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squid

selinux 설정

```
# 기본적으로 squid는 아래 포트를 사용한다.
semanage port -l | grep -w -i squid_port_t
squid_port_t                   tcp      3128, 3401, 4827
squid_port_t                   udp      3401, 4827

# 포트를 10000으로 변경했을경우 해당 포트에 태깅 추가
semanage port -a -t squid_port_t -p tcp 10000
```

cache_dir 매개변수에서 /var/spool/squid/ 와 다른 캐시 디렉터리를 설정하는 경우 디렉토리 권한 설정 후 selinux 컨텍스트를 설정한다.

```
$ chown squid:squid path_to_cache_directory
$ semanage fcontext -a -t squid_cache_t "path_to_cache_directory(/.*)?"
$ restorecon -Rv path_to_cache_directory
```

방화벽 구성은 아래와 같이 설정한다.

```
$ firewall-cmd --permanent --add-port=3128/tcp
$ firewall-cmd --reload

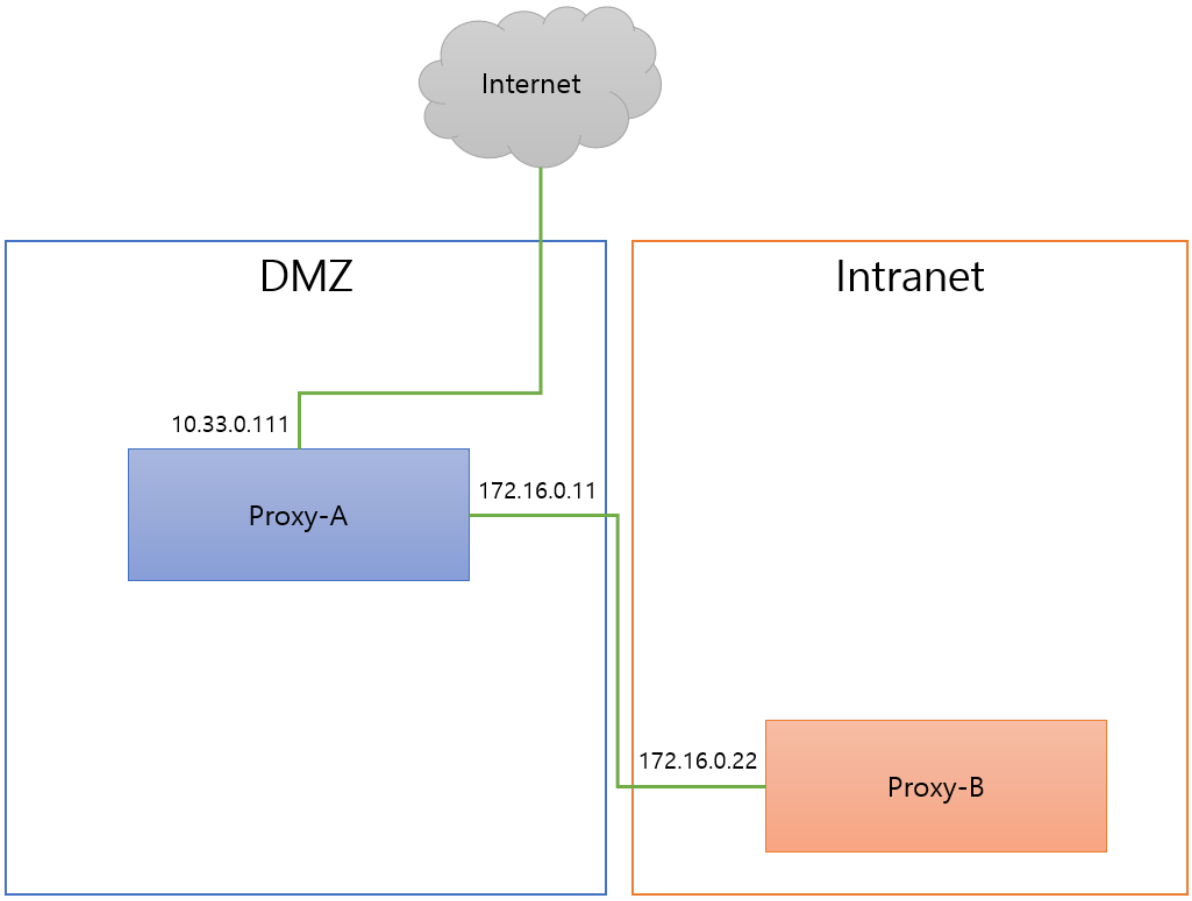
$ systemctl enable --now squid
```

동작 테스트

```
$ curl -O -L "https://www.redhat.com/index.html" -x "proxy.example.com:3128"
```

2-teer hierachical proxy

아래처럼 구성하려고 할 때 squid.conf에 cache_peer설정을 하면 된다.



