

ab压测报告

Subtitle

2022/10/05



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ab压测报告

测试条件

- ab加-r参数 (Don't exit on socket receive errors.)
- ab加-s参数指定超时时间 (Seconds to max. wait for each response) , 避免aprpollsetpoll: The timeout specified has expired (70007)错误. [参考链接](#)
- 删除待测deployment的hpa , 部署一个pod , 避免扩容影响测试结果
- cpu 8000m , 内存10G 避免因为资源的问题干扰测试结果
- 压测页面为nginx 404页面
- 压测时间300s
- 待测服务配置ingress , 并加域名
- 容器 net.ipv4.ip/local/port_range配置为32768 61000

ab无k参数

Pod IP

```
/ # ab -c100 -t300 -n5000000 http://172.20.42.94/b; ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1826891 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

```
Benchmarking 172.20.42.94 (be patient)
Completed 500000 requests
Completed 1000000 requests
Completed 1500000 requests
Completed 2000000 requests
Finished 2470218 requests
```

```
Server Software:      nginx
Server Hostname:      172.20.42.94
Server Port:          80
```

```
Document Path:        /b
Document Length:       162 bytes
```

```
Concurrency Level:     100
Time taken for tests:   300.002 seconds
Complete requests:     2470218
Failed requests:        0
Non-2xx responses:     2470284
Total transferred:     753436620 bytes
HTML transferred:      400186008 bytes
Requests per second:   8234.00 [#/sec] (mean)
Time per request:      12.145 [ms] (mean)
Time per request:      0.121 [ms] (mean, across all concurrent requests)
Transfer rate:          2452.57 [Kbytes/sec] received
```

Connection Times (ms)					
	min	mean[+/-sd]	median	max	
Connect:	0	6 9.5	6	1010	
Processing:	1	6 4.3	6	412	
Waiting:	0	4 4.2	4	412	
Total:	2	12 10.5	12	1021	

Percentage of the requests served within a certain time (ms)

50%	12
66%	13
75%	14
80%	14
90%	16
95%	17
98%	17
99%	18
100%	1021 (longest request)

25

域名

```
/ # ab -c100 -t300 -n5000000 http://k8s.dev.example.com/b; ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1826891 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking k8s.dev.example.com (be patient)
Completed 500000 requests
Completed 1000000 requests
Completed 1500000 requests
Completed 2000000 requests
Completed 2500000 requests
Finished 2507606 requests

Server Software:
Server Hostname:      k8s.dev.example.com
Server Port:          80

Document Path:        /b
Document Length:       162 bytes

Concurrency Level:     100
Time taken for tests:   300.002 seconds
Complete requests:     2507606
Failed requests:        0
Non-2xx responses:     2507635
Total transferred:     727214150 bytes
HTML transferred:      406236870 bytes
Requests per second:   8358.62 [#/sec] (mean)
Time per request:      11.964 [ms] (mean)
Time per request:      0.120 [ms] (mean, across all concurrent requests)
```

Transfer rate: 2367.21 [Kbytes/sec] received

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	3 3.0	3	1008
Processing:	0	9 13.9	6	221
Waiting:	0	8 13.9	5	203
Total:	1	12 14.1	10	1019

Percentage of the requests served within a certain time (ms)

50%	10
66%	11
75%	12
80%	13
90%	18
95%	41
98%	67
99%	77
100%	1019 (longest request)

46

ClusterIP

```
/ # ab -r -c100 -t300 -n5000000 -s300 http://169.169.14.147/b; ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1826891 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

```
Benchmarking 169.169.14.147 (be patient)
apr_pollset_poll: The timeout specified has expired (70007)
Total of 34163 requests completed
103
```

总结

- 容器ip: 完成247万请求，平均12.1ms, 99% 18ms以内，容器cpu使用约3500m
- 域名：完成250万请求，平均11.9ms 90% 18ms以内，容器cpu使用约700m 可能是因为nginx upstream配置了keepalive
- clusterIP: 完成3.4万请求，报错 `apr_pollsetpoll: The timeout specified has expired (70007)`退出

ab加k参数

Pod IP

```
/ # ab -r -c100 -t300 -n20000000 -k http://172.20.42.94/b; ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1826891 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

