

UNIX/Linux System Administration

Final Exam, Theory, June 2016

Question 1.(1p). Describe the redirection and pipe mechanisms available in linux shell. Add an example of use for each mechanism.

Question 2.(1p). Draw a sketch describing the internal structure of a disk. Write down every aspect you know about the content of each of these elements: Master Boot Record, Primary partition, extended partition.

Question 3.(1p). Describe the step included in the last stage of the booting process in a Linux system.

Question 4.(1p). In a Debian system, what additional advantages does using apt (Advanced Packaging Tool) have over using the package management system (dpkg) for software administration?

Question 5.(1p). The encryption system that generates the keys stored in /etc/shadow is unidirectional (no algorithm is able to generate the password from its encrypted value). Despite this, additional protection mechanisms are required to protect against attacks. Why? Describe the mechanisms you know.

Question 6.(1p). What is the journaling mechanism present in some file systems? Why is it necessary? (you can use an example to explain your answer).

Question 7.(1p). Describe the main features of RAID 4 and 5 levels. What is the main difference between them?

Question 8. (1p). Given a system with a main memory of 4GB and a hard disk of 32GB, explain what size swap space you consider to be appropriate for the system.

Question 9. (1p). List and describe the different options you know for modifying the kernel configuration without recompiling.

Question 10. (1p). Describe how the PAT routing mechanism works as well as its main utility.