/etc/squid/squid.conf

```
#
# INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR CLIENTS
#
cache_peer 172.16.0.11 parent 3128 0 no-query no-digest
never_direct allow all
```

참조링크

- https://docs.redhat.com/ko/documentation/red_hat_enterprise_linux/8/html/deploying_different_types_of_servers/configuring-the-squid-caching-proxy-server_deploying-different-types-of-servers

squidclient 사용법

`squidclient -p <port> mgr:menu` 명령어는 조회가능한 관리 메뉴 목록을 나열한다.

```
[root@proxy-a ~]# squidclient mgr:menu
HTTP/1.1 200 OK
```

```
Server: squid/5.5
Mime-Version: 1.0
Date: Thu, 13 Feb 2025 05:23:36 GMT
Content-Type: text/plain;charset=utf-8
Expires: Thu, 13 Feb 2025 05:23:36 GMT
Last-Modified: Thu, 13 Feb 2025 05:23:36 GMT
X-Cache: MISS from proxy-a
X-Cache-Lookup: MISS from proxy-a:3128
Via: 1.1 proxy-a (squid/5.5)
Connection: close

 index                  Cache Manager Interface            public
 menu                   Cache Manager Menu                 public
 offline_toggle         Toggle offline_mode setting        hidden
 shutdown               Shut Down the Squid Process        hidden
 reconfigure            Reconfigure Squid                  hidden
 rotate                 Rotate Squid Logs                  hidden
 cached_ssl_cert        Statistic of cached generated ssl certificates
public
 pconn                  Persistent Connection Utilization Histograms
public
 mem                    Memory Utilization                 public
 squidaio_counts        Async IO Function Counters         public
 diskd                  DISKD Stats                        public
 config                 Current Squid Configuration        hidden
 client_list            Cache Client List                  public
 comm_epoll_incoming    comm_incoming() stats              public
 ipcache                IP Cache Stats and Contents        public
 fqdncache              FQDN Cache Stats and Contents      public
 idns                   Internal DNS Statistics            public
 redirector             URL Redirector Stats               public
 store_id               StoreId helper Stats               public
 external_acl           External ACL stats                 public
 http_headers           HTTP Header Statistics             public
 info                   General Runtime Information        public
 service_times          Service Times (Percentiles)        public
 filedescriptors        Process Filedescriptor Allocation   public
 objects                All Cache Objects                  public
 vm_objects             In-Memory and In-Transit Objects   public
 io                     Server-side network read() size histograms    public
 counters               Traffic and Resource Counters      public
 peer_select            Peer Selection Algorithms          public
 digest_stats           Cache Digest and ICP blob          public
 5min                   5 Minute Average of Counters       public
 60min                  60 Minute Average of Counters      public
 utilization            Cache Utilization                  public
 histograms             Full Histogram Counts              public
 active_requests        Client-side Active Requests        public
 username_cache         Active Cached Usernames            public
 openfd_objects         Objects with Swapout files open    public
 store_digest           Store Digest                       public
```

```
 store_log_tags         Histogram of store.log tags         public
 storedir               Store Directory Stats               public
 store_io               Store IO Interface Stats            public
 store_check_cachable_stats storeCheckCachable() Stats         public
 refresh                Refresh Algorithm Statistics        public
 delay                  Delay Pool Levels                   public
 forward                Request Forwarding Statistics       public
 cbdata                 Callback Data Registry Contents     public
 sbuf                   String-Buffer statistics            public
 events                 Event Queue                         public
 asndb                  AS Number Database                  public
 carp                   CARP information                    public
 userhash               peer userhash information           public
 sourcehash             peer sourcehash information         public
 server_list            Peer Cache Statistics               public
```

