## Оптимизация

1 вариант:

<http://81.200.26.171/admin-staff/products/>

2 вариант:

http://81.200.26.171/products/category/1/

http://81.200.26.171/products/category/2/

<http://81.200.26.171/products/category/3/>

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Параметр** | **1 вариант** | | | | | **2 вариант** | | | |
| **-r10 -c10** | | | **-r50 -c10** | | **-r10 -c10** | | **-r50 -c10** | |
| **До** | | **После** | **До** | **После** | **До** | **После** | **До** | **После** |
| Число переходов | 1300 | 1300 | | 6500 | 6500 | 1400 | 1400 | 7000 | 7000 |
| Доступность сервера | 100% | 100% | | 100% | 100% | 100% | 100% | 100% | 100% |
| Время теста, с | 31,15 | 27,72 | | 154,39 | 138,33 | 12,05 | 11,48 | 59,39 | 56,86 |
| Время отклика, с | 0,23 | 0,20 | | 0,23 | 0,21 | 0,08 | 0,08 | 0,08 | 0,08 |
| Запросов в секунду | 41,73 | 46,90 | | 42,10 | 46,99 | 116,18 | 121,95 | 117,86 | 123,11 |
| Пропускная способность,  МБ/сек | 4,22 | 4,74 | | 4,26 | 4,75 | 13,89 | 14,58 | 14,08 | 14,71 |
| Согласованность | 9,57 | 9,50 | | 9,83 | 9,78 | 9,68 | 9,64 | 9,84 | 9,89 |
| Удачных транзакций | 1300 | 1300 | | 6500 | 6500 | 1400 | 1400 | 7000 | 7000 |
| Неудачных транзакций | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 |
| Самая долгая транзакция, с | 5,40 | 5,48 | | 5,65 | 5,59 | 0,78 | 0,52 | 0,80 | 0,82 |

## Нагрузочное тестирование

Сначала выполним тестирование конкретных контроллеров, записывая по одному адресу в файл «urls.txt» и выполняя тест:

|  |
| --- |
| siege -f /home/django/geekshop/urls.txt -d0 -r25 -c50 |

В результате заполним таблицу (пользователь «GeekBrains», в корзине 16 товаров):

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Адрес** | **Переходов** | **Время теста, с** | **Транзакций в секунду** | **Время отклика, с** |
| /order/update/6/ | 11700 | 137.89 | 84.85 | 0,58 |
| /products/ | 17600 | 169.81 | 103.65 | 0,47 |
| /products/category/1/ | 17750 | 167.55 | 105.94 | 0,46 |
| /basket/ | 11650 | 107.48 | 108.39 | 0,45 |
| /order/ | 10450 | 96.65 | 108.12 | 0,45 |
| /order/update/7/ | 11700 | 247.12 | 47.35 | 1,04 |

**/order/update/6/**

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 11700 hits

Availability: 100.00 %

Elapsed time: 137.89 secs

Data transferred: 591.81 MB

Response time: 0.58 secs

Transaction rate: 84.85 trans/sec

Throughput: 4.29 MB/sec

Concurrency: 49.17

Successful transactions: 11700

Failed transactions: 0

Longest transaction: 17.37

Shortest transaction: 0.00

**/products/**

root@geekshop:/home/django/django# nano urls.txt

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 17600 hits

Availability: 100.00 %

Elapsed time: 169.81 secs

Data transferred: 2366.08 MB

Response time: 0.47 secs

Transaction rate: 103.65 trans/sec

Throughput: 13.93 MB/sec

Concurrency: 49.19

Successful transactions: 17600

Failed transactions: 0

Longest transaction: 17.37

Shortest transaction: 0.01

**/products/category/1/**

root@geekshop:/home/django/django# nano urls.txt

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 17750 hits

Availability: 100.00 %

Elapsed time: 167.55 secs

Data transferred: 2110.46 MB

Response time: 0.46 secs

Transaction rate: 105.94 trans/sec

Throughput: 12.60 MB/sec

Concurrency: 49.13

Successful transactions: 17750

Failed transactions: 0

Longest transaction: 17.41

Shortest transaction: 0.01

**/basket/**

root@geekshop:/home/django/django# nano urls.txt

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 11650 hits

Availability: 100.00 %

Elapsed time: 107.48 secs

Data transferred: 571.32 MB

Response time: 0.45 secs

Transaction rate: 108.39 trans/sec

Throughput: 5.32 MB/sec

Concurrency: 49.23

Successful transactions: 10400

Failed transactions: 0

Longest transaction: 17.35

Shortest transaction: 0.00

**/order/**

root@geekshop:/home/django/django# nano urls.txt

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 10450 hits

Availability: 100.00 %

Elapsed time: 96.65 secs

Data transferred: 574.40 MB

Response time: 0.45 secs

Transaction rate: 108.12 trans/sec

Throughput: 5.94 MB/sec

Concurrency: 49.19

Successful transactions: 10450

Failed transactions: 0

Longest transaction: 17.39

Shortest transaction: 0.00

**/order/update/7/**

root@geekshop:/home/django/django# nano urls.txt

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -d0 -r25 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 11700 hits

