

作业1：软件安装

1. nethogs -检测系统占用带宽情况

先update一下软件包

```
yali@ip-172-31-22-198 ~ % sudo apt update
[sudo] password for yali:
Sorry, try again.
[sudo] password for yali:
Hit:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Get:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:3 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:4 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:5 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [2099 kB]
Get:6 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1736 kB]
Fetched 4087 kB in 1s (2931 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
24 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

安装nethogs

```
yali@ip-172-31-22-198 ~ % sudo apt install nethogs
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-aws-5.4-headers-5.4.0-1047
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  nethogs
0 upgraded, 1 newly installed, 0 to remove and 24 not upgraded.
Need to get 29.3 kB of archives.
After this operation, 77.8 kB of additional disk space will be used.
Get:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 nethogs amd64 0.8.5-2 [29.3 kB]
Fetched 29.3 kB in 0s (113 kB/s)
Selecting previously unselected package nethogs.
(Reading database ... 152943 files and directories currently installed.)
Preparing to unpack .../nethogs_0.8.5-2_amd64.deb ...
Unpacking nethogs (0.8.5-2) ...
Setting up nethogs (0.8.5-2) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
```

使用nethogs

```
sudo nethogs
```

```
NetHogs version 0.8.5-2
```

PID	USER	PROGRAM	DEV	SENT	RECEIVED			
15087	yali	sshd: yali@pts/0				ens5	0.118	0.059 KB/sec
?	root	unknown TCP					0.000	0.000 KB/sec
TOTAL							0.000	0.000 KB/sec
							118	059

2. htop -交互式的进程浏览器

安装htop

```

yali@ip-172-31-22-198 ~ % sudo apt install htop
Reading package lists... Done
Building dependency tree
Reading state information... Done
htop is already the newest version (2.1.0-3).
htop set to manually installed.
The following package was automatically installed and is no longer required:
  linux-aws-5.4-headers-5.4.0-1047
Use 'sudo apt autoremove' to remove it.
0 upgraded, 0 newly installed, 0 to remove and 24 not upgraded.

```

使用htop

```

1 [ 0.0%] Tasks: 37, 52 thr; 1 running
2 [ 0.0%] Load average: 0.00 0.00 0.00
Mem[|||||179M/953M] Uptime: 44 days, 19:53:26
Swp[0K/0K]

PID USER PRI NI VIRT RES SHR S CPU% MEM% TIME+ Command
15592 root 20 0 32444 4560 3692 R 0.7 0.5 0:00.01 htop
1 root 20 0 156M 6536 4116 S 0.0 0.7 0:48.04 /sbin/init
406 root 19 -1 215M 89856 78024 S 0.0 9.2 1:35.18 /lib/systemd/systemd-journald
421 root 20 0 43120 3396 2348 S 0.0 0.3 0:09.46 /lib/systemd/systemd-udev
425 root 20 0 103M 188 0 S 0.0 0.0 0:00.00 /sbin/lvmtool -f
546 systemd-t 20 0 138M 508 0 S 0.0 0.1 0:00.00 /lib/systemd/systemd-timesyncd
538 systemd-t 20 0 138M 508 0 S 0.0 0.1 0:04.38 /lib/systemd/systemd-timesyncd
669 systemd-n 20 0 80040 652 0 S 0.0 0.1 0:05.47 /lib/systemd/systemd-networkd
696 systemd-r 20 0 70596 1224 620 S 0.0 0.1 0:05.82 /lib/systemd/systemd-resolved
852 root 20 0 662M 2148 1112 S 0.0 0.2 0:04.16 /usr/bin/lxcfs /var/lib/lxcfs/
853 root 20 0 662M 2148 1112 S 0.0 0.2 0:04.11 /usr/bin/lxcfs /var/lib/lxcfs/
30796 root 20 0 662M 2148 1112 S 0.0 0.2 0:04.14 /usr/bin/lxcfs /var/lib/lxcfs/
10052 root 20 0 662M 2148 1112 S 0.0 0.2 0:03.99 /usr/bin/lxcfs /var/lib/lxcfs/
22404 root 20 0 662M 2148 1112 S 0.0 0.2 0:00.82 /usr/bin/lxcfs /var/lib/lxcfs/
22405 root 20 0 662M 2148 1112 S 0.0 0.2 0:00.82 /usr/bin/lxcfs /var/lib/lxcfs/
22406 root 20 0 662M 2148 1112 S 0.0 0.2 0:00.79 /usr/bin/lxcfs /var/lib/lxcfs/
22408 root 20 0 662M 2148 1112 S 0.0 0.2 0:00.76 /usr/bin/lxcfs /var/lib/lxcfs/
22441 root 20 0 662M 2148 1112 S 0.0 0.2 0:00.79 /usr/bin/lxcfs /var/lib/lxcfs/
829 root 20 0 662M 2148 1112 S 0.0 0.2 0:20.46 /usr/bin/lxcfs /var/lib/lxcfs/
871 syslog 20 0 261M 1992 512 S 0.0 0.2 0:12.39 /usr/sbin/rsyslogd -n
872 syslog 20 0 261M 1992 512 S 0.0 0.2 0:00.00 /usr/sbin/rsyslogd -n
873 syslog 20 0 261M 1992 512 S 0.0 0.2 0:10.17 /usr/sbin/rsyslogd -n
839 syslog 20 0 261M 1992 512 S 0.0 0.2 0:22.84 /usr/sbin/rsyslogd -n
840 root 20 0 4556 64 0 S 0.0 0.0 0:00.00 /usr/sbin/acpid
860 root 20 0 107M 432 108 S 0.0 0.0 0:00.00 /usr/sbin/irqbalance --foreground
844 root 20 0 107M 432 108 S 0.0 0.0 1:17.88 /usr/sbin/irqbalance --foreground
845 daemon 20 0 28336 208 0 S 0.0 0.0 0:00.04 /usr/sbin/atd -f
850 root 20 0 31752 1460 1160 S 0.0 0.1 0:05.22 /usr/sbin/cron -f
851 messagebu 20 0 50232 3080 2224 S 0.0 0.3 0:58.30 /usr/bin/dbus-daemon --system --address=systemd: --nofork --nop
F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Nice F9Kill F10Quit

```

