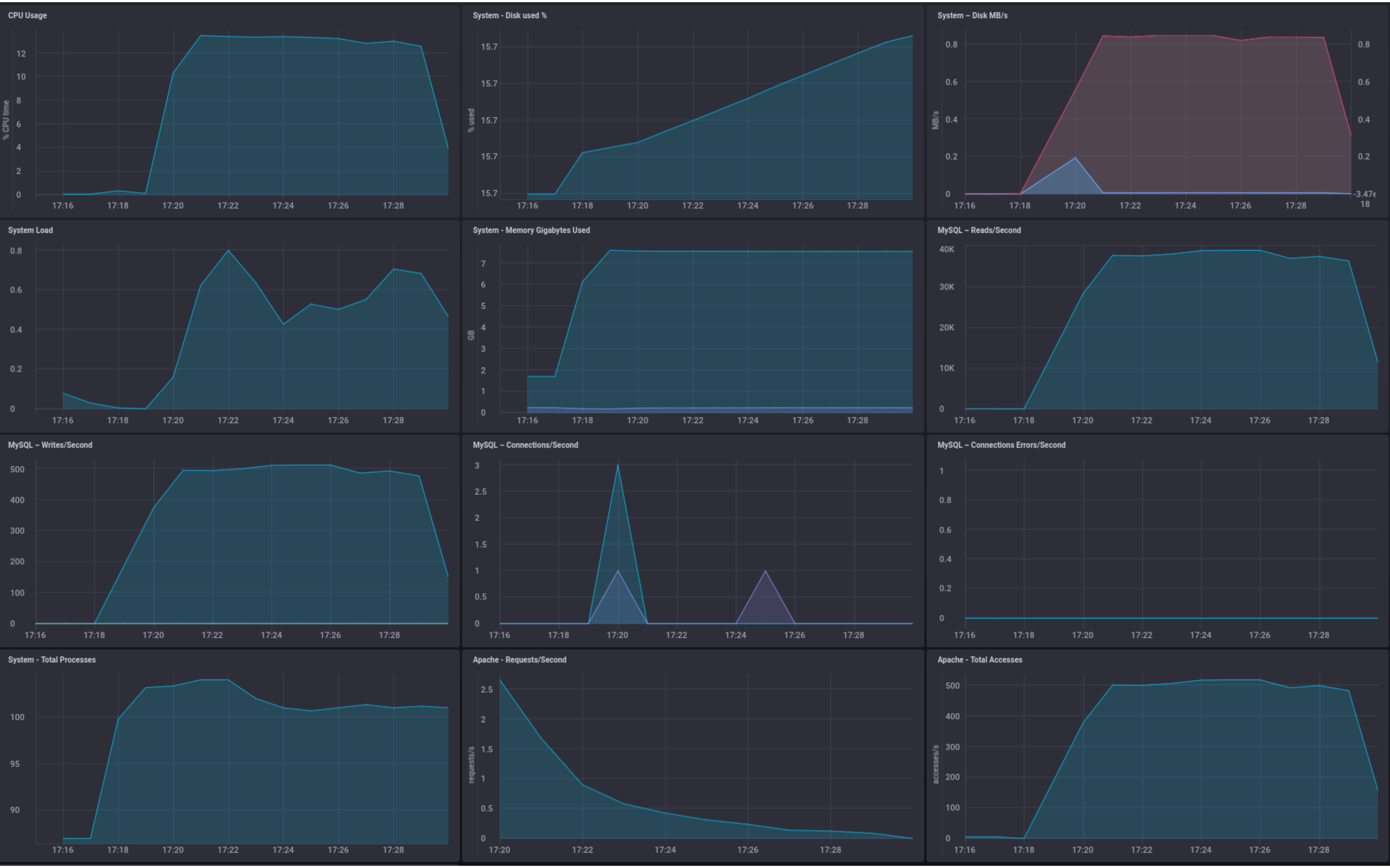
m1.small	m1.large
2GB Ram	8GB Ram
2 vCores CPU	4 vCores CPU
10GB Disk	10GB Disk