Availability: 100.00 %

Elapsed time: 247.12 secs

Data transferred: 593.60 MB

Response time: 1.04 secs

Transaction rate: 47.35 trans/sec

Throughput: 2.40 MB/sec

Concurrency: 49.12

Successful transactions: 11700

Failed transactions: 0

Longest transaction: 17.67

Shortest transaction: 0.00

Дальше проведем тестирование в условиях, максимально близко имитирующих реальную работу сервера - включим режим интернета (ключ «-i») - адреса переходов будут выбираться случайным образом. Результаты тестов для разных значений параметров запишем в таблицу:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Параметр** | **-r50 -c50** | **-r25 -c100** | **-r17 -c150** | **-r12 -c200** |
| Число переходов | 30534 | 30919 | 31665 | 29983 |
| Доступность сервера | 100% | 100% | 100% | 99,95% |
| Время теста, с | 301.48 | 323.46 | 350.98 | 346.23 |
| Время отклика, с | 0.49 | 1.03 | 1.63 | 2.23 |
| Запросов в секунду | 101.28 | 95.59 | 90.22 | 86.60 |
| Пропускная способность,  МБ/сек | 10.32 | 9.84 | 9.21 | 8.98 |
| Согласованность | 49,46 | 98,28 | 146.64 | 192.87 |
| Удачных транзакций | 30344 | 30919 | 31665 | 29829 |
| Неудачных транзакций | 0 | 0 | 0 | 14 |
| Самая долгая транзакция, с | 17.31 | 34.43 | 50.05 | 60.55 |
| Память ОЗУ сервера Мб | 384 | 423 | 495 | 534 |

http://81.200.26.171/

http://81.200.26.171/products/

http://81.200.26.171/products/category/1/

http://81.200.26.171/products/category/2/

http://81.200.26.171/products/category/3/

http://81.200.26.171/products/category/4/

http://81.200.26.171/products/category/5/

http://81.200.26.171/products/category/6/

http://81.200.26.171/products/category/7/

http://81.200.26.171/products/category/8/

http://81.200.26.171/products/category/10/

http://81.200.26.171/basket/

http://81.200.26.171/order/

http://81.200.26.171/auth/edit/

http://81.200.26.171/order/read/6/

http://81.200.26.171/order/read/7/

http://81.200.26.171/order/read/8/

http://81.200.26.171/order/read/9/

http://81.200.26.171/order/update/9/

http://81.200.26.171/order/update/8/

http://81.200.26.171/order/update/7/

http://81.200.26.171/order/update/6/

http://81.200.26.171/products/category/0/page/1/

http://81.200.26.171/products/category/0/page/2/

http://81.200.26.171/products/category/0/page/3/

http://81.200.26.171/products/category/0/page/4/

http://81.200.26.171/products/category/0/page/5/

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -i -d0 -r50 -c50

\*\* SIEGE 4.0.4

\*\* Preparing 50 concurrent users for battle.

The server is now under siege...

Transactions: 30534 hits

Availability: 100.00 %

Elapsed time: 301.48 secs

Data transferred: 3111.06 MB

Response time: 0.49 secs

Transaction rate: 101.28 trans/sec

Throughput: 10.32 MB/sec

Concurrency: 49.46

Successful transactions: 30344

Failed transactions: 0

Longest transaction: 17.31

Shortest transaction: 0.00

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -i -d0 -r25 -c100

\*\* SIEGE 4.0.4

\*\* Preparing 100 concurrent users for battle.

The server is now under siege...

Transactions: 30919 hits

Availability: 100.00 %

Elapsed time: 323.46 secs

Data transferred: 3183.52 MB

Response time: 1.03 secs

Transaction rate: 95.59 trans/sec

Throughput: 9.84 MB/sec

Concurrency: 98.28

Successful transactions: 30734

Failed transactions: 0

Longest transaction: 34.43

Shortest transaction: 0.00

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -i -d0 -r17 -c150

\*\* SIEGE 4.0.4

\*\* Preparing 150 concurrent users for battle.

The server is now under siege...

Transactions: 31665 hits

Availability: 100.00 %

Elapsed time: 350.98 secs

Data transferred: 3231.49 MB

Response time: 1.63 secs

Transaction rate: 90.22 trans/sec

Throughput: 9.21 MB/sec

Concurrency: 146.64

Successful transactions: 31486

Failed transactions: 0

Longest transaction: 50.05

Shortest transaction: 0.00

root@geekshop:/home/django/django# siege -f /home/django/django/urls.txt -i -d0 -r12 -c200

\*\* SIEGE 4.0.4

\*\* Preparing 200 concurrent users for battle.

The server is now under siege...

Transactions: 29983 hits

Availability: 99.95 %

Elapsed time: 346.23 secs

Data transferred: 3109.30 MB

Response time: 2.23 secs

Transaction rate: 86.60 trans/sec

Throughput: 8.98 MB/sec

Concurrency: 192.87

Successful transactions: 29829

Failed transactions: 14

Longest transaction: 60.55

Shortest transaction: 0.00