Oving4 OS

1. File system
2. Two factors that are important in the design of a file system are that files that are used together should be stored together and whether the file will become small or large. The last one is mainly because large and small files should be stored differently.
3. Metadata is information about another file. Meta means “about” and data means “information”. It is used to find file data blocks. Examples of metadata is the file owner, access permissions and access times
4. Fast file system
5. Hard link is a mapping between a name and the underlying file. So it’s basically an additional name for an exciting file. A soft link is a name linking to an alternate name. The length of the content of a soft link file is same as the original filename.
6. A folder needs at least 2 hard links at any given time. These two links are a pointer to the directory itself, and one pointing to its parent.
7. You will get two hard links for the current directory, and 5 for each of the subdirectories. Therefor we will have 7 hard links.
8. With block group locality the files in the same directory will be located in the same group, and therefor they are in close proximity of each other.
9. NTFS
10. When a file’s information can fit inside of the MFT record, its called a resident attribute. An example is like name or timestamp will always be included in the MFT record. When then information is to large for the MFT record, its called a nonresident attribute. This attribute will be allocated to one or more clusters of disk space elsewhere in the volume.
11. An extent is a continues set of data in multiple disk blocks. Where we are given the starting address, and the length. Therefor the length of the extent is dynamic, but with group blocks the size is fixed.
12. Cow
13. COW helps guard against data corruption by making sure there is a non-corrupt version of the file at all times. This version could either be the copy or the original file.
14. Authentication
15. One would prevent a loop up table (rainbow table) when salting the password. This is because the salt is a random generated string that adds to the password before hashing. This increases the level of security.
16. The user compares the hashed and salted password with the one in the database. If the passwords are a match, the user can update their password. The caveat is when someone else has your password and can change it to something else. This results in that you dont have access to your own account cause the passwords dont match.
17. Software vulnerabilities
18. Gets() does not take a length parameter, it doesn't know how large your input buffer is. This can cause a problem if the buffer has less capacity then the input. If you use fgets() instead you will be able to have the buffer length as a parameter.
19. If we limit what happens in the kernel, we reduce the chance of something going wrong. It follows the principle of least privilege where we want to give users the least amount of privilege possible and this is achieved by moving as many services out of the kernel as possible.