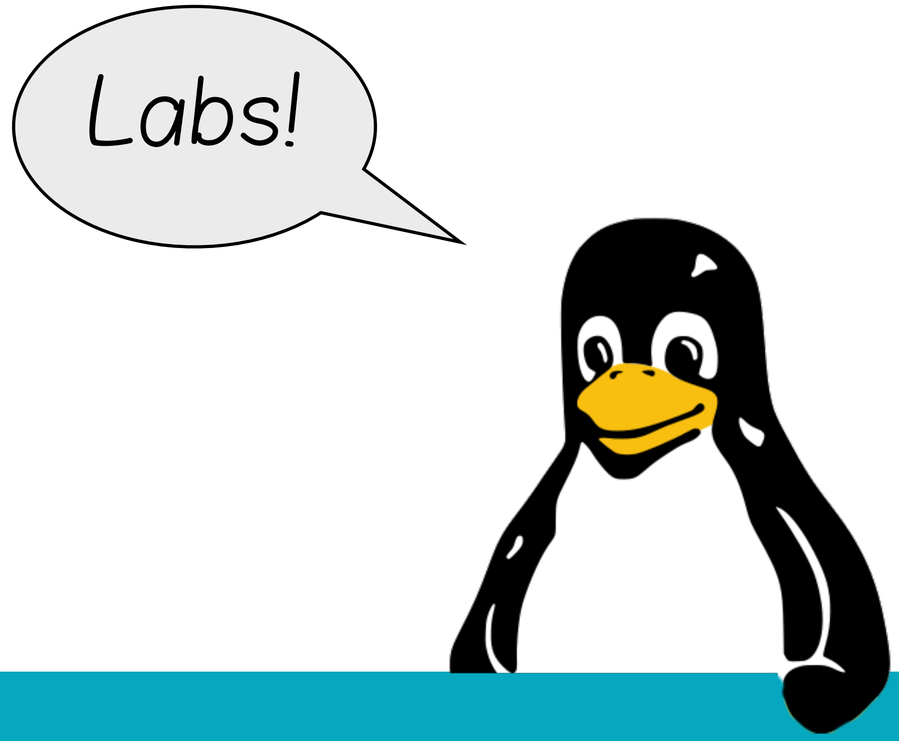
Linux, day 1



Lab prep

What will you need?

- A semi-recent (5 years) laptop, or PC.
  - Intel i5/i7, AMD Zen2, Apple ARM
  - At least 8GB RAM
  - At least 60GB of storage space

Apple ARM systems

- Students with M1/M2 CPUs need UTM or Parallels.
  - UTM lets you run x86_64 Linux.
  - Parallels will only run ARM Linux.

See: https://mac.getutm.app

Instructions before class

- My e-mail asked you to download:
  - VirtualBox installer (.exe or .dmg)
  - Fedora Workstation 35 (.iso)
  - Ubuntu Server 22.04 LTS (.iso)

- Apple ARM users need UTM, instead of VBox.
  - And ARM64 versions of Fedora and Ubuntu.

If you didn't get them

- In our “Files” on Teams / Office365,
  - VirtualBox is under “Virtualization”.

- Do not download the ISOs at school.
  - Ask me for a USB stick with ISOs.

What will we do today?

- ~~Introductions~~
- ~~Lab prep~~
- Why even learn Linux?!
- Guided exercise: installation
- Guided exercise: meeting Linux
- Closing: homework and Q&A

