Top tools for NexentaStor

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About Top

- Top provides the user with a regularly updated display showing information about the system and its top CPU-using processes
- Version 1.0 released in 1984
  - 7 years before Linux existed
- Widely ported to UNIX-like OSes
- Slightly warty, most top implementations are too CPU-intensive
- Large variations in implementations
- Basic tenet: continuously updated, single-screen performance dashboard

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Top on OSX

```
Processes: 136 total, 6 running, 130 sleeping, 709 threads                                                 14:12:31
Load Avg: 2.51, 1.63, 1.39  CPU usage: 12.95% user, 14.57% sys, 72.46% idle  SharedLibs: 5880K resident, 5404K data, 0B linkedit.
MemRegions: 56029 total, 2335M resident, 35M private, 547M shared.
PhysMem: 916M wired, 2110M active, 1046M inactive, 4072M used, 21M free.
VM: 318G vsize, 1042M framework vsize, 40011513(0) pageins, 6797673(0) pageouts.
Networks: packets: 5890995/1084M in, 5872579/1003M out. Disks: 38690493/530G read, 27658505/462G written.

PID    COMMAND      %CPU TIME     #TH  #WQ  #PORT #MREG RPRVT  RSHRD  RSIZE  VPRVT  VSIZE  PGRP  PPID  STATE    UID  FAULTS     COW
99935  suhelperd    0.0  00:03.22 2    1    40    54    60K    1648K  1172K  29M    2396M  99935 1     sleeping 0    32516      328
98008- Microsoft Wo 0.4  36:44.16 4    1    199   1173  6692K  36M    14M    122M   1387M  98008 230   sleeping 502  240924     13767
97280- JMP          0.3  49:17.40 5    1    363   1091  5224K  34M    12M    536M   1695M  97280 230   sleeping 502  2500033    2181
96300  ftpfs_agent  0.0  00:00.81 4    1    63    58    196K   1988K  788K   23M    2405M  96300 1     sleeping 502  2733       60
```

No, doesn't fit in a slide...

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Top for NexentaStor

```
   PID USERNAME  SIZE   RSS STATE   PRI NICE      TIME  CPU PROCESS/NLWP
  1060 root       67M   61M sleep    59    0   0:00:14 1.5% nms/1
   870 root       35M   32M sleep    59    0   0:00:20 0.8% python2.5/55
  1525 admin    7748K 5284K sleep    59    0   0:00:00 0.2% sshd/1
  1042 root     3588K 2100K sleep    59    0   0:00:00 0.2% dbus-daemon/1
  1555 root       47M   46M sleep    59    0   0:00:04 0.2% nmc/1
  1752 root     4304K 2920K cpu1     59    0   0:00:00 0.1% prstat/1
   244 root     6248K 3908K sleep    59    0   0:00:00 0.0% nscd/33
   570 root       37M 4632K sleep    59    0   0:00:00 0.0% nmdtrace/1
   553 root     7388K 5784K sleep    59    0   0:00:00 0.0% intrd/1
     5 root        0K    0K sleep    99  -20   0:00:13 0.0% zpool-syspool/138
   558 root       21M   12M sleep    59    0   0:00:03 0.0% fmd/22
   403 root       16M 6952K sleep    59    0   0:00:00 0.0% apache2/1
   295 root     2540K 1524K sleep   100    -   0:00:00 0.0% xntpd/1
   843 root       67M   24M sleep    59    0   0:00:05 0.0% nms/1
   920 root       66M   61M sleep    59    0   0:00:13 0.0% nms/1
   181 root     4508K 3312K sleep    59    0   0:00:02 0.0% devfsadm/7
   362 root     2344K 1360K sleep    59    0   0:00:00 0.0% reparsed/2
Total: 70 processes, 599 lwps, load averages: 0.06, 0.47, 0.41
```

