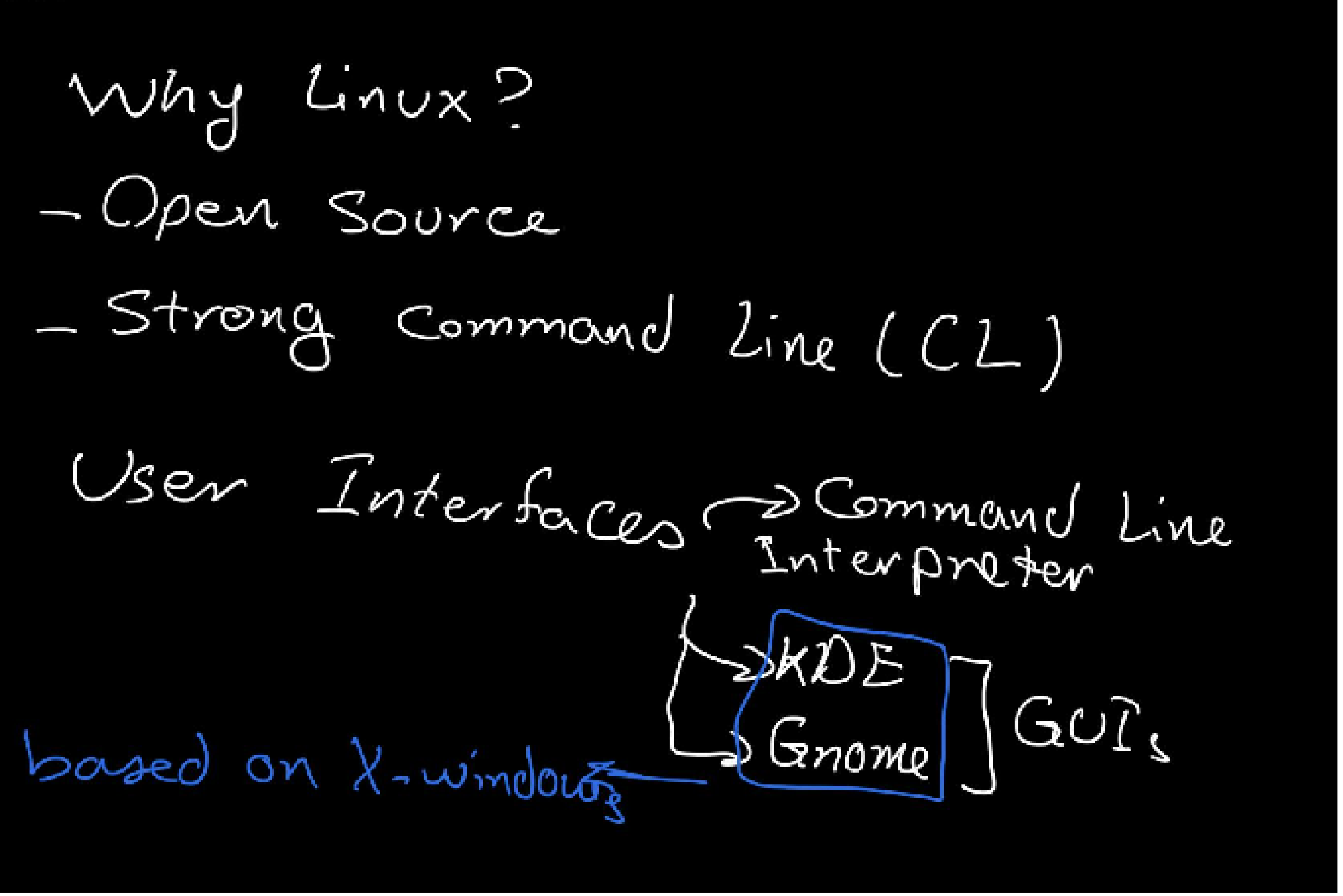


Why Linux?

- Open Source
- Strong Command Line (CL)

