

# Anonymity

- work environment
  - 0 1
  - 2, etc.
- personal environment
  - 0 1
  - o 2, etc.

# **Anonymity**

- a separate computer for every possible usecase
- not very practical :-)

## Isolation

- a process (program) cannot read or modify the data of another process
- memory
- files
- local sockets
- remote sockets, etc.

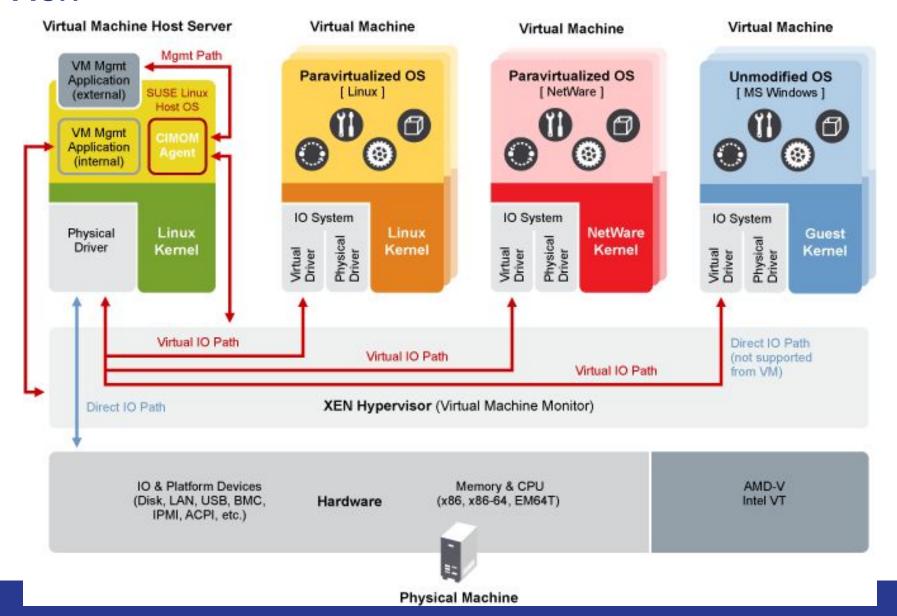
### Isolation

- at process level: sandbox/containers
  - BSD: jail
  - Linux: namespaces, chroot, control groups
- at operating system level: virtualization
  - VirtualBox, KVM, Xen, ...

## Linux Namespaces

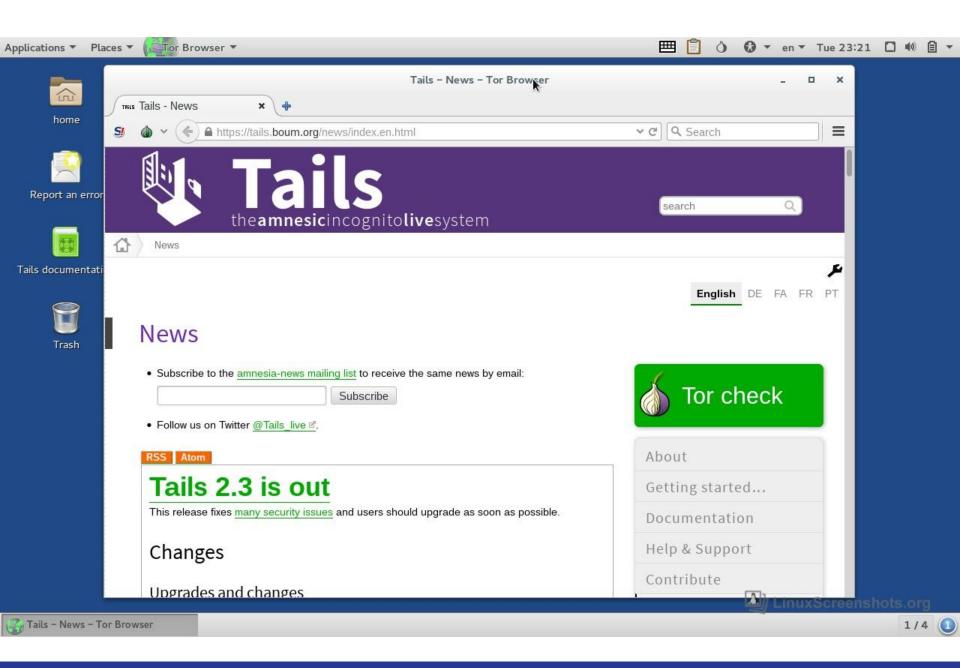
- fork()
- actually is unshare()
- CLONE\_NEWUSER, CLONE\_NEWNET, CLONE\_NEWPID,
  CLONE\_NEWUTS, ...
- YouTube: <u>L'ubomír Rintel: Namespaces v Linuxe</u>

#### Xen



#### **Tails**

- Debian-based privacy-focused Linux distribution
- supposed to be run on bare hardware
- all traffic routed via Tor
- amnesiac
- https://tails.boum.org/



## Whonix

- Debian-based security-focused Linux distribution
- two virtual machines Workstation, Tor gateway
- run in VirtualBox (KVM can be used too)
- linked together
- can be used on two different computers
- not amnesic
- https://www.whonix.org/

# Subgraph

- Linux distribution resistant to surveillance and interference by sophisticated adversaries
- grsecurity/PaX, namespaces, xpra, firewall
- mandatory file system encryption
- each application goes through a different Tor circuit
- https://subgraph.com/sgos/

## **Qubes OS**

- security-focused desktop operating system
- Xen virtualization
- user environments: Fedora, Debian, Whonix, Windows,
  Subgraph etc.
- https://www.qubes-os.org/