Guided exercise: installation

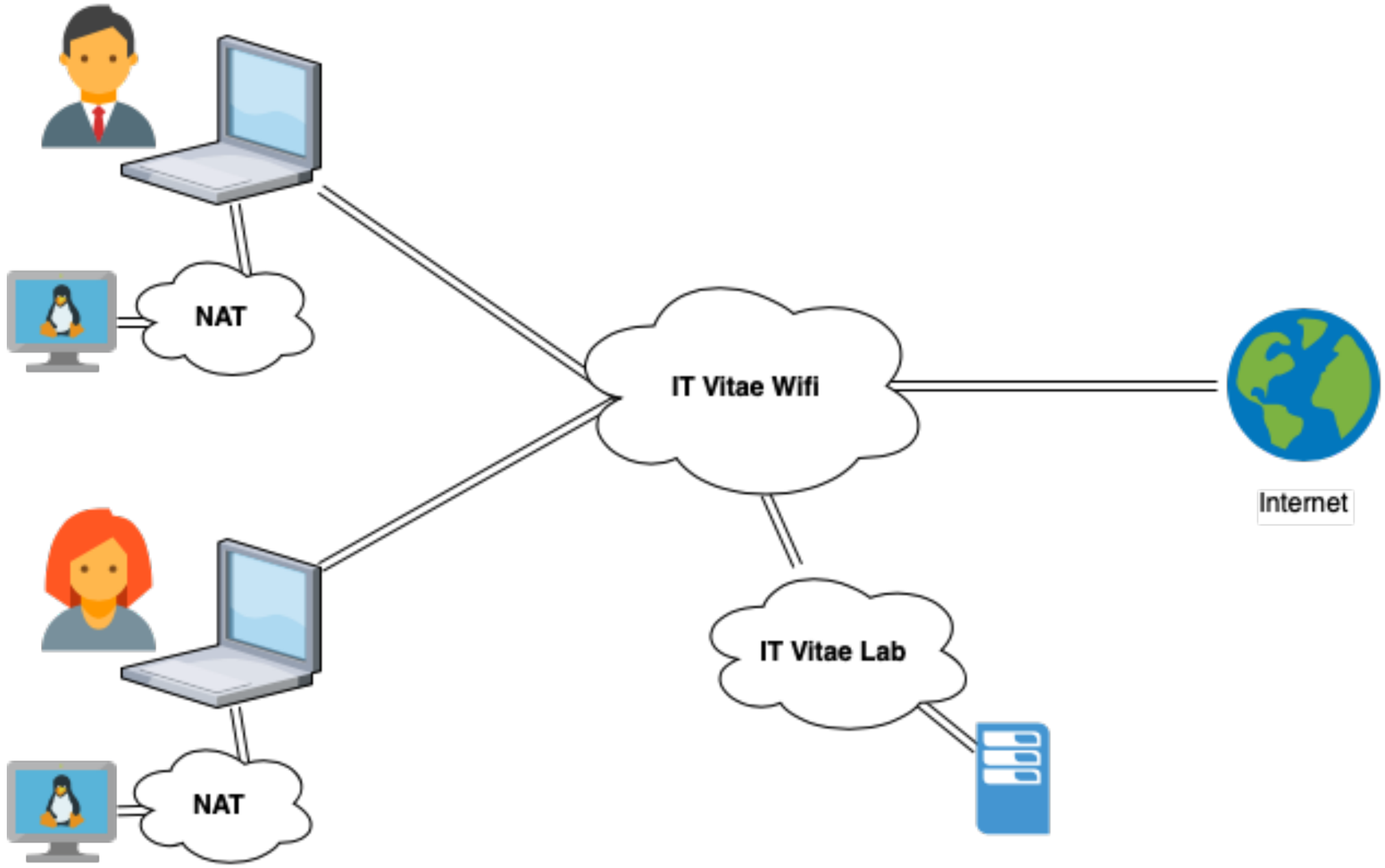
Many ways to run Linux

- You can run Linux "bare metal" on your computer.
- Windows offers WSL2, a "Linux inside Windows".
- VirtualBox, VMWare *et al* run "virtual machines".
- Containers let us run mini virtual environments.

What will we do?

- Two "virtual machines" with Fedora and Ubuntu,
- Running in VirtualBox on our PC,
- Connected to a "NAT" network,
  - Which provides network/Internet access.

What will we make?



