

Unix Performance Worksheet

Machine: _____

Date: _____

Purpose: to measure performance and resource usage of a Unix machine (CPU, memory and network), and to be able to compare results over time by recording consistent metrics.

1. `uptime`:

Description: load average tells how many CPUs would be tied up by running processes in last 1, 5 and 15 minutes.

Why: CPU usage

Load average			

2. `top`:

Description: record the top few most CPU-intensive process after several updates. (Slow down update using `-d` flag, e.g., wait five minutes: `-d 300`)

Why: CPU usage

PID	User	%CPU	%MEM	Command

3. `ping -c 10 www.google.com`:

Description: record min/avg/max/mdev and package loss information for 10 pings.

Why: network latency

min	avg	max	mdev

4. `scp`:

Description: Send a 10MB file three times to each disk device and record times. (If need a file generator, see: <http://bryanesmith.com/downloads/randomf-0.1.tar.gz>)

Why: network bandwidth, disk I/O combined

Notes: Try sending to different disk devices, as disk thrashing might manifest itself as low performance on one partition but not another.

Device	Trial 1	Trial 2	Trial 3

5. **atop:**

Description: record percentage of time each disk device is busy, free and cached memory, and used swap. (Rule out memory problem with swap before diagnosing disk thrashing.)

Why: memory, disk performance

Memory				
total	free	cache	buff	slab (kern malloc)

Swap	Total:	Free:
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Disk device	% Busy	reads	writes	avio (avg. time in ms for request)

6. **iostat:**

Description: Record break-down of CPU usage. Also, for each disk, record transfers per second (tps), blocks read per second (Blk_read/s) and blocks written per second (Blk_wrtn/s)

Why: CPU utilization, disk performance

Average CPU					
%user	%nice	%system	%iowait	%steal	%idle

Device	tps	Blk_read/s	Blk_wrtn/s	Blk_read	Blk_wrtn

7. `vmstat`:

Description: Good overview of system. 'r' is number of processes waiting to run. 'bi' and 'bo' are blocks sent (per second) to disk devices. Some overlap with `iostat`. Record single line of output.

Following output table for version 3.2.8.

Processors		Memory			
r	b	swpd	free	buff	cache

Swap		I/O		System		CPU			
si	so	bi	bo	in	cs	us	sy	id	wa

8. `time bonnie`

Description: Given defaults, can take a while (e.g., my laptop, took 9m40.498s) as well as greatly slow down system or disk performance by saturating the disk. Can specify working directory (`-d </path/to/dir>`) to test different devices. Record any parameters used for consistency, along with output.

Following output table for version 1.96.

time output:

real	
user	
sys	

bonnie output:

Size: _____

	Sequential Output			Sequential Input		Random
	Per Chr	Block	Rewrite	Per Chr	Block	Seeks
	K/sec %CP	K/sec %CP	K/sec %CP	K/sec %CP	K/sec %CP	/sec %CP
<i>Your machine</i>						
Latency						

Files: _____

	Sequential Create			Random Create		
	Create	Read	Delete	Create	Read	Delete
	/sec %CP	/sec %CP	/sec %CP	/sec %CP	/sec %CP	/sec %CP
<i>Your machine</i>						
Latency						

More information

- **Linux Troubleshooting, Part I: High Load** – <http://www.linuxjournal.com/article/10688>
- **Popular Unix Performance-Monitoring Tools for Linux** – <http://www.informit.com/articles/article.aspx?p=29666>