

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 37 (.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.

Guided exercise: installation

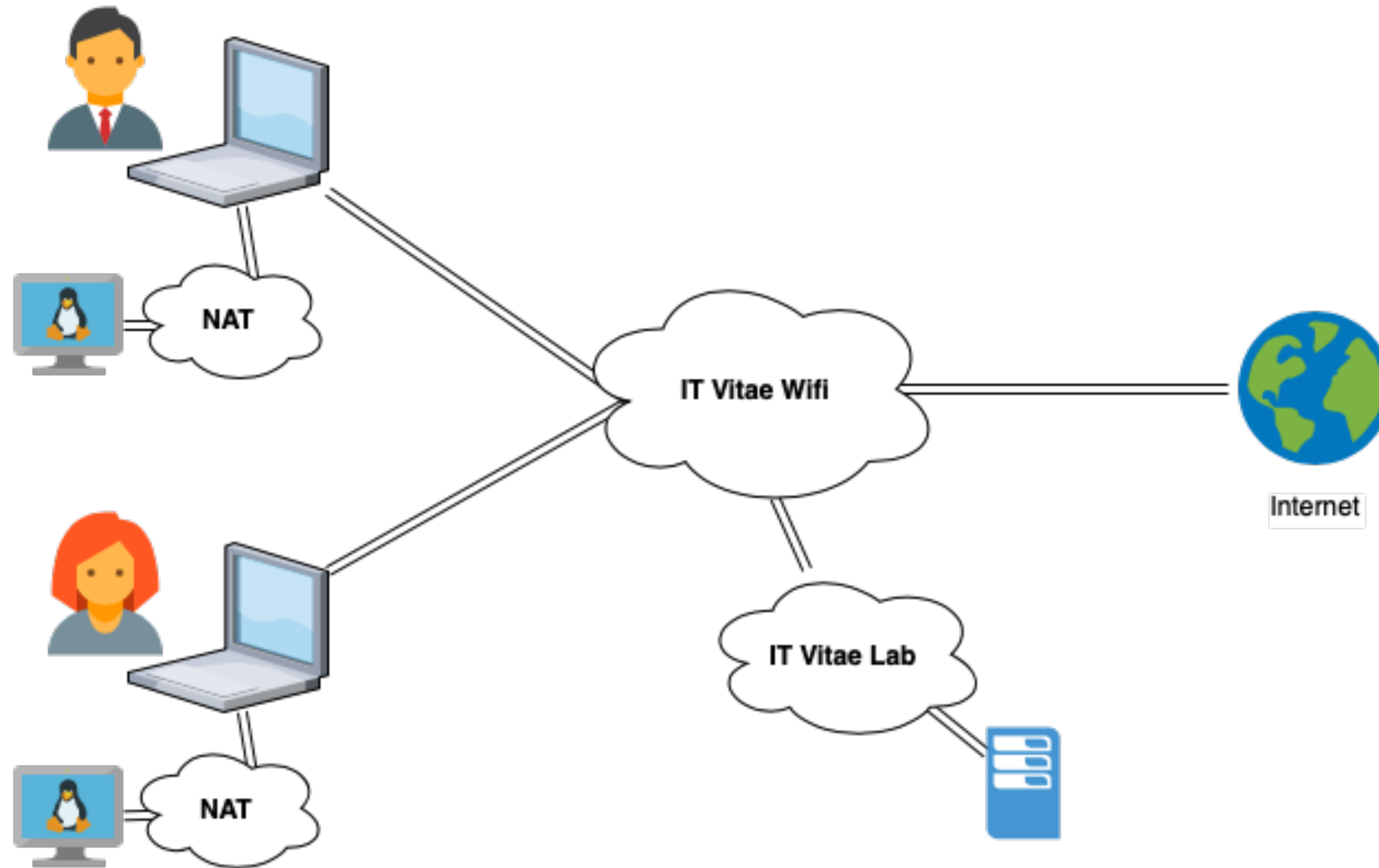
Many ways to run Linux

- 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.
- Want RedHat Enterprise too? Check the homework!

What will we make?