```
Benchmarking 172.20.42.94 (be patient)
Completed 2000000 requests
Completed 4000000 requests
```

```
Completed 6000000 requests
Completed 8000000 requests
Completed 10000000 requests
Completed 12000000 requests
Finished 13954519 requests

Server Software:      nginx
Server Hostname:      172.20.42.94
Server Port:          80

Document Path:        /b
Document Length:      162 bytes

Concurrency Level:     100
Time taken for tests:   300.001 seconds
Complete requests:     13954519
Failed requests:        0
Non-2xx responses:     13954519
Keep-Alive requests:   13815022
Total transferred:     4325203405 bytes
HTML transferred:      2260632078 bytes
Requests per second:   46514.89 [#/sec] (mean)
Time per request:      2.150 [ms] (mean)
Time per request:      0.021 [ms] (mean, across all concurrent requests)
Transfer rate:         14079.39 [Kbytes/sec] received

Connection Times (ms)
      min  mean[+/-sd] median  max
Connect:    0    0  0.3      0   14
Processing:  0    2  0.8      2   18
Waiting:    0    2  0.8      2   18
Total:      0    2  0.9      2   27

Percentage of the requests served within a certain time (ms)
 50%    2
 66%    2
 75%    2
 80%    3
 90%    4
 95%    4
 98%    5
 99%    5
100%   27 (longest request)
3
```

域名

```
/ # ab -r -c100 -t300 -n20000000 -k http://k8s.dev.example.com/b; ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1826891 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking k8s.dev.example.com (be patient)

Completed 2000000 requests

Completed 4000000 requests

Completed 6000000 requests

Completed 8000000 requests

Completed 10000000 requests

Finished 11002187 requests

Server Software:

Server Hostname: k8s.dev.example.com

Server Port: 80

Document Path: /b

Document Length: 162 bytes

Concurrency Level: 100

Time taken for tests: 300.000 seconds

Complete requests: 11002187

Failed requests: 0

Non-2xx responses: 11002187

Keep-Alive requests: 10892208

Total transferred: 3245095270 bytes

HTML transferred: 1782354294 bytes

Requests per second: 36673.93 [#/sec] (mean)

Time per request: 2.727 [ms] (mean)

Time per request: 0.027 [ms] (mean, across all concurrent requests)

Transfer rate: 10563.45 [Kbytes/sec] received

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	0 0.1	0	15
Processing:	0	3 4.9	2	323
Waiting:	0	3 4.9	2	323
Total:	0	3 4.9	2	324

Percentage of the requests served within a certain time (ms)

50%	2
66%	2
75%	3
80%	3
90%	5
95%	8
98%	15
99%	22
100%	324 (longest request)

3

ClusterIP

/ # ab -r -c100 -t300 -n20000000 -k http://169.169.14.147/b; ss -ant |wc -l

This is ApacheBench, Version 2.3 <\$Revision: 1826891 \$>

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Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking 169.169.14.147 (be patient)

Completed 2000000 requests

Completed 4000000 requests

Completed 6000000 requests

Completed 8000000 requests

Completed 10000000 requests

Finished 11123175 requests

Server Software: nginx

Server Hostname: 169.169.14.147

Server Port: 80

Document Path: /b

Document Length: 162 bytes

Concurrency Level: 100

Time taken for tests: 300.000 seconds

Complete requests: 11123175

Failed requests: 0

Non-2xx responses: 11123176

Keep-Alive requests: 11011978

Total transferred: 3447628570 bytes

HTML transferred: 1801954512 bytes

Requests per second: 37077.23 [#/sec] (mean)

Time per request: 2.697 [ms] (mean)

Time per request: 0.027 [ms] (mean, across all concurrent requests)

Transfer rate: 11222.74 [Kbytes/sec] received

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	1 33.1	0	1012
Processing:	0	2 0.9	1	205
Waiting:	0	2 0.9	1	205
Total:	0	3 33.1	1	1019

WARNING: The median and mean for the processing time are not within a normal deviation
These results are probably not that reliable.

