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# Plan

\* Unix history & context

\* Discussion: files, FD

\* Breakfast rooms

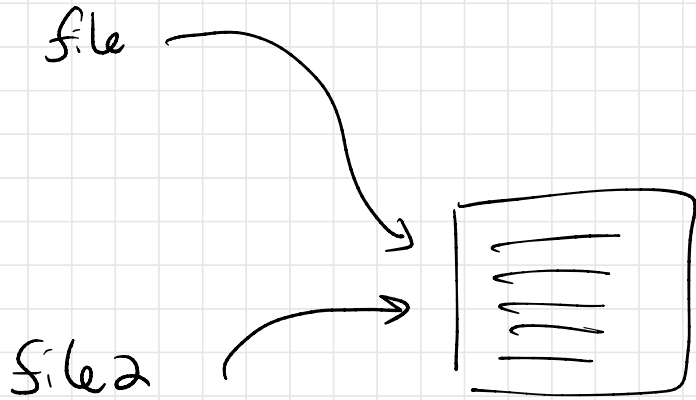
\* Wrap up

## Logistics

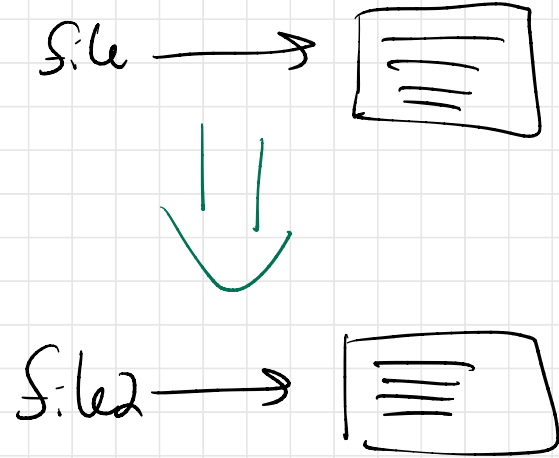
\* Feedback form  
feedback.henrycg.com

\* Design project teams

# Link



# Copy



# Special file

/dev/disk

/dev/random

/dev/zero

/dev/modem

/dev/input/mouse

⋮

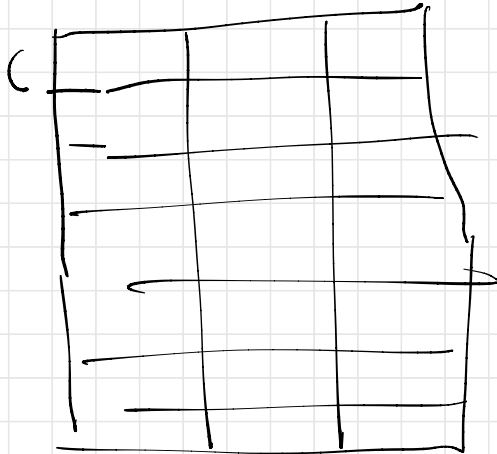
/proc/reboot

```
fd = open("file.txt", "r")
bytes ← read( ... )
```

File is a stream of bytes



2D file



File is a region in memory.

```
ptr = open("file.txt")
      resize()
```

```
ptr[2] = 'a';
ptr[3] = 'b';
⋮
```

```
ptr[216] =
```

