Linnaeus University

Seminar 2

1DV720 – Server Administration

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1 Introduction

During this seminar, we will address the following topics:

- File Systems: NTFS, EXT
- Permissions, Local Users and Groups
- Storage – RAID
- File server - SMB and NFS

2 Seminar Questions

2.1 File Systems

1. Briefly describe:
   a. EXT
   b. NTFS
2. What additional functionality you get with NTFS when compared to FAT32?
3. Can more than one user be the owner of a file or directory? Motivate your answer.
   a. in Windows
   b. in Linux
4. What are NTFS mounted drives?
5. Does NTFS have support for symbolic links that are in e.g. Linux?
6. What kind of filesystems does:
   a. Linux support to be run on?
   b. Windows support to be run on?
7. Name two disadvantages with FAT32. Could it ever be a good idea to use FAT32 or ext2 in any context?
8. What is a journaling filesystem?

2.2 Permissions, Local Users and Groups

9. What files are handling the users and groups in Linux?
10. Where are the passwords stored in Linux?
11. What does the following linux commands do and how do you use them?
    a. chown
    b. chgrp
    c. chmod

12. Using ls -l we get the following outcome from a directory:

```
-rw-r--r-- 1 adam  root 0 jan 26 20:36 file1
-rw-r--r-- 1 bertil root 0 jan 26 20:36 file2
drwxr-xr-x 1 ceasar root 0 jan 26 20:36 folder1
```

    a. What character denotes it is a folder?
    b. (as superuser) What would be the permissions if you issued these commands: chmod 750 file1. Explain what changes from the original permissions setting.
    c. Including the changes from b would adam be able to access file1? If you also(as superuser) issued chown bertil file1.
    d. If you want to recursively change the owner to Adam of all subfolders and files including fodler1 what command would you issue?
    e. file2 contains supersecret company information that only bertil should be allowed to see and change. What permissions would you have to set that only Bertil can see it? Are there any other users that you can think of that this information cannot be hidden from?

13. Explain how permission inheritance works in NTFS?
14. What is an ACL and what does it contain?
15. What are cumulative NTFS permissions?
16. What happens with the NTFS permissions when we:
    a. move a file within the same NTFS volume
    b. copy a file within the same NTFS volume
    c. move a file to another NTFS volume
    d. copy a file to another NTFS volume

2.3 Storage – RAID

17. Explain what RAID is and list some different types of RAID solutions.
18. Windows has different naming for RAID solutions, explain the following disk storage methods, how they work and when it is recommended to use them:
    a. Simple
    b. Spanned
    c. Striped
    d. Mirrored
    e. RAID-5

2.4 File server - SMB and NFS

19. What are the differences between NTFS permissions and Share permissions?
    a. Why do Share permissions exist when we can use the NTFS permissions instead?
20. Describe at least 3 ways to share a folder in Windows.
21. What are the big differences between the versions of SMB?
22. Name at least 3 file server for Linux and how do they differ?
23. What is NFS?
24. How does Permissions work in NFS?
25. Describe how you configure a client to automatically mount a NFS share.