WARNING: The median and mean for the waiting time are not within a normal deviation
These results are probably not that reliable.

Percentage of the requests served within a certain time (ms)

50%	1
66%	2
75%	2
80%	2
90%	3
95%	3
98%	4
99%	5

100% 1019 (longest request)
34

ipvsadm -ln

TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	55	28169
TCP 169.169.31.173:80 rr				
TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	49	28177
TCP 169.169.31.173:80 rr				
TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	44	28179
TCP 169.169.31.173:80 rr				
TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	68	28156
TCP 169.169.31.173:80 rr				
TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	61	28162
TCP 169.169.31.173:80 rr				
TCP 169.169.14.147:80 rr				
-> 172.20.42.94:80	Masq	1	55	28169

总结

- 容器IP: 完成 1395.4 万，平均2.1ms□99% 5ms以内，容器cpu使用约3200m
- 域名：完成1100.2 万，平均2.7ms, 90% 5ms以内，容器cpu使用约2548m
- clusterIP: 完成 1112.3 万，平均 2.69ms□99% 5ms以内，容器cpu使用约2500m

obsolete

短连接（无-k参数）时，ss -ant |wc -l 看到的数量很少，可能是因为短连接时主动断开连接的是服务端，客户端没有TIME-WAIT状态。

```
/ # ab -c100 -t30 -q "http://169.169.14.147/b";ss -ant |wc -l This is ApacheBench, Version 2.3
<$Revision: 1843412 $> Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking 169.169.14.147 (be patient).....done

Server Software: nginx Server Hostname: 169.169.14.147 Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 100 Time taken for tests: 30.020 seconds Complete requests: 15988 Failed requests: 0 Non-2xx responses: 16050 Total transferred: 4895250 bytes HTML transferred: 2600100 bytes Requests per second: 532.58 [#/sec] (mean) Time per request: 187.766 [ms] (mean) Time per request: 1.878 [ms] (mean, across all concurrent requests) Transfer rate: 159.24 [Kbytes/sec] received

Connection Times (ms)

min	mean[+/-sd]	median	max
-----	-------------	--------	-----

Connect: 0 116 319.1 0 1009 Processing: 0 4 16.0 1 225 Waiting: 0 3 12.3 0 224 Total: 0 120 318.5 1 1056

Percentage of the requests served within a certain time (ms)

50%	1
66%	2
75%	7
80%	11
90%	1002
95%	1003
98%	1004
99%	1004

100% 1056 (longest request)

ss -ant: 1431

```
[root@k8s-node-199 ~]# ipvsadm -ln |grep -A1 "14.147" TCP 169.169.14.147:80 rr
```

```
1. > 172.20.36.44:80 Masq 1 0 8976
```

```
/ # ab -c100 -t30 -q "http://k8s.dev.scloud.k8s-demo.cn/b";ss -ant |wc -l This is ApacheBench, Version 2.3 <$Revision: 1843412 $> Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/ Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking k8s.dev.scloud.k8s-demo.cn (be patient).....done

Server Software:

Server Hostname: k8s.dev.scloud.k8s-demo.cn Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 100 Time taken for tests: 7.659 seconds Complete requests: 50000 Failed requests: 0 Non-2xx responses: 50000 Total transferred: 14500000 bytes HTML transferred: 8100000 bytes Requests per second: 6528.06 [#/sec] (mean) Time per request: 15.318 [ms] (mean) Time per request: 0.153 [ms] (mean, across all concurrent requests) Transfer rate: 1848.77 [Kbytes/sec] received

Connection Times (ms)

min	mean[+/-sd]	median	max
-----	-------------	--------	-----

Connect: 0 6 2.8 5 24 Processing: 1 10 6.9 8 86 Waiting: 1 8 6.4 6 86 Total: 2 15 7.2 13 88

Percentage of the requests served within a certain time (ms)