This is actually prstat, not top

NMC expert mode command

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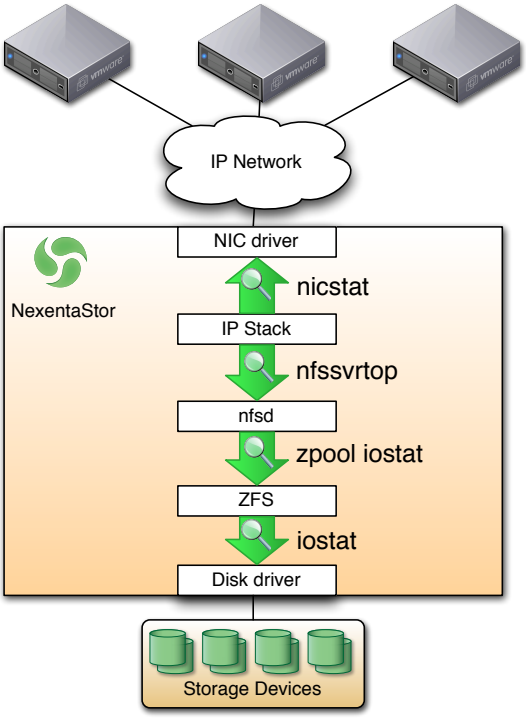
NFS Service



nfssvrtop Output

- Top-level fields:
  - load 1 min load average
  - read total KB read during sample
  - swrite total KB sync writes during sample
  - awrite total KB async writes during sample

```
2011 Jul 10 02:12:46, load: 7.41, read: 120468   KB, swrite: 2068863  KB, awrite: 0 KB
Ver Client      NFSOPS Reads SWrites AWrites Commits Rd_bw SWr_bw AWr_bw Rd_t SWr_t AWr_t Com_t Align%
3   10.100.2.61   2516   250    2262       0       0  3896  88816      0 8852  1602     0     0       2
3   10.100.2.51   3315   509    2798       0       0  8254 117726      0 3309  1512     0     0       1
3   all           5831   760    5060       0       0 12150 206395      0 5097  1553     0     0       1
```

nfssvrtop Output

- Ver NFS version (3 or 4)
- Client IP addr of client
- NFSOPS NFS operations per second
- Reads Read operations per second
- SWrites Sync write operations per second
- AWrites Async write operations per second
- Commits Commits per second

```
2011 Jul 10 02:12:46, load: 7.41, read: 120468   KB, swrite: 2068863  KB, awrite: 0 KB
Ver Client      NFSOPS Reads SWrites AWrites Commits Rd_bw SWr_bw AWr_bw Rd_t SWr_t AWr_t Com_t Align%
3   10.100.2.61   2516   250    2262       0       0  3896  88816      0 8852  1602     0     0       2
3   10.100.2.51   3315   509    2798       0       0  8254 117726      0 3309  1512     0     0       1
3   all           5831   760    5060       0       0 12150 206395      0 5097  1553     0     0       1
```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nfssvrtop Output

- Rd_bw Read KB/sec
- SWr_bw Sync write KB/sec
- AWr_bw Async write KB/sec
- Rd_t Average read time in microseconds
- SWr_t Average sync write time in microseconds
- AWr_t Average async write time in microseconds
- Com_t Average commit time in microseconds
- Align% Percentage of read/write operations that have offset aligned to blocksize (default=4096 bytes)

```
2011 Jul 10 02:12:46, load: 7.41, read: 120468   KB, swrite: 2068863  KB, awrite: 0 KB
Ver Client      NFSOPS Reads SWrites AWrites Commits Rd_bw SWr_bw AWr_bw Rd_t SWr_t AWr_t Com_t Align%
3   10.100.2.61   2516   250    2262       0       0  3896  88816      0 8852  1602     0     0       2
3   10.100.2.51   3315   509    2798       0       0  8254 117726      0 3309  1512     0     0       1
3   all           5831   760    5060       0       0 12150 206395      0 5097  1553     0     0       1
```