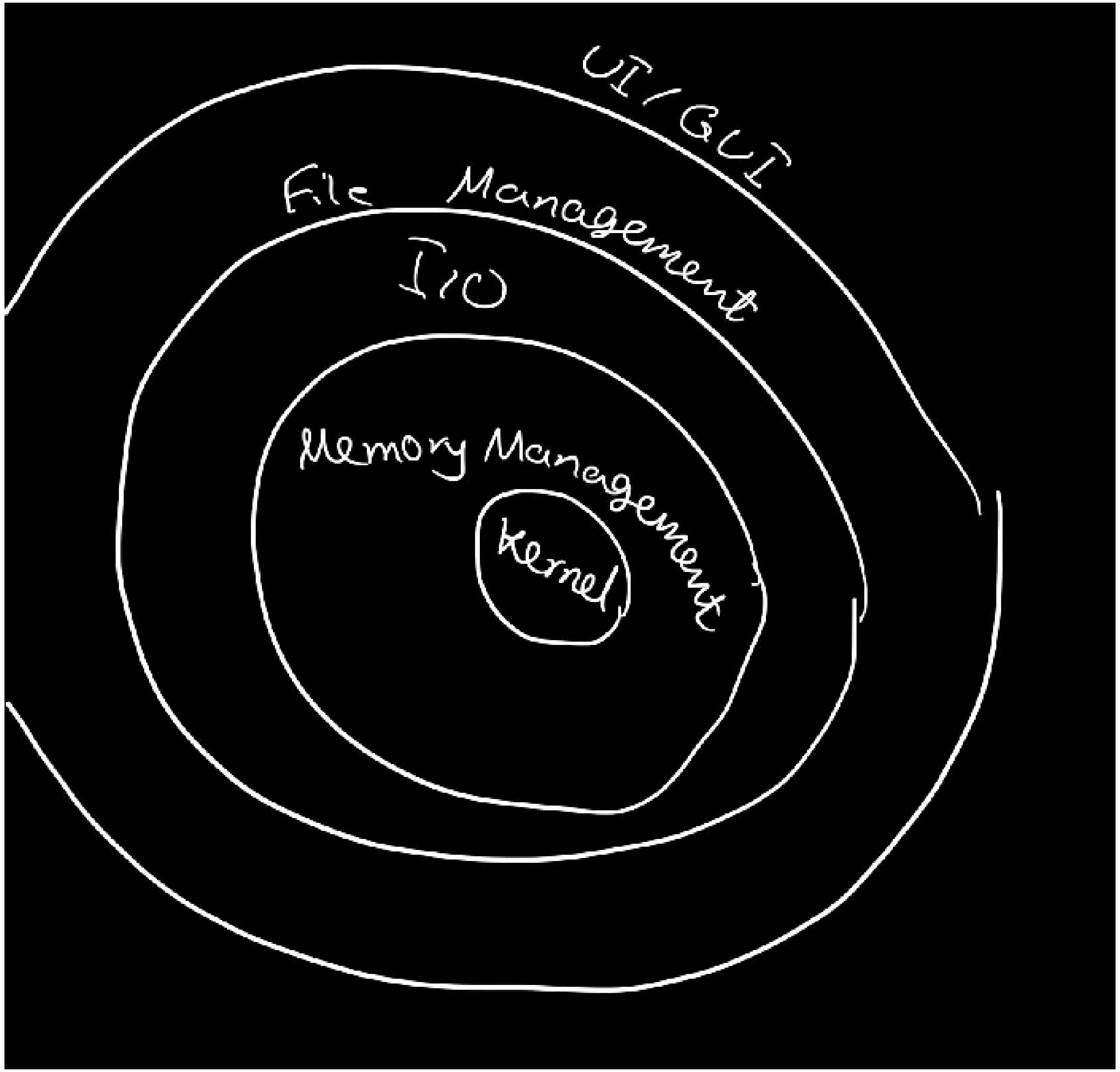
User Interfaces → Command Line Interpreter