Objectives

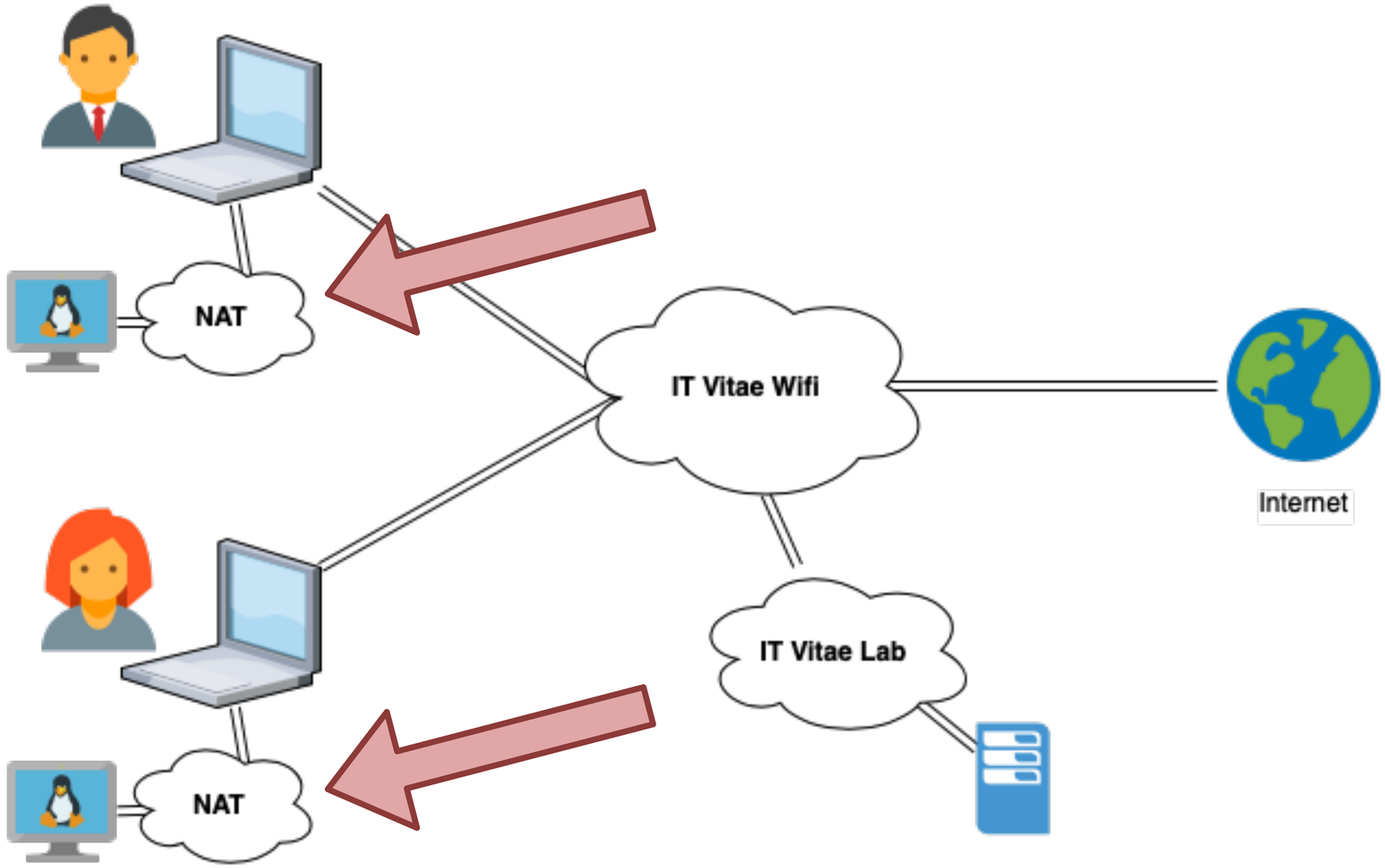
- Install VirtualBox
- Create a VM
- Install Fedora Workstation

Installing VirtualBox

- Windows? Just follow the wizard.
  - MacOS? Ditto!
  - Linux? Download the RPM or DEB and install.