squid 메모리 현황

대표적인 관리 메뉴중 하나로 현재 동작중인 squid의 메모리 사용 현황을 조회할 수 있다.

```
squidclient -p <port> mgr:mem
```

```
[root@proxy-a ~]# squidclient mgr:mem
HTTP/1.1 200 OK
Server: squid/5.5
Mime-Version: 1.0
Date: Thu, 13 Feb 2025 05:24:42 GMT
Content-Type: text/plain;charset=utf-8
Expires: Thu, 13 Feb 2025 05:24:42 GMT
Last-Modified: Thu, 13 Feb 2025 05:24:42 GMT
X-Cache: MISS from proxy-a
X-Cache-Lookup: MISS from proxy-a:3128
Via: 1.1 proxy-a (squid/5.5)
Connection: close

Current memory usage:
Pool     Obj Size    Chunks                              Allocated
In Use                    Idle            Allocations Saved            Rate
     (bytes)    KB/ch     obj/ch    (#)     used     free     part     %Frag
(#)     (KB)     high (KB)     high (hrs)     %Tot    (#)     (KB)     high
(KB)     high (hrs)     %alloc    (#)     (KB)     high (KB)    (#)     %cnt
%vol    (#)/sec
mem_node                 4136                                          431
1741     2093     70.19     37.370     315     1273     2093     70.19
73.086     116     469     1192     2190     0.285     11.758     0.013
16KB Strings             16384                                          39
624     624     70.19     13.395     1     16     624     70.19     2.564
38     608     624     242     0.031     5.147     0.009
cbdata clientReplyContext (10)   4360
```

```
76     324     324     70.13     6.947     9     39     324     70.13
11.842     67     286     290     484     0.063     2.739     0.009
4KB Strings              4096                                          80
320     320     70.19     6.869     1     4     320     70.19     1.250
79     316     320     619     0.081     3.291     0.009
Stream                   4224                                          68
281     281     70.19     6.021     1     5     281     70.19     1.471
67     277     281     492     0.064     2.698     0.009
HttpRequest              1872                                          136
249     249     70.19     5.337     52     96     249     70.19     38.235
84     154     156     546     0.071     1.327     0.009
Long Strings             512                                           356
178     178     70.13     3.821     198     99     178     70.13     55.618
158     79     80     2363     0.307     1.571     0.037
Short Strings             40                                           3393
133     204     70.18     2.845     3253     128     204     70.18
95.874     140     6     47     55577     7.231     2.886     0.741
MemBlob                   48                                           1661
78     118     70.18     1.671     1488     70     118     70.18     89.585
173     9     30     45025     5.858     2.805     0.372
cbdata idns_query (16)   8704                                          9
77     77     70.06     1.642     0     0     77     70.06     0.000     9
77     77     502     0.065     5.672     0.000
HttpReply                296                                           221
64     64     70.13     1.371     143     42     64     70.13     64.706
78     23     23     1044     0.136     0.401     0.028
cbdata Server (8)        776                                           80
61     61     70.19     1.301     1     1     61     70.19     1.250     79
60     61     344     0.045     0.347     0.009
HttpHeaderEntry           56                                           1101
61     98     70.18     1.293     1079     60     98     70.18     98.002
22     2     34     9374     1.220     0.681     0.194
Medium Strings           128                                           440
55     55     70.13     1.181     315     40     55     70.13     71.591
125     16     19     11984     1.559     1.991     0.000
MemObject                328                                           144
47     47     70.05     0.990     143     46     47     70.05     99.306
1     1     2     216     0.028     0.092     0.009
2K Buffer                2048                                          20
40     40     70.21     0.859     3     6     40     70.21     15.000     17
34     34     2211     0.288     5.878     0.037
cbdata IdleConnList (25)     4168                                      9
37     37     70.05     0.786     0     0     37     70.05     0.000     9
37     37     64     0.008     0.346     0.000
cbdata TunnelStateData (14)   496                                      66
32     32     70.14     0.686     0     0     32     70.14     0.000     66
32     32     285     0.037     0.183     0.000
cbdata ipcache_entry (3)      200                                      160
32     32     69.72     0.671     160     32     32     69.72     100.000
0     0     2     123     0.016     0.032     0.000
cbdata ClientHttpRequest (9)      408
```

```
68     28     28     70.19     0.582     1     1     28     70.19     1.471
67     27     28     492     0.064     0.261     0.009
cbdata HappyConnOpener (17)   376                                        68
25     25     70.13     0.536     0     0     25     70.13     0.000     68
25     25     476     0.062     0.232     0.000
MimeEntry                144                                          177
25     25     70.26     0.534     177     25     25     70.26     100.000
0     0     0     0     0.000     0.000     0.000
StoreEntry               120                                          157
19     19     70.05     0.395     156     19     19     70.05     99.363
1     1     1     210     0.027     0.033     0.009
cbdata clientStreamNode (11)      128
136     17     17     70.19     0.365     2     1     17     70.19     1.471