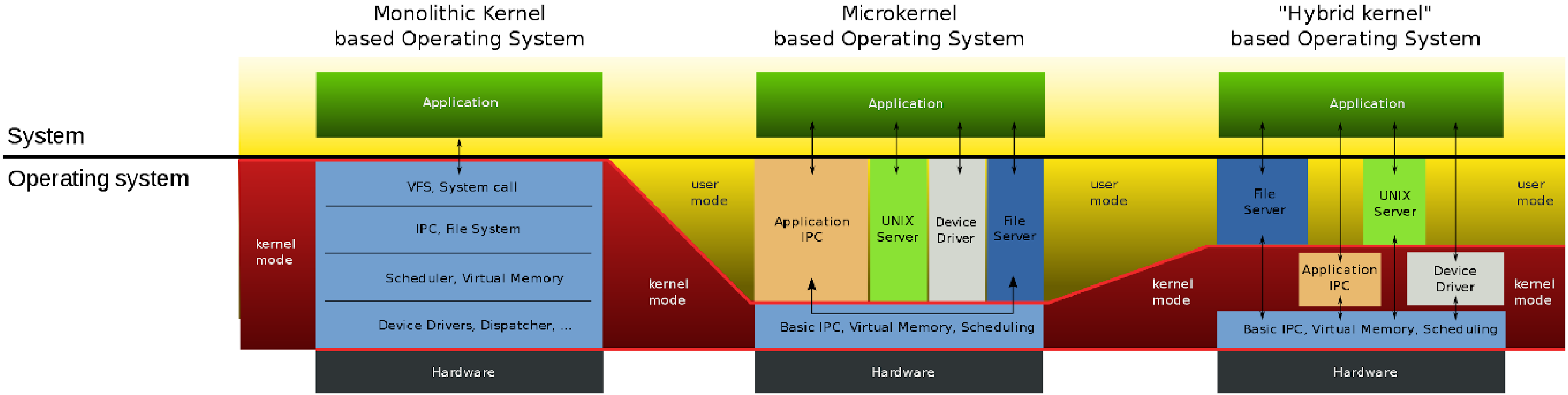
→ KDE

→ Gnome

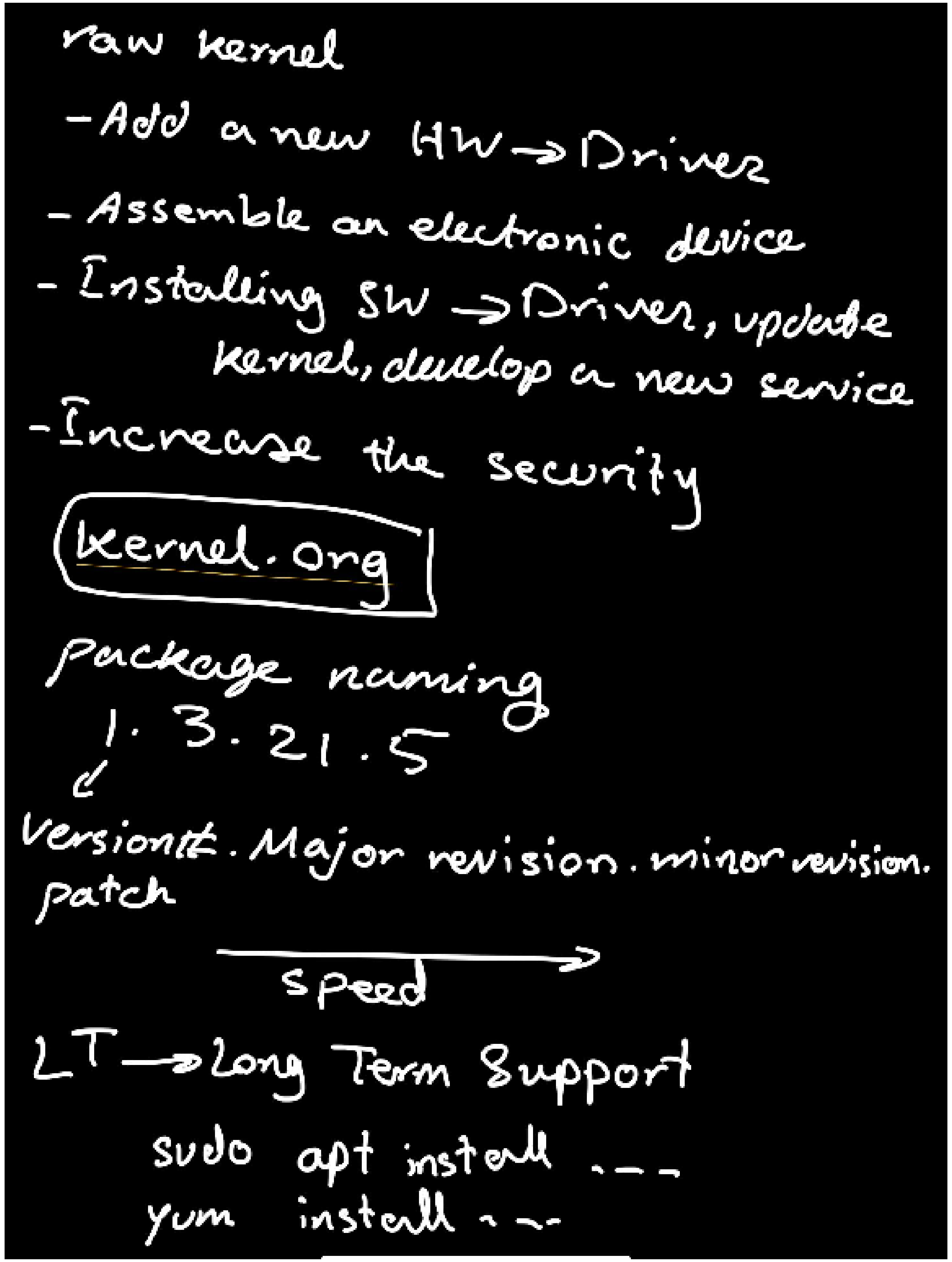
GUIs

based on X-windows


UI/GUI
File Management
I/O
Memory Management
Kernel


Monolithic Kernel
based Operating System
Microkernel
based Operating System
"Hybrid kernel"
based Operating System
System
Operating system
Application
VFS, System call
IPC, File System
Scheduler, Virtual Memory
Device Drivers, Dispatcher, ...
kernel mode
user mode
Hardware
Application IPC
UNIX Server
Device Driver
File Server
Basic IPC, Virtual Memory, Scheduling

Upgrade and customize kernel



raw kernel

- Add a new HW → Driver
- Assemble an electronic device
- Installing SW → Driver, update kernel, develop a new service
- Increase the security

kernel.org

package naming

1. 3. 21. 5

Version#. Major revision. minor revision. patch

⟶

speed

LT → Long Term Support

```
sudo apt install ...
yum install ...
```

with root access

```
# make / make modules / make moduels
install / make install / init 6
```

```
# make menuconfig → Visual Screen
                     !SSH
# make xconfig →    qt محیط گرافیکی مبتنی بر
# make old config -y
# make → To compile
# make modules
# make modules install
# make install
# init 6
# uname -r → To get kernel version
        -a
```

Automatic kernel installation (Ubuntu)

```
~ mkdir new kernel
~ cd newkernel
~ Wget http://kernel.ubuntu.com/
  ~kernel-cppa/mainline/ نسخه مد نظر
```