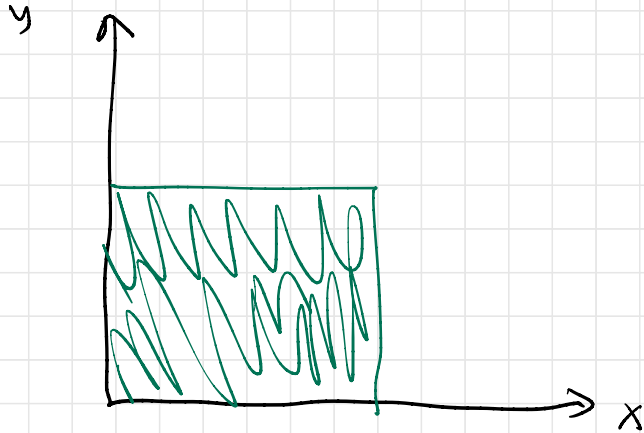
- permissions issues

- space allocation  
↳ complexity

- big files

2<sup>16</sup> possible address  
≈ 64,000

```
mmap()
```

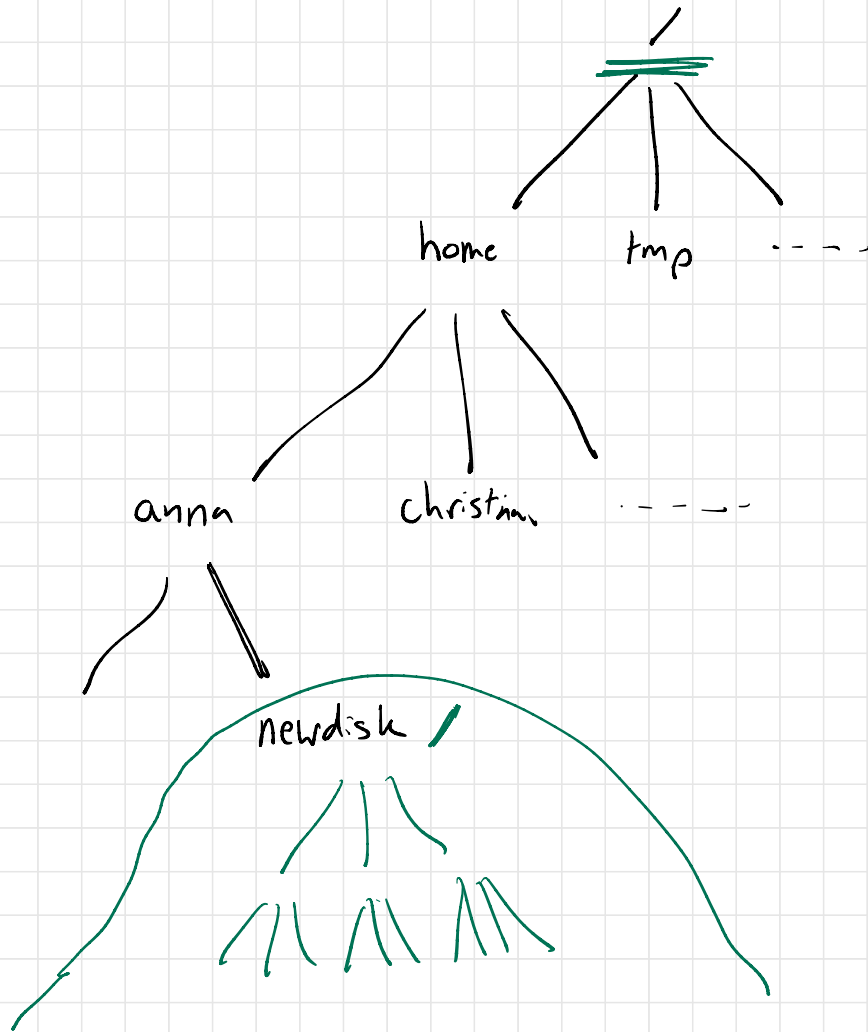


# Table-Oriented

array ← read\_row(file, row-id)

↙  
[cat, dog, 7, 15]

