1.

**CPU performance measurement command:**

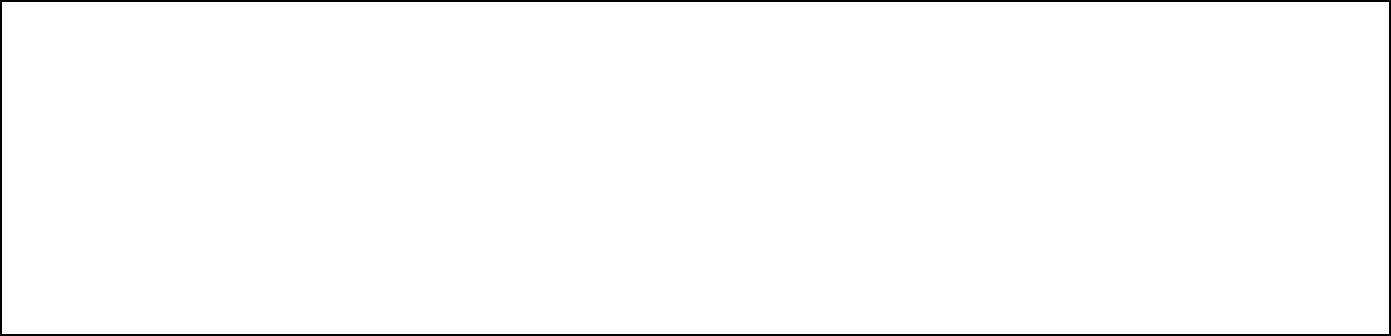
sysbench --test=cpu --cpu-max-prime=10000 --num-thead=4 run

**Memory performance measurement command:**

sysbench --test=memory --num-threds=4 --memory-total-size=10G --memory-poer=write --memory-scope=global run

|  |  |  |
| --- | --- | --- |
| Size | CPU performance -- Events per sceond | Memory performance -- transfer speed MB/s |
| **m4.large** | 1394.49 | 6432.91 |
| **m4.xlarge** | 3081.47 | 10240.00 |

\* Region: US East (N. Virginia)

**Measurement Analysis:**

We can see from the result that the performance of CPU and memory increase commensurate with the increase of the number of ECUs and memory resource.

2.

1)

|  |  |  |
| --- | --- | --- |
| Type | CPU bandwidth(Mbps) | Average RTT(ms) |
| t2.micro - t2.micro | 993 | 1.144 |
| t2.micro - m4.large | 573 | 0.852 |
| t2.micro - m4.xlarge | 10240 | 0.415 |
| m4.large - m4.large | 566 | 0.184 |
| m4.large - m4.lxarge | 574 | 0.690 |
| m4.xlarge - m4.xlarge | 1065 | 1.246 |

2)

|  |  |
| --- | --- |
| Windo Size | TCP bandwidth(Mbps) |
| 128K | 739 |
| 256K | 949 |
| 512K | 954 |

3)

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Clients | Client1 TCP bandwidth(Mbps) | Client2 TCP bandwidth(Mbps) | Client3 TCP bandwidth(Mbps) |
| 2 | 526 | 468 | N/A |
| 3 | 262 | 249 | 496 |

|  |  |  |  |
| --- | --- | --- | --- |
| Number of Clients | Client1 Average RTT(ms) | Client2 Average RTT(ms) | Client3 Average RTT(ms) |
| 2 | 0.320 | 0.860 | N/A |
| 3 | 0.349 | 0.859 | 1.222 |

\*Note: server: t2micro client1: m4.large client2: m4.xlarge client3: t2micro

4)

|  |  |  |
| --- | --- | --- |
| Time(HKT) | TCP bandwidth(Mbps) | Average RTT(ms) |
| Moring(~10:00am) | 976 | 0.571 |
| Afternoon(~4:00pm) | 993 | 1.144 |
| Evening(~10:00pm) | 953 | 0.938 |

5)

1. Under the same instance type, t2,micro and m4.xlarge are performance better than m4.large, under the different instance type, network performance well when set t2.micro as server and m4.xlarge as client.

2. The TCP bandwidth are similar when window size is equal to 256K and 512K, but it decreased apparently when window size is equal to 128K.

3. The average RTT are not change with the increase of clients numbers, but the TCP bandwidth are decrease commensurate with the increase of the number of clients.

4. The TCP bandwidth are almost the same in different time, but the average RTT in the morning is obviously less than in the afternoon and evening.