134     17     17     984     0.128     0.163     0.018
8K Buffer                8192                                          2
16     16     70.19     0.343     0     0     16     70.19     0.000     2
16     16     55     0.007     0.585     0.000
16K Buffer               16384                                          1
16     16     70.13     0.343     0     0     16     70.13     0.000     1
16     16     1     0.000     0.021     0.000
Comm::Connection          216                                          64
14     86     70.19     0.290     2     1     86     70.19     3.125     62
14     65     3021     0.393     0.847     0.009
HttpHdrCc                 96                                           90
9     9     70.21     0.181     58     6     9     70.21     64.444     32
3     4     375     0.049     0.047     0.000
cbdata HttpStateData (24)     368                                        23
9     9     70.19     0.177     0     0     9     70.19     0.000     23
9     9     165     0.021     0.079     0.000
cbdata store_client (22)      296                                        25
8     8     70.19     0.155     1     1     8     70.19     4.000     24
7     8     242     0.031     0.093     0.009
cbdata FwdState (23)      304                                          24
8     8     70.19     0.153     0     0     8     70.19     0.000     24
8     8     169     0.022     0.067     0.000
ResolvedPeers             72                                           68
5     5     70.13     0.103     0     0     5     70.13     0.000     68
5     5     476     0.062     0.044     0.000
LRU policy node           24                                           194
5     5     70.13     0.098     193     5     5     70.13     99.485     1
1     1     64     0.008     0.002     0.000
4K Buffer                4096                                          1     4
4     70.19     0.086     0     0     4     70.19     0.000     1     4
4     62     0.008     0.330     0.000
cbdata ConnOpener (18)    144                                          25
4     4     70.19     0.075     0     0     4     70.19     0.000     25
4     4     617     0.080     0.115     0.000
MD5 digest                16                                           157
3     3     70.05     0.053     156     3     3     70.05     99.363     1
1     1     509     0.066     0.011     0.009
BodyPipe                  136                                          16
```

```
3     3     70.21     0.046     0     0     3     70.21     0.000     16
3     3     44     0.006     0.008     0.000
cbdata PeerSelector (15)      296                                        7
3     3     70.22     0.043     0     0     3     70.22     0.000     7
3     3     537     0.070     0.206     0.000
1KB Strings              1024                                        2     2
2     70.26     0.043     0     0     2     70.26     0.000     2     2
2     56     0.007     0.074     0.000
cbdata UFSStoreState (26)     328                                        5
2     2     70.19     0.034     0     0     2     70.19     0.000     5
2     2     125     0.016     0.053     0.000
cbdata ErrorState (20)    272                                        6     2
2     70.22     0.034     0     0     2     70.22     0.000     6     2
2     279     0.036     0.099     0.000
AndNode                   120                                        13
2     2     70.26     0.033     13     2     2     70.26     100.000     0
0     0     0     0.000     0.000     0.000
acl_ip_data                96                                        15
2     2     70.26     0.030     15     2     2     70.26     100.000     0
0     1     2     0.000     0.000     0.000
cbdata Tree (1)           176                                        7     2
2     70.26     0.026     7     2     2     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ClientInfo                464                                        2     1
1     70.22     0.019     2     1     1     70.22     100.000     0     0
0     0     0.000     0.000     0.000
cbdata RebuildState (5)   920                                        1     1
1     70.26     0.019     0     0     1     70.26     0.000     1     1
1     0     0.000     0.000     0.000
fqdncache_entry           160                                        5     1
1     70.22     0.017     3     1     1     70.22     60.000     2     1
1     14     0.002     0.003     0.000
ACLStrategised            120                                        5     1
1     70.26     0.013     5     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ev_entry                   48                                        12
1     1     70.25     0.012     10     1     1     70.25     83.333     2
1     1     595617     77.498     37.112     2.350
cbdata ACLFilledChecklist (13)    504
1     1     1     70.25     0.011     1     1     1     70.25     100.000
0     0     1     559     0.073     0.366     0.009
cbdata BlockingFile (27)       88                                        5
1     1     70.19     0.009     0     0     1     70.19     0.000     5
1     1     125     0.016     0.014     0.000
RefreshPattern            144                                        3     1
1     70.26     0.009     3     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
cbdata Logfile (4)        352                                        1     1
1     70.26     0.007     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLSslErrorData            64                                        5     1
```

```