Stressing the Wiki – Part 2

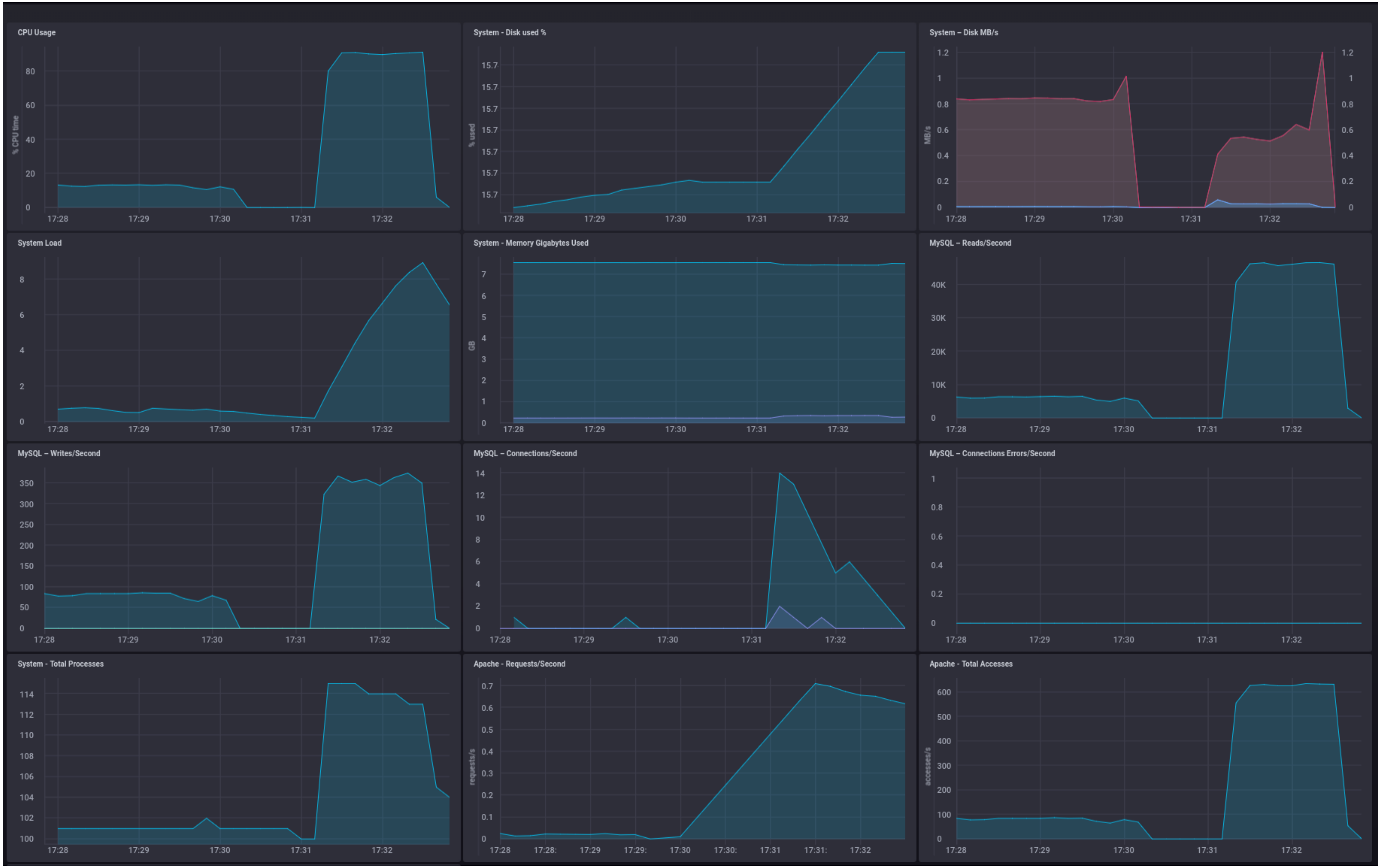
```
Concurrency Level:      1
Time taken for tests:   604.299 seconds
Complete requests:      5000
Failed requests:        4904
   (Connect: 0, Receive: 0, Length: 4904, Exceptions: 0)
Non-2xx responses:      5000
Total transferred:      58650096 bytes
HTML transferred:       56685096 bytes
Requests per second:    8.27 [#/sec] (mean)
Time per request:       120.860 [ms] (mean)
Time per request:       120.860 [ms] (mean, across all
concurrent requests)
Transfer rate:          94.78 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.1      0       2
Processing:   101  121  20.6    117     915
Waiting:       53   69  19.6     65     801
Total:        101  121  20.6    117     916

Percentage of the requests served within a certain time
(ms)
  50%    117
  66%    121
  75%    124
  80%    126
  90%    132
  95%    140
  98%    159
  99%    177
 100%    916 (longest request)
```

```
Concurrency Level:      10
Time taken for tests:   79.773 seconds
Complete requests:      5000
Failed requests:        1324
   (Connect: 0, Receive: 0, Length: 1324, Exceptions: 0)
Non-2xx responses:      5000
Total transferred:      58653676 bytes
HTML transferred:       56688676 bytes
Requests per second:    62.68 [#/sec] (mean)
Time per request:       159.547 [ms] (mean)
Time per request:       15.955 [ms] (mean, across all
     concurrent requests)
Transfer rate:          718.02 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.1      0       2
Processing:    61  159  36.8    156     313
Waiting:       53  134  28.8    132     272
Total:         61  159  36.8    156     314

Percentage of the requests served within a certain time
     (ms)
  50%    156
  66%    171
  75%    182
  80%    190
  90%    209
  95%    225
  98%    243
  99%    258
 100%    314 (longest request)
```

No concurrency



10x concurrency



Vertical Scaling ?

- Application is CPU bound
- For concurrent requests more vCPUs are improving a lot!

- Virtual scaling is limited to the larges available flavor.

=> unlimited scalability is not vertical.

2 vCPUs	1 concurrent	8 R/s
	10 concurrent	30 R/2
4 vCPUs	1 concurrent	8 R/s
	10 concurrent	60 R/2

(Bonus) Improve performance

- Caching of PHP compilation (instead of recompiling)
- Caching of application data (instead of requerying)
- Caching of HTML files (instead of reparsing)
- Optimize PHP Thread handling

- Database Optimisations