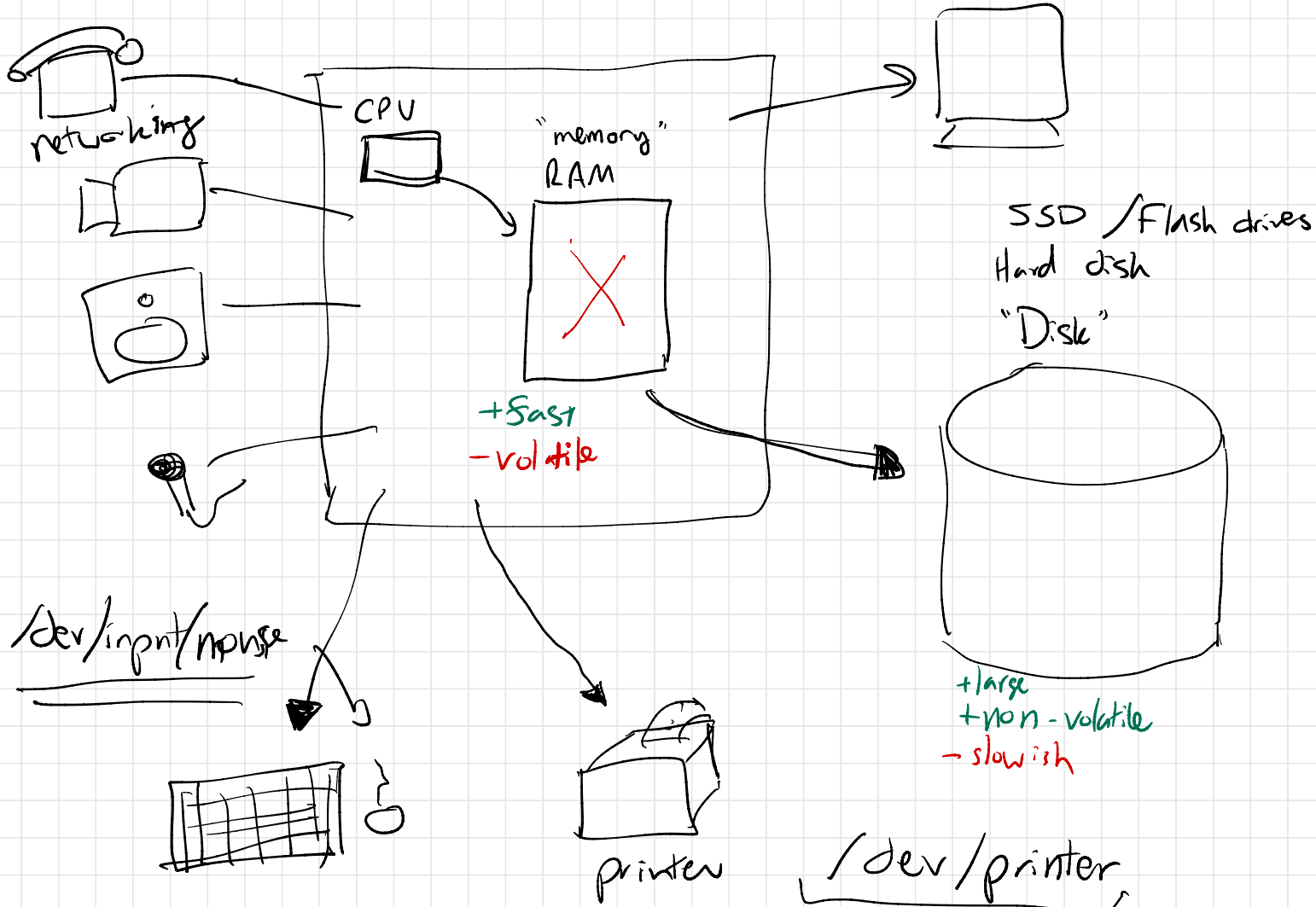
7	cat	dog	7 15



home/anna/file.txt  
↳ old disk

---

/home/anna/newdisk/file.txt  
↳ new disk  
↳ /file.txt  
↳ root of new disk



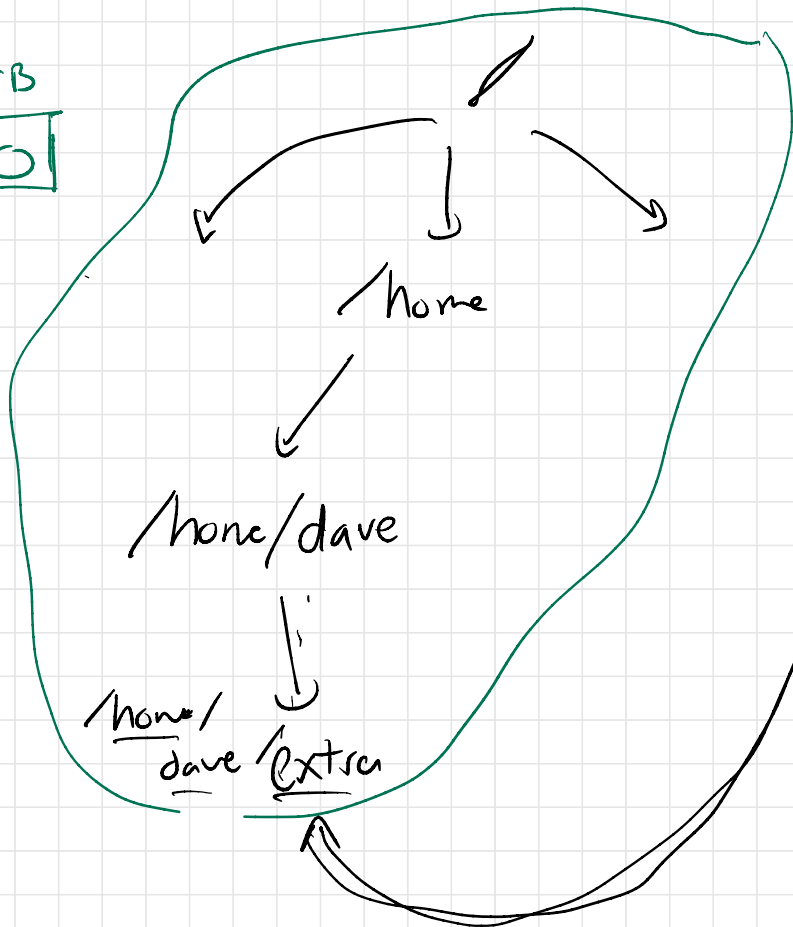


\$ myprog > /dev/printer

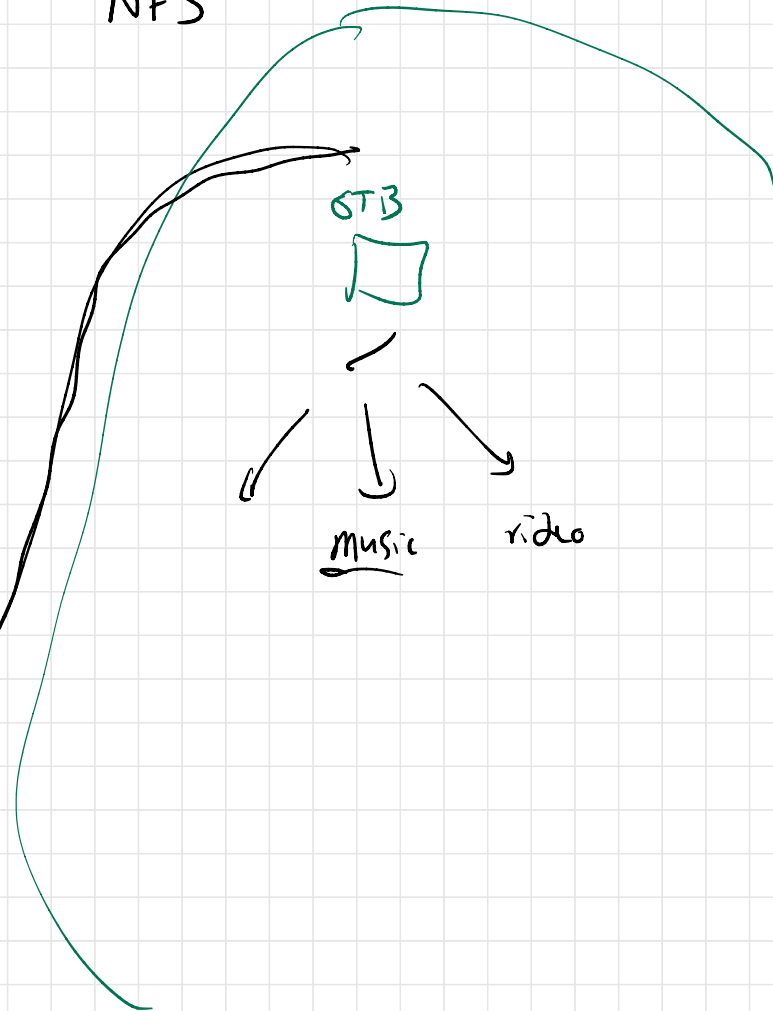
\$ myprog > /dev/network/henry's computer

\$ myprog | mail henrycg@mit.edu

STB



NFS



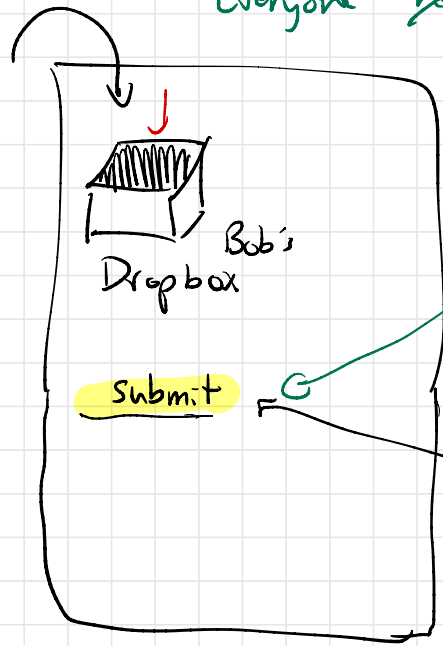


Alice

← Should be able to write to this dropbox, but not read, not delete



Bob



Everyone: ~~read~~, write, ~~execute~~

Everyone can execute, Owner is Bob

10th bit setuid bit