1     70.26     0.007     5     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLSourceIP               104                                        3     1
1     70.26     0.007     3     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLStrategised            120                                        2     1
1     70.26     0.005     2     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
NotNode                   120                                        2     1
1     70.26     0.005     2     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
FwdServer                  32                                        7     1
1     70.22     0.005     0     0     1     70.22     0.000     7     1
1     537     0.070     0.022     0.000
cbdata RemovalPolicy (2)      104                                        2
1     1     70.26     0.004     2     1     1     70.26     100.000     0
0     0     0     0.000     0.000     0.000
cbdata LocalSearch (7)     80                                        2     1
1     70.26     0.003     1     1     1     70.26     50.000     1     1
1     70     0.009     0.007     0.000
cbdata generic_cbdata (21)     32                                        5
1     1     70.19     0.003     0     0     1     70.19     0.000     5
1     1     142     0.018     0.006     0.000
ACLStrategised            120                                        1     1
1     70.26     0.003     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLStrategised            120                                        1     1
1     70.26     0.003     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLDestinationIP          112                                        1     1
1     70.26     0.002     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
cbdata ClientRequestContext (12)      112
1     1     1     70.25     0.002     0     0     1     70.25     0.000
1     1     1     559     0.073     0.081     0.009
cbdata TcpAcceptor (6)    104                                        1     1
1     70.26     0.002     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
cbdata CbDataList (29)     96                                        1     1
1     70.19     0.002     0     0     1     70.19     0.000     1     1
1     215     0.028     0.027     0.000
cbdata WriteRequest (28)       80                                        1
1     1     70.21     0.002     0     0     1     70.21     0.000     1
1     1     2810     0.366     0.292     0.000
StoreSwapLogData           72                                        1     1
1     70.26     0.002     0     0     1     70.26     0.000     1     1
1     170     0.022     0.016     0.000
cbdata MemBuf (19)         72                                        1     1
1     70.25     0.002     0     0     1     70.25     0.000     1     1
1     551     0.072     0.051     0.009
cbdata RemovalPolicyWalker (30)    56
```

```
1     1     1     62.40     0.001     0     0     1     62.40     0.000
1     1     1     0     0.000     0.000     0.000
dwrite_q                    48                                          1     1
1     70.26     0.001     0     0     1     70.26     0.000     1     1
1     2982     0.388     0.186     0.000
CacheDigest                 40                                          1     1
1     70.26     0.001     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLRegexData                32                                          1     1
1     70.26     0.001     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
ACLMethodData               32                                          1     1
1     70.26     0.001     1     1     1     70.26     100.000     0     0
0     0     0.000     0.000     0.000
StoreMetaMD5                32                                          1     1
1     70.21     0.001     0     0     1     70.21     0.000     1     1
1     129     0.017     0.005     0.000
StoreMetaSTDLFS             32                                          1     1
1     70.21     0.001     0     0     1     70.21     0.000     1     1
1     129     0.017     0.005     0.000
StoreMetaURL                32                                          1     1
1     70.21     0.001     0     0     1     70.21     0.000     1     1
1     129     0.017     0.005     0.000
StoreMetaObjSize            32                                          1     1
1     70.21     0.001     0     0     1     70.21     0.000     1     1
1     104     0.014     0.004     0.000
StoreMetaVary               32                                          1     1
1     70.19     0.001     0     0     1     70.19     0.000     1     1
1     50     0.007     0.002     0.000
SysErrorDetail              32                                          1     1
1     70.15     0.001     0     0     1     70.15     0.000     1     1
1     0     0.000     0.000     0.000
Total                        1                                          9924
4659     5096     70.19     100.000     7990     2016     3583     70.13
43.274     1934     2643     2749     747538     97.265     91.422
1012.782
Cumulative allocated volume: 77.04 MB
Current overhead: 26284 bytes (1.273%)
Idle pool limit: 5.00 MB
Total Pools created: 84
Pools ever used:     81 (shown above)
Currently in use:    48
String Pool  Impact
     (%strings)     (%volume)
Short Strings            86     45
Medium Strings           8     14
Long Strings             5     35
1KB Strings              0     0
4KB Strings              0     1
16KB Strings             0     6
Other Strings            0     0
```

```
Large buffers: 0 (0 KB)
```

