

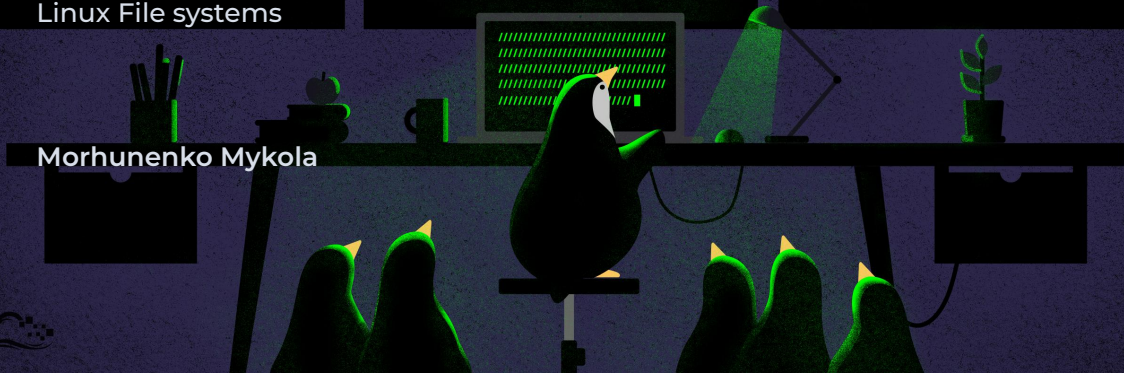


APPS@UCU

Linux course

Linux File systems

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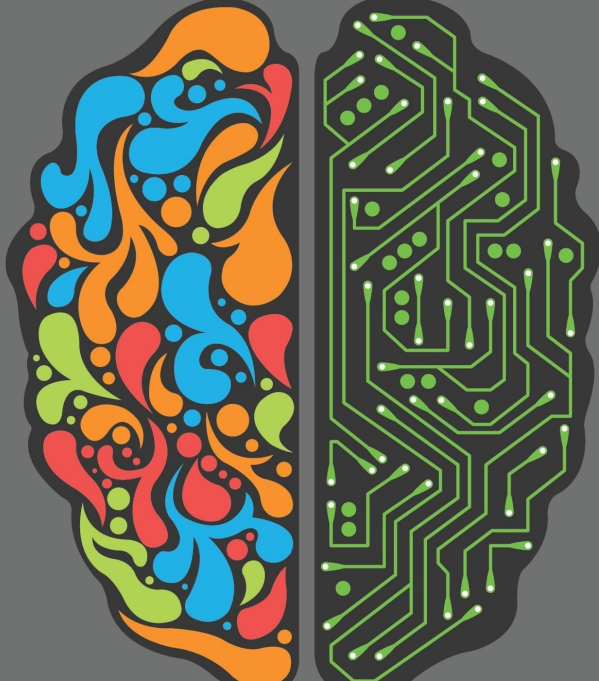
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Intro

- This is not an overview of some **hardware** memory stuff
- Neither a presentation with deep File systems implementation details
- More about that you should learn at the **Operating systems** course
- This is just an overview of **file systems** that system administrators use in their everyday life
- If you think that you are not a system administrator - think one more time, because you administrate your own system every day

Memory



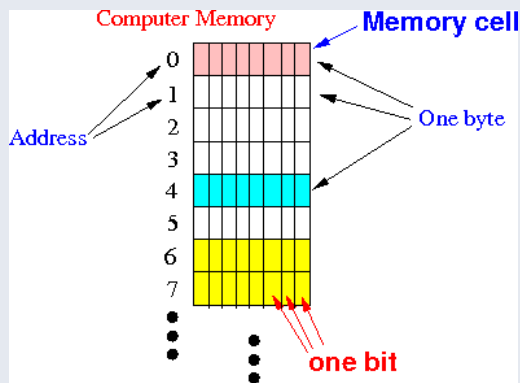
Drives

- All data stored on some physical devices
- It has different storage approaches on each device (HDD, SSD, CD, DVD, Flash, RAM, DDR memory modules)
- But now we are going to overview the memory from **user point of view**
- How to manage files and file systems, how to choose the most suitable



Memory storage

- Memory as abstraction looks like an array, where bites are stored one by one in a row
- **File system** - a method of data structure that the operating system uses to control how data is stored and retrieved
- A **file** is an ordered collection of data blocks
- In Linux system, everything is a file and if it is not a file, it is a process
- So File systems are very important for this OS





Everything is a file

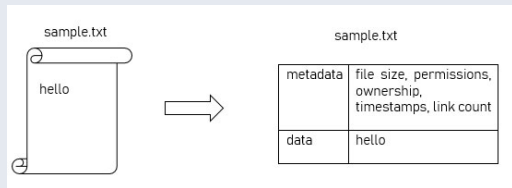
File types

- There are a lot of file types, but the most important for us are:
- **Regular Files** - some files with data stored inside
- **Directories** - files, that allowed to group other files and keep tree filesystem structure
- **Character files** - for simulating character devices as terminals, keyboard, network etc
- **Block files** - for modelling block devices as disks, flash drives
- **Links** - entry points to other files
- There are **pipes** , **sockets**

- rw-----	: Regular File
d rwxr-xr-x	: Directory File
l rw-rw-rw-	: Link File
C rw-rw----	: Character Device File
S rw-rw-rw-	: Socket File
p rw-----	: Named Pipe File
b rw-rw----	: Block Device File

File metadata

- File also save a **metadata** about itself, as:
- Protection, password
- Creator, owner
- Flags (r w x)
- Size
- Creation time, last update time (timestamp)



Fyle systems types

Linux Filesystems Hierarchy (LFS)

- This topic worth a separate lecture, but lets make it short
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Sources

Sources

- UCU Linux Club
- [File systems Wiki](#)
- [Linux file systems](#)