Section 24 – Performance Analysis

Questions

Please read the following questions carefully and try to answer them. You can find the correct answers, with an explanation where necessary, in the Answers.pdf file located in the same folder.

1. The CPU is the most suspected component for poor performance
   a. True
   b. False
2. The command that give you an overall overview on the installed hardware components on the system is:
   a. top
   b. ps
   c. dmidecode
   d. vmstat
3. When using vmstat you notice that the sy measurement is relatively high. This is an indication to:
   a. High number of computational tasks
   b. High number of system calls and I/O requests
   c. High overall average CPU usage
   d. High CPU temperature
4. If you have a high rate of `cs` and/or `in` rates in the vmstat output, this might be an inditation of:
   a. High CPU load
   b. A faulty hardware device attached to the system
   c. Memory contention
   d. None of the above
5. A zero idle time of CPU for a long period of time shouldn't be a problem. The CPU should be always 100% busy
   a. True
   b. False
6. The load averages values provided by the uptime command is used to make a rough judgement on whether or not the CPU is the cause of system performance degradation
   a. True
   b. False
7. You can determine the process CPU utilization by using the following command(s): (choose all that apply):
   a. ps –aux
   b. top
   c. vmstat
   d. iostat

8. Why does the kernel page memory into SWAP space?
   a. To free up memory used by inactive processes
   b. It uses the disk because it is faster than RAM
   c. Some application processes request this explicitly
   d. None of the above
9. Poor performance starts to appear when the swap-in and swap-out rates start to increase
   a. True
   b. False
10. What happens when the system runs out of virtual memory?
    a. The OS is shutdown immediately
    b. All the running processes are terminated
    c. The OS is restarted
    d. The kernel kills the least important process to free up some memory
11. If you find that the disks are constantly overloaded from the values reported by iostat command, you can take the following actions (choose all that apply(
    a. Install faster disks (like SSD)
    b. Install a RAID array that uses striping
    c. Install more memory
    d. Upgrade the CPU
12. The I/O scheduler algorithm that is best suited for database servers is called:
    a. NOOP
    b. CFQ
    c. Deadline
    d. DB
13. You cannot apply a new I/O scheduler to a running system without restarting it
    a. True
    b. False
14. What can you do *immediately* to solve a performance problem on a running system? (choose all that apply)
    a. Examine the most CPU intensive process and renice it
    b. Suspend the suspected process temporarily using kill –STOP and observe the disk performance to confirm or waive out the possibility that this process is overloading the disk I/O
    c. Ask the user to stop the CPU intensive process and re-run it in a less busy time
    d. Go through the documentation of the running applications to determine whether some tuning can be applied to increase their performance (for example caching in webservers)