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nfssvrtop Usage

```
USAGE: nfssvrtop [-Cj] [-b blocksize] [-c client_IP] [-n vers] [-t top] [interval [count]]
        -b blocksize # alignment blocksize (default=4096)
        -c client_IP # trace for this client only
        -C           # don't clear the screen
        -j           # print output in JSON format
        -n vers      # show only NFS version
        -t top       # print top number of entries only
 examples:
   nfssvrtop        # default output, 10 second samples
   nfssvrtop -b 1024 # check alignment on 1KB boundary
   nfssvrtop 1      # 1 second samples
   nfssvrtop -n 4    # only show NFSv4 traffic
   nfssvrtop -C 60   # 60 second samples, do not clear screen
   nfssvrtop -t 20   # print top 20 lines only
   nfssvrtop 5 12    # print 12 x 5 second samples
```


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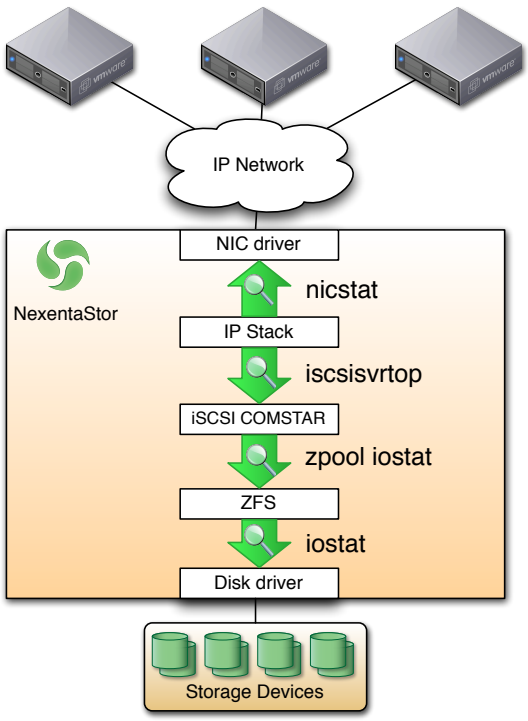
iSCSI Service



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iscsisvrtop Output

- Top-level fields:
  - load 1 min load average
  - read total KB read during sample
  - write total KB sync writes during sample

```
2011 Jul 12 07:16:30 load: 0.18 read_KB: 25276 write_KB: 0
client              ops   reads  writes    nops   rd_bw   wr_bw  ard_sz  awr_sz   rd_t   wr_t  nop_t align%
10.100.2.61          40      40       0       0    2527       0       6       0    134      0      0     76
all                  40      40       0       0    2527       0       6       0    134      0      0     76
```


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iscsisvrtop Output

- Client IP addr of client
- OPS iSCSI operations per second
- Reads Read operations per second
- Writes Sync write operations per second
- NOPS NOP operations per second
- Rd_bw Read KB/sec
- Wr_bw Write KB/sec

```
2011 Jul 12 07:16:30 load: 0.18 read_KB: 25276 write_KB: 0
client              ops   reads  writes    nops   rd_bw   wr_bw  ard_sz  awr_sz   rd_t   wr_t  nop_t align%
10.100.2.61          40      40       0       0    2527       0       6       0    134      0      0     76
all                  40      40       0       0    2527       0       6       0    134      0      0     76
```


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iscsisvrtop Output

- ARd_sz Average read size (KB)
- AWr_sz Average write size (KB)
- Rd_t Average read time in microseconds
- Wr_t Average sync write time in microseconds
- Align% Percentage of read/write operations that have LBA aligned to blocksize (default=4096 bytes using 512-byte blocks)

```
2011 Jul 12 07:16:30 load: 0.18 read_KB: 25276 write_KB: 0
client             ops   reads  writes    nops   rd_bw   wr_bw  ard_sz  awr_sz   rd_t   wr_t  nop_t align%
10.100.2.61         40      40       0       0    2527       0       6       0    134      0      0     76
all                 40      40       0       0    2527       0       6       0    134      0      0     76
```