50%	13
66%	16
75%	18
80%	20

```
90% 24
95% 29
98% 37
99% 42
```

100% 88 (longest request) 55

```
[root@k8s-node-199 kubernetes]# ipvsadm -ln |grep -A1 "14.147" TCP 169.169.14.147:80 rr
```

```
1. > 172.20.36.44:80 Masq 1 0 0
```

```
/ # ab -c500 -t30 -q "http://k8s.dev.scloud.k8s-demo.cn/b";ss -ant |wc -l This is ApacheBench, Version
2.3 <$Revision: 1843412 $> Copyright 1996 Adam Twiss, Zeus Technology Ltd,
http://www.zeustech.net/ Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking k8s.dev.scloud.k8s-demo.cn (be patient).....done

Server Software:

Server Hostname: k8s.dev.scloud.k8s-demo.cn Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 500 Time taken for tests: 8.952 seconds Complete requests: 50000 Failed requests: 0 Non-2xx responses: 50000 Total transferred: 14500000 bytes HTML transferred: 8100000 bytes Requests per second: 5585.19 [#/sec] (mean) Time per request: 89.522 [ms] (mean) Time per request: 0.179 [ms] (mean, across all concurrent requests) Transfer rate: 1581.74 [Kbytes/sec] received

Connection Times (ms)

```
min mean[+/-sd] median max
```

```
Connect: 0 20 49.8 16 1034 Processing: 4 57 203.2 32 5013 Waiting: 2 50 202.5 26 5012 Total: 10 77
207.7 53 5025
```

Percentage of the requests served within a certain time (ms)

```
50% 53
66% 63
75% 70
80% 75
90% 86
95% 100
98% 268
99% 1028
```

100% 5025 (longest request) 200

```
/ # ab -c500 -t30 -q -k "http://k8s.dev.scloud.k8s-demo.cn/b";ss -ant |wc -l This is ApacheBench,
Version 2.3 <$Revision: 1843412 $> Copyright 1996 Adam Twiss, Zeus Technology Ltd,
http://www.zeustech.net/ Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking k8s.dev.scloud.k8s-demo.cn (be patient).....done

Server Software:
Server Hostname: k8s.dev.scloud.k8s-demo.cn Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 500 Time taken for tests: 8.930 seconds Complete requests: 50000 Failed requests: 0 Non-2xx responses: 50000 Keep-Alive requests: 49656 Total transferred: 14748280 bytes HTML transferred: 8100000 bytes Requests per second: 5599.03 [#/sec] (mean) Time per request: 89.301 [ms] (mean) Time per request: 0.179 [ms] (mean, across all concurrent requests) Transfer rate: 1612.81 [Kbytes/sec] received

Connection Times (ms)

min	mean[+/-sd]	median	max
-----	-------------	--------	-----

Connect: 0 0 3.6 0 48 Processing: 1 79 352.7 81 8014 Waiting: 1 79 352.7 81 8014 Total: 1 79 353.6 82 8047

Percentage of the requests served within a certain time (ms)

50%	82
66%	89
75%	93
80%	95
90%	102
95%	107
98%	115
99%	287

100% 8047 (longest request) 499

端口不够用？

```
/ # ab -c500 -t300 -q "http://169.169.14.147/b";ss -ant |wc -l
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 169.169.14.147 (be patient)...apr_pollset_poll: The timeout specified has expired (70007)
Total of 49966 requests completed
1848
```

```
/ # ab -c100 -t300 -q "http://169.169.14.147/b";ss -ant |wc -l This is ApacheBench, Version 2.3
<$Revision: 1843412 $> Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/
```

Benchmarking 169.169.14.147 (be patient)...aprsocketrecv: Connection reset by peer (104) Total of 31099 requests completed 1517

TCP 169.169.14.147:80 rr

- 1. > 172.20.36.44:80 Masq 1 83 26090
TCP 169.169.14.147:80 rr
- 2. > 172.20.36.44:80 Masq 1 85 26160
TCP 169.169.14.147:80 rr
- 3. > 172.20.36.44:80 Masq 1 85 26179
TCP 169.169.14.147:80 rr
- 4. > 172.20.36.44:80 Masq 1 85 26179
TCP 169.169.14.147:80 rr
- 5. > 172.20.36.44:80 Masq 1 85 26216
TCP 169.169.14.147:80 rr
- 6. > 172.20.36.44:80 Masq 1 87 26231