동작 정보

squidclient -p <port> mgr:info

```
[root@proxy-a ~]# squidclient mgr:info
HTTP/1.1 200 OK
Server: squid/5.5
Mime-Version: 1.0
Date: Thu, 13 Feb 2025 05:25:01 GMT
Content-Type: text/plain;charset=utf-8
Expires: Thu, 13 Feb 2025 05:25:01 GMT
Last-Modified: Thu, 13 Feb 2025 05:25:01 GMT
X-Cache: MISS from proxy-a
X-Cache-Lookup: MISS from proxy-a:3128
Via: 1.1 proxy-a (squid/5.5)
Connection: close

Squid Object Cache: Version 5.5
Build Info:
Service Name: squid
Start Time: Mon, 10 Feb 2025 07:08:49 GMT
Current Time:   Thu, 13 Feb 2025 05:25:01 GMT
Connection information for squid:
    Number of clients accessing cache:    2
    Number of HTTP requests received:    560
    Number of ICP messages received:    0
    Number of ICP messages sent:    0
    Number of queued ICP replies:    0
    Number of HTCP messages received:    0
    Number of HTCP messages sent:    0
    Request failure ratio:     0.00
    Average HTTP requests per minute since start:    0.1
    Average ICP messages per minute since start:    0.0
    Select loop called: 657258 times, 384.889 ms avg
Cache information for squid:
    Hits as % of all requests:    5min: 0.0%, 60min: 0.0%
    Hits as % of bytes sent:    5min: 100.0%, 60min: 100.0%
    Memory hits as % of hit requests:    5min: 0.0%, 60min: 0.0%
    Disk hits as % of hit requests:    5min: 0.0%, 60min: 0.0%
    Storage Swap size:    10544 KB
    Storage Swap capacity:    10.3% used, 89.7% free
    Storage Mem size:    1256 KB
    Storage Mem capacity:     0.5% used, 99.5% free
    Mean Object Size:    102.37 KB
    Requests given to unlinkd:    34
Median Service Times (seconds)  5 min    60 min:
    HTTP Requests (All):   0.00000  0.00000
```

```
    Cache Misses:          0.00000  0.00000
    Cache Hits:            0.00000  0.00000
    Near Hits:             0.00000  0.00000
    Not-Modified Replies:  0.00000  0.00000
    DNS Lookups:           0.00000  0.00000
    ICP Queries:           0.00000  0.00000
Resource usage for squid:
    UP Time:    252971.655 seconds
    CPU Time:    27.644 seconds
    CPU Usage:    0.01%
    CPU Usage, 5 minute avg:    0.01%
    CPU Usage, 60 minute avg:    0.01%
    Maximum Resident Size: 159744 KB
    Page faults with physical i/o: 2
Memory accounted for:
    Total accounted:         4658 KB
    memPoolAlloc calls:    747712
    memPoolFree calls:     760771
File descriptor usage for squid:
    Maximum number of file descriptors:   16384
    Largest file desc currently in use:     17
    Number of file desc currently in use:    9
    Files queued for open:                   0
    Available number of file descriptors: 16375
    Reserved number of file descriptors:   100
    Store Disk files open:                   0
Internal Data Structures:
       156 StoreEntries
       143 StoreEntries with MemObjects
        90 Hot Object Cache Items
       103 on-disk objects
```

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