

计算无缓存：(45 个实例并发)

1. web 数：2

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=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            677 (OK=677   KO=-    )
> max response time            40269 (OK=40269 KO=-    )
> mean response time           20173 (OK=20173 KO=-    )
> std deviation                19007 (OK=19007 KO=-    )
> response time 50th percentile 19352 (OK=19352 KO=-    )
> response time 75th percentile 39544 (OK=39544 KO=-    )
> response time 95th percentile 40234 (OK=40234 KO=-    )
> response time 99th percentile 40256 (OK=40256 KO=-    )
> mean requests/sec            2.143 (OK=2.143 KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   15 ( 17%)
> 800 ms < t < 1200 ms         7 (  8%)
> t > 1200 ms                  68 ( 76%)
> failed                       0 (  0%)
=====
```

2. web 数：3

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            327 (OK=327   KO=-    )
> max response time            38257 (OK=38257 KO=-    )
> mean response time           19384 (OK=19384 KO=-    )
> std deviation                18430 (OK=18430 KO=-    )
> response time 50th percentile 19515 (OK=19515 KO=-    )
> response time 75th percentile 37804 (OK=37804 KO=-    )
> response time 95th percentile 38091 (OK=38091 KO=-    )
> response time 99th percentile 38130 (OK=38130 KO=-    )
> mean requests/sec            2.25 (OK=2.25  KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   30 ( 33%)
> 800 ms < t < 1200 ms         0 (  0%)
> t > 1200 ms                  60 ( 67%)
> failed                       0 (  0%)
=====
```

3. web 数：4

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=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            375 (OK=375   KO=-    )
> max response time            39863 (OK=39863 KO=-    )
> mean response time           19918 (OK=19918 KO=-    )
> std deviation                18773 (OK=18773 KO=-    )
> response time 50th percentile 19972 (OK=19972 KO=-    )
> response time 75th percentile 38678 (OK=38678 KO=-    )
> response time 95th percentile 39816 (OK=39816 KO=-    )
> response time 99th percentile 39863 (OK=39863 KO=-    )
> mean requests/sec            2.195 (OK=2.195 KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   30 ( 33%)
> 800 ms < t < 1200 ms         4 (  4%)
> t > 1200 ms                  56 ( 62%)
> failed                       0 (  0%)
=====
```

计算有缓存：(45 个实例并发)

1. web 数: 2

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            240 (OK=240   KO=-    )
> max response time            38264 (OK=38264 KO=-    )
> mean response time           18995 (OK=18995 KO=-    )
> std deviation                18363 (OK=18363 KO=-    )
> response time 50th percentile 18728 (OK=18728 KO=-    )
> response time 75th percentile 37492 (OK=37492 KO=-    )
> response time 95th percentile 38076 (OK=38076 KO=-    )
> response time 99th percentile 38205 (OK=38205 KO=-    )
> mean requests/sec            2.308 (OK=2.308 KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   24 ( 27%)
> 800 ms < t < 1200 ms        21 ( 23%)
> t > 1200 ms                  45 ( 50%)
> failed                       0 ( 0%)
=====
```

2. web 数: 3

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            257 (OK=257   KO=-    )
> max response time            38800 (OK=38800 KO=-    )
> mean response time           19582 (OK=19582 KO=-    )
> std deviation                18591 (OK=18591 KO=-    )
> response time 50th percentile 19685 (OK=19685 KO=-    )
> response time 75th percentile 38094 (OK=38094 KO=-    )
> response time 95th percentile 38769 (OK=38769 KO=-    )
> response time 99th percentile 38797 (OK=38797 KO=-    )
> mean requests/sec            2.195 (OK=2.195 KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   30 ( 33%)
> 800 ms < t < 1200 ms         0 ( 0%)
> t > 1200 ms                  60 ( 67%)
> failed                       0 ( 0%)
=====
```

3. web 数: 4

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            264 (OK=264   KO=-    )
> max response time            40043 (OK=40043 KO=-    )
> mean response time           19731 (OK=19731 KO=-    )
> std deviation                19210 (OK=19210 KO=-    )
> response time 50th percentile 19019 (OK=19019 KO=-    )
> response time 75th percentile 39191 (OK=39191 KO=-    )
> response time 95th percentile 39947 (OK=39947 KO=-    )
> response time 99th percentile 39986 (OK=39986 KO=-    )
> mean requests/sec            2.195 (OK=2.195 KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   42 ( 47%)
> 800 ms < t < 1200 ms         3 ( 3%)
> t > 1200 ms                  45 ( 50%)
> failed                       0 ( 0%)
=====
```

小结:

经过对比发现, 相同条件下, 计算结果不缓存的实验组, web 数量为 3 和 4 的实验的计算速度比 web 数量为 2 的实验的计算速度快很多, web 数量为 3 和 4 的实验之间的差距较小; 计算结果缓存的实验组, 三个实验之间的差距都很小。

实验中我还犯过一个错误, 就是未使用 redis desktop 清理 cache, 导致上一个实验的 cache 遗留到下一个实验。如下图所示, 计算速度提升太明显, 导致误差过大。

web 数: 2, 未使用 redis desktop 清理 cache

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            162 (OK=162   KO=-    )
> max response time            560 (OK=560   KO=-    )
> mean response time           357 (OK=357   KO=-    )
> std deviation                95 (OK=95    KO=-    )
> response time 50th percentile 358 (OK=358   KO=-    )
> response time 75th percentile 438 (OK=438   KO=-    )
> response time 95th percentile 525 (OK=525   KO=-    )
> response time 99th percentile 534 (OK=534   KO=-    )
> mean requests/sec            90 (OK=90    KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   90 (100%)
> 800 ms < t < 1200 ms         0 ( 0%)
> t > 1200 ms                   0 ( 0%)
> failed                        0 ( 0%)
=====
```

web 数: 4, 未使用 redis desktop 清理 cache

```
=====
---- Global Information -----
> request count                90 (OK=90    KO=0    )
> min response time            226 (OK=226   KO=-    )
> max response time            2187 (OK=2187  KO=-    )
> mean response time           742 (OK=742   KO=-    )
> std deviation                550 (OK=550   KO=-    )
> response time 50th percentile 567 (OK=567   KO=-    )
> response time 75th percentile 699 (OK=699   KO=-    )
> response time 95th percentile 2166 (OK=2166  KO=-    )
> response time 99th percentile 2185 (OK=2185  KO=-    )
> mean requests/sec            30 (OK=30    KO=-    )
---- Response Time Distribution -----
> t < 800 ms                   74 ( 82%)
> 800 ms < t < 1200 ms         5 (  6%)
> t > 1200 ms                   11 ( 12%)
> failed                        0 (  0%)
=====
```