```

1 [ 0.7%] Tasks: 35, 52 thr; 1 running
2 [ 0.0%] Load average: 0.00 0.00 0.00
Mem[|||||177M/953M] Uptime: 44 days, 19:55:24
Swp[0K/0K]

Setup Left column Right column Available meters
Meters CPUs (1/1) [Bar] Task counter [Text] Clock
Display options Memory [Bar] Load average [Text] Load averages: 1 minute, 5 minutes, 15 minutes
Colors Swap [Bar] Uptime [Text] Load: average of ready processes in the last minute
Columns Memory
Swap
Task counter
Uptime
Battery
Hostname
CPUs (1/1): all CPUs
CPUs (1&2/2): all CPUs in 2 shorter columns
CPUs (1/2): first half of list
CPUs (2/2): second half of list
CPUs (1&2/4): first half in 2 shorter columns
CPUs (3&4/4): second half in 2 shorter columns
Blank
CPU average
CPU 1
CPU 2

```

3. nmon-显示所有重要的性能优化信息

安装nmon

```

kali@ip-172-31-22-198 ~ % sudo apt install nmon
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-aws-5.4-headers-5.4.0-1047
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  nmon
0 upgraded, 1 newly installed, 0 to remove and 24 not upgraded.
Need to get 67.6 kB of archives.
After this operation, 183 kB of additional disk space will be used.
Get:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 nmon amd64 16g+debian-3 [67.6 kB]
Fetched 67.6 kB in 0s (368 kB/s)
Selecting previously unselected package nmon.
(Reading database ... 152949 files and directories currently installed.)
Preparing to unpack .../nmon_16g+debian-3_amd64.deb ...
Unpacking nmon (16g+debian-3) ...
Setting up nmon (16g+debian-3) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...

```

使用nmon

```

nmon-16g [H for help] Hostname=ip-172-31-22-Refresh= 2secs 11:27.42

-
  nmon
-

For help type H or ...
nmon -? - hint
nmon -h - full details

To stop nmon type q to Quit

Use these keys to toggle statistics on/off:
  c = CPU          l = CPU Long-term      - = Faster screen updates
  C = " WideView  U = Utilisation        + = Slower screen updates
  m = Memory       V = Virtual memory    j = File Systems
  d = Disks        n = Network            . = only busy disks/procs
  r = Resource     N = NFS                h = more options
  k = Kernel       t = Top-processes     q = Quit

```

4. dstat-全能信息统计工具

安装dstat

```

kali@ip-172-31-22-198 ~ % sudo apt install dstat
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  linux-aws-5.4-headers-5.4.0-1047
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  dstat
0 upgraded, 1 newly installed, 0 to remove and 24 not upgraded.
Need to get 52.1 kB of archives.
After this operation, 443 kB of additional disk space will be used.
Get:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 dstat all 0.7.3-1 [52.1 kB]
Fetched 52.1 kB in 0s (298 kB/s)
Selecting previously unselected package dstat.
(Reading database ... 152954 files and directories currently installed.)
Preparing to unpack .../archives/dstat_0.7.3-1_all.deb ...
Unpacking dstat (0.7.3-1) ...
Setting up dstat (0.7.3-1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...

```

使用dstat

```
yali@ip-172-31-22-198 ~ % dstat
You did not select any stats, using -cdngy by default.
--total-cpu-usage-- -dsk/total- -net/total- ---paging-- ---system--
usr  sys  idl  wai  stl | read  writ | recv  send | in   out | int  csw
 0    0  100   0    0 | 32k   13k |    0    0 |    0    0 | 14   20
 0    0  100   0    0 |    0    0 | 186B   668B |    0    0 | 25   21
 0    0  100   0    0 |    0    0 |   60B   150B |    0    0 | 13   17
 0    0  100   0    0 |    0    0 | 264B   344B |    0    0 | 20   23
 1    0  100   0    0 |    0    0 |   60B   134B |    0    0 | 13   17
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 17   18
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 11   13
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 13   18
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 47   76
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 10   13
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 15   21
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 13   18
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 12   16
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 11   12
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 11   14
```

指定更新时间（例如：每2s更新一次并且更新5条 dstat 2 5）

```
yali@ip-172-31-22-198 ~ % dstat 2 5
You did not select any stats, using -cdngy by default.
--total-cpu-usage-- -dsk/total- -net/total- ---paging-- ---system--
usr  sys  idl  wai  stl | read  writ | recv  send | in   out | int  csw
 0    0  100   0    0 | 32k   13k |    0    0 |    0    0 | 14   20
 0    0  100   0    0 |    0    0 |   93B   393B |    0    0 | 17   20
 0    0  100   0    0 |    0    0 |   60B   126B |    0    0 | 13   18
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 16   27
 0    0  100   0    0 |    0    0 |   60B   118B |    0    0 | 16   21
yali@ip-172-31-22-198 ~ %
```