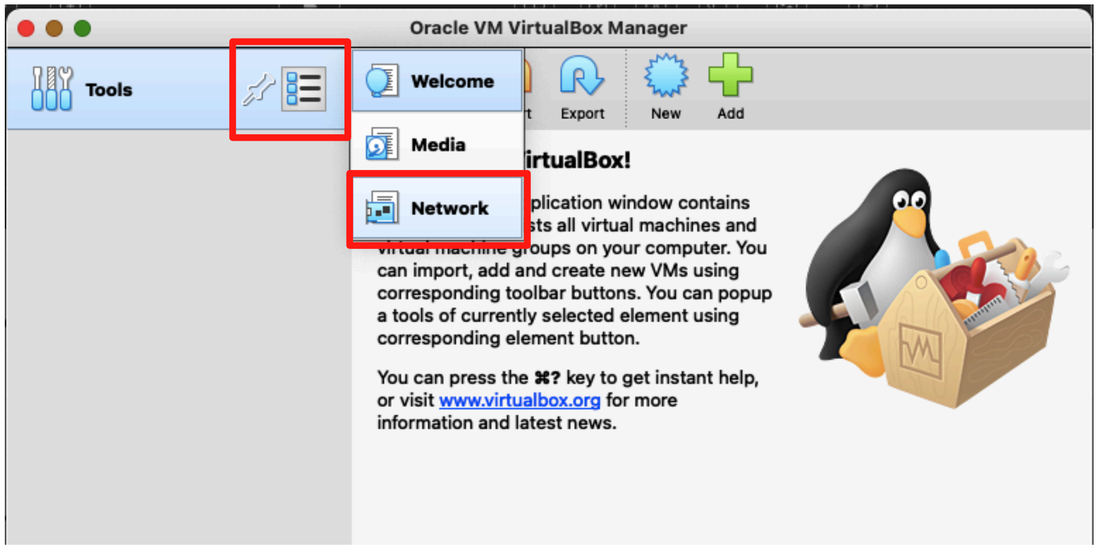
- On MacOS, you need to allow VBox kernel modules.
  - System Preferences -> Gatekeeper -> Allow

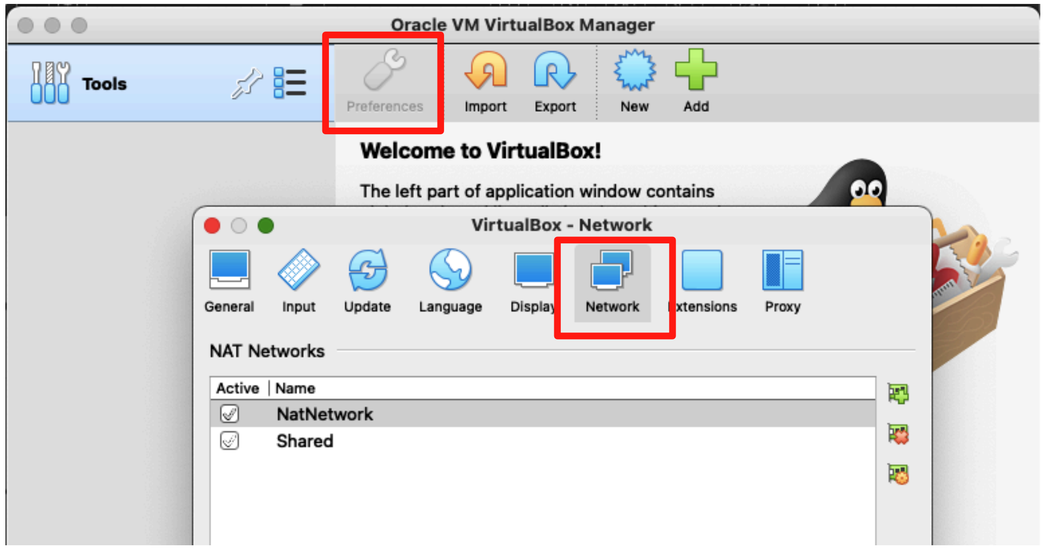
Create a NAT network



Create a NAT network

- In the VirtualBox preferences / settings:





Create a NAT network

- In the VirtualBox preferences / settings:
  - Find the “Network” settings tab.
  - Create a new NAT network “*NATnetwork*”.