/ # ab -c100 -t300 -n 500000 -q “<http://k8s.dev.scloud.k8s-demo.cn/b>”;ss -ant |wc -l This is ApacheBench, Version 2.3 <\$Revision: 1843412 \$> Copyright 1996 Adam Twiss, Zeus Technology Ltd, <http://www.zeustech.net/> Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking k8s.dev.scloud.k8s-demo.cn (be patient).....done

Server Software:
Server Hostname: k8s.dev.scloud.k8s-demo.cn Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 100 Time taken for tests: 80.888 seconds Complete requests: 500000 Failed requests: 0 Non-2xx responses: 500000 Total transferred: 145000000 bytes HTML transferred: 81000000 bytes Requests per second: 6181.36 [# /sec] (mean) Time per request: 16.178 [ms] (mean) Time per request: 0.162 [ms] (mean, across all concurrent requests) Transfer rate: 1750.58 [Kbytes/sec] received

Connection Times (ms)

min	mean[+/-sd]	median	max
-----	-------------	--------	-----

Connect: 0 6 5.8 5 1018 Processing: 1 10 6.8 8 249 Waiting: 0 8 6.3 6 226 Total: 1 16 8.9 15 1056

Percentage of the requests served within a certain time (ms)

50%	15
66%	17
75%	19
80%	20
90%	24
95%	29
98%	38
99%	44

100% 1056 (longest request) 72

宿主机上测试clusterIP[]local port从2000到65000，可用端口6万多

TCP 169.169.14.147:80 rr				
-> 172.20.36.44:80	Masq	1	0	62945
TCP 169.169.14.147:80 rr				

-> 172.20.36.44:80	Masq	1	0	62943
TCP 169.169.14.147:80 rr				
-> 172.20.36.44:80	Masq	1	0	62941
TCP 169.169.14.147:80 rr				
-> 172.20.36.44:80	Masq	1	0	62941
TCP 169.169.14.147:80 rr				
-> 172.20.36.44:80	Masq	1	0	62941
TCP 169.169.14.147:80 rr				
-> 172.20.36.44:80	Masq	1	0	62941

keepalive可用完成clusterIP测试 [root@k8s-node-199 ~]# ab -c100 -t300 -n 500000 -q "http://169.169.14.147/b";ss -ant |wc -l This is ApacheBench, Version 2.3 <\$Revision: 1430300 \$> Copyright 1996 Adam Twiss, Zeus Technology Ltd, <http://www.zeustech.net/> Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking 169.169.14.147 (be patient)...aprsocketrecv: Connection reset by peer (104) Total of 63443 requests completed 102 [root@k8s-node-199 ~]# ab -c100 -t300 -n 500000 -q -k "http://169.169.14.147/b";ss -ant |wc -l This is ApacheBench, Version 2.3 <\$Revision: 1430300 \$> Copyright 1996 Adam Twiss, Zeus Technology Ltd, <http://www.zeustech.net/> Licensed to The Apache Software Foundation, <http://www.apache.org/>

Benchmarking 169.169.14.147 (be patient).....done

Server Software: nginx Server Hostname: 169.169.14.147 Server Port: 80

Document Path: /b Document Length: 162 bytes

Concurrency Level: 100 Time taken for tests: 70.406 seconds Complete requests: 500000 Failed requests: 0 Write errors: 0 Non-2xx responses: 500000 Keep-Alive requests: 495045 Total transferred: 154975225 bytes HTML transferred: 81000000 bytes Requests per second: 7101.62 [#/sec] (mean) Time per request: 14.081 [ms] (mean) Time per request: 0.141 [ms] (mean, across all concurrent requests) Transfer rate: 2149.56 [Kbytes/sec] received

Connection Times (ms)

min	mean[+/-sd]	median	max
-----	-------------	--------	-----

Connect: 0 0 0.5 0 18 Processing: 0 14 25.4 4 220 Waiting: 0 14 25.4 4 220 Total: 0 14 25.4 4 220

Percentage of the requests served within a certain time (ms)

50%	4
66%	5
75%	6
80%	7
90%	72
95%	80
98%	85
99%	87

100% 220 (longest request) 190

Printed on: 2022/10/05 18:00

Convert to img Failed!