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iscsisvrtop Usage

USAGE: iscsisvrtop [-b blocksize] [-Cj] [-c client_IP] [-t top] [interval [count]]

-b blocksize # alignment blocksize (default=4096)
-c client_IP # trace for this client only
-C # don't clear the screen
-j # print output in JSON format
-t top # print top number of entries only

examples:

iscsisvrtop # default output, 10 second samples
iscsisvrtop 1 # 1 second samples
iscisvrtop -b 1024 # check alignment on 1KB boundary
iscsisvrtop -C 60 # 60 second samples, do not clear screen
iscsisvrtop -t 20 # print top 20 lines only
iscsisvrtop 5 12 # print 12 x 5 second samples

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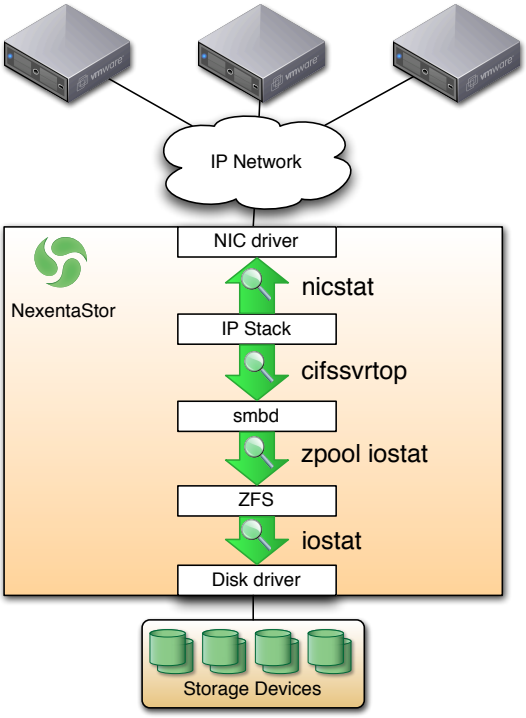
CIFS Service



cifssvrtop Output

- Top-level fields:
  - load 1 min load average
  - read total KB read during sample
  - write total KB sync writes during sample

```
2011 Jul 11 20:07:27, load: 0.65, read: 7780      KB, write: 890      KB
Client          CIFSOPS   Reads  Writes   Rd_bw   Wr_bw    Rd_t    Wr_t  Align%
1                    64      20      31     768     124      87    2871     100
all                  64      20      31     768     124      87    2871     100
```

cifssvrtop Output

- Client Client workstation name
- CIFSOPS CIFS operations per second
- Reads Read operations per second
- Writes Write operations per second
- Rd_bw Read bandwidth KB/sec
- Wr_bw Write bandwidth KB/sec
- Rd_t Average read time in microseconds
- Wr_t Average write time in microseconds
- Align% Percentage of read/write operations that have offset aligned to blocksize (default=4096 bytes)

```
2011 Jul 11 20:07:27, load: 0.65, read: 7780      KB, write: 890     KB
Client          CIFSOPS   Reads  Writes   Rd_bw   Wr_bw    Rd_t    Wr_t  Align%
1                    64      20      31     768     124      87    2871     100
all                  64      20      31     768     124      87    2871     100
```


cifssvrtop Usage

USAGE: cifssvrtop [-Cj] [-b blocksize] [-c client_ws] [-t top] [interval [count]]

-b blocksize # alignment blocksize (default=4096)

-c client_ws # trace for this client only

-C # don't clear the screen

-j # print output in JSON format

-t top # print top number of entries only

examples:

cifssvrtop # default output, 10 second samples

cifssvrtop -b 1024 # check alignment on 1KB boundary

cifssvrtop 1 # 1 second samples

cifssvrtop -C 60 # 60 second samples, do not clear screen

cifssvrtop -t 20 # print top 20 lines only

cifssvrtop 5 12 # print 12 x 5 second samples

Questions?

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