Creating our VM

- Type: Linux, Fedora 35, 64-bit
- 4096 MB RAM
- Create a virtual hard disk
  - “Dynamically allocated”, 60 GB, VDI type
- Network: connect to NAT Network “*NATNetwork*”
- Connect the Fedora ISO / DVD

Install Fedora

- For now, we'll use the default disk layout.
- After the reboot, setup your user account.

You try!

- Can you double-check:
  - Where does VirtualBox store the disk image?
  - What size is the “disk” set to?
  - What size is the image file really?

What will we do today?

- ~~Introductions~~
- ~~Lab prep~~
- ~~Why even learn Linux?!~~
- ~~Guided exercise: installation~~
- Guided exercise: meeting Linux
- Closing: homework and Q&A

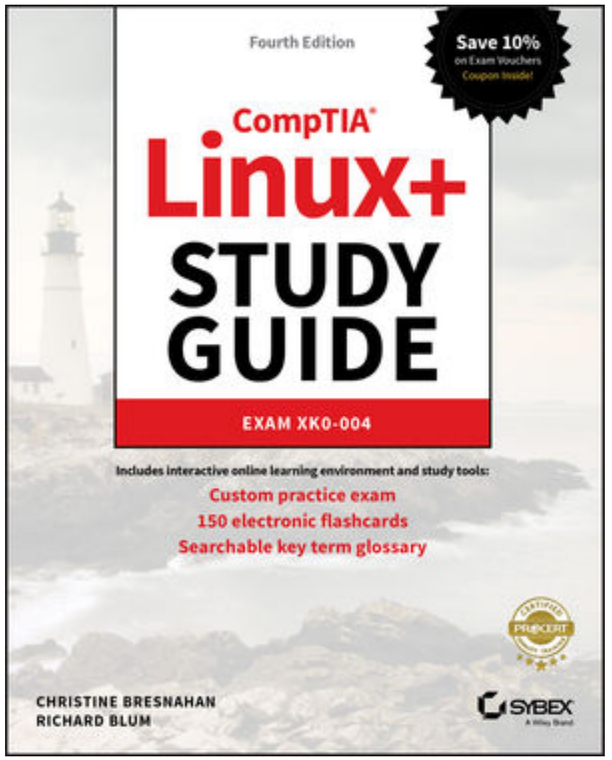
Closing

Next week

- Virtualization and networking
- Users and groups

Homework

- Reading:
  - Chapters 1 and 2
  - Chapter 10
  - Chapter 16, "Using SSH"



Homework

- Try installing the Ubuntu server VM.
  - Make sure it's in the same "*NATnetwork*".
  - It needs less RAM. You can give it 1GB.

Homework

- Q1: How do the following Linux “distributions” relate to each other?
  - Red Hat Enterprise Linux
  - Fedora Linux
  - CentOS
  - Oracle Linux

Homework

- Q2: How do the following Linux “distributions” relate to each other?
  - Debian
  - Ubuntu
  - Kali Linux

Homework

- Q3: Is “Linux” a “Unix”? Why?
- Q4: Is “MacOS” a “Linux”? Or a “Unix”?

Q&A

Reference materials

Resources

- PluralSight XK0-005 learning path
- Open source: Gratis vs Libre
- History of Unix (Wikipedia)
- Linux distributions (Wikipedia)
- Linux rocks!

Resources

- Andrés Aravena - First steps on UNIX