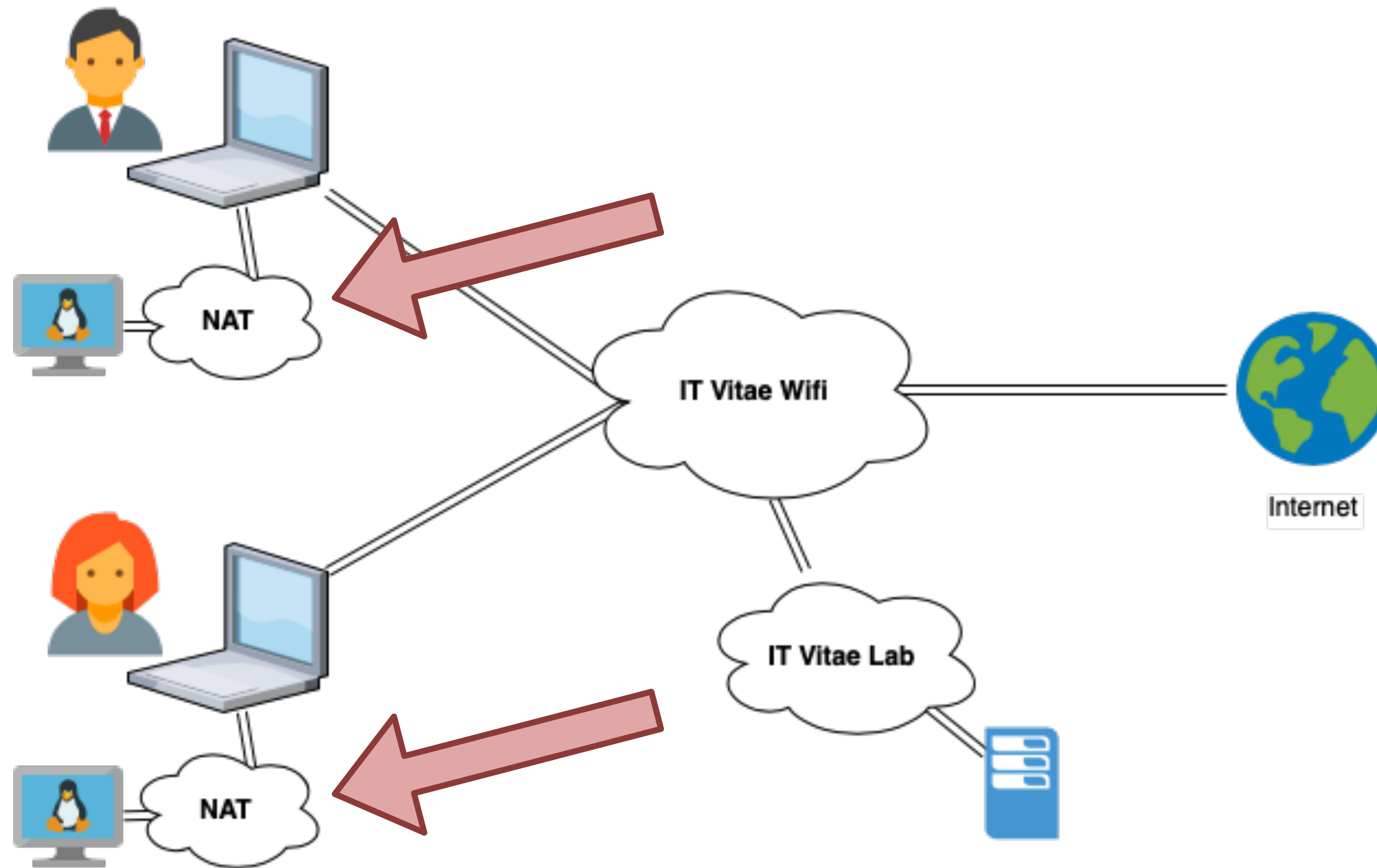
Objectives

- Install VirtualBox
- Create a VM
- Install Fedora Workstation

Installing VirtualBox

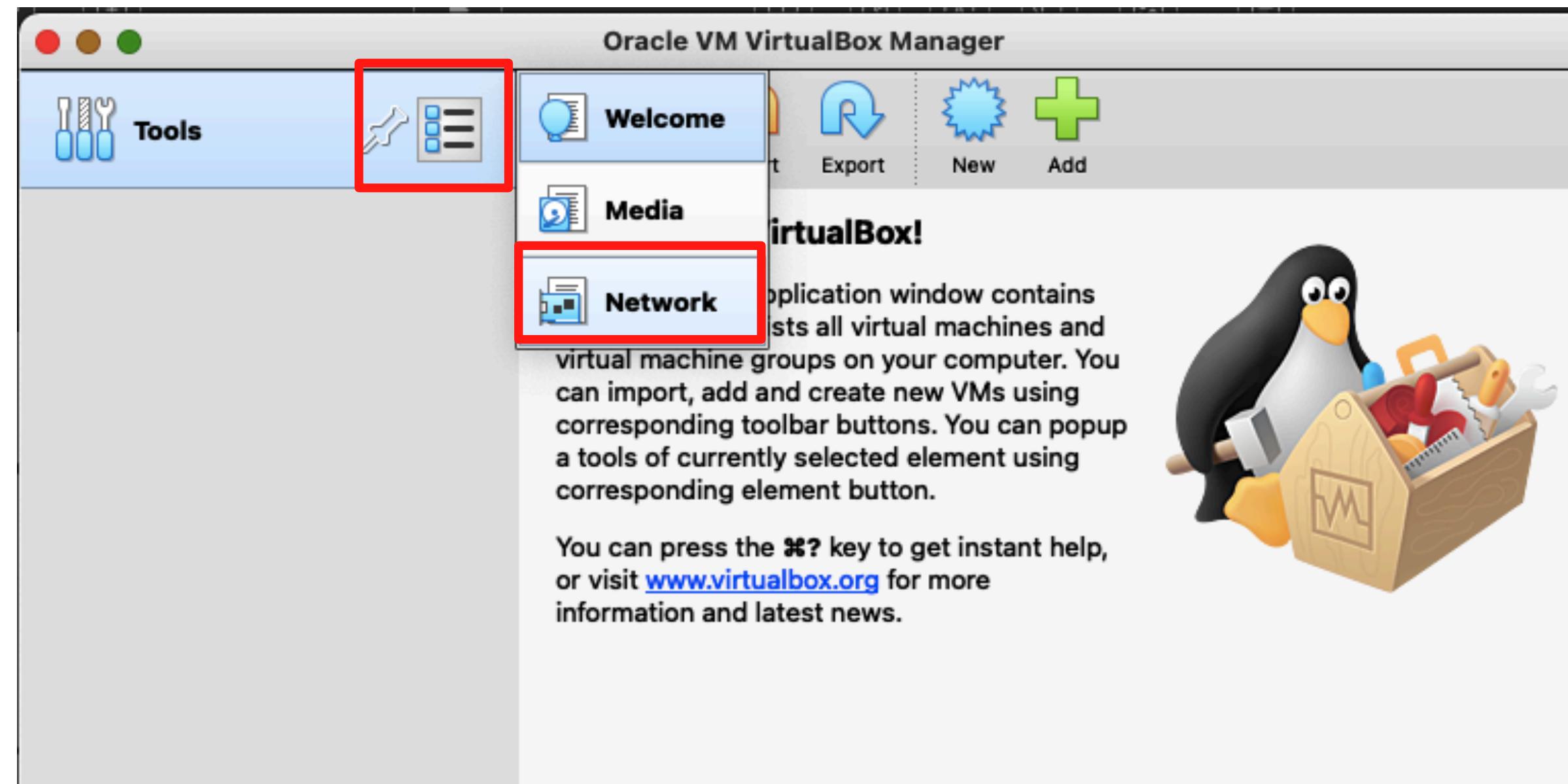
- Windows? Just follow the wizard.
 - MacOS? Ditto!
 - Linux? Download the RPM or DEB and install.
- On MacOS, you need to allow VBox kernel modules.
 - System Preferences -> Gatekeeper -> Allow

Create a NAT network



Create a NAT network

- In the VirtualBox preferences / settings:



Create a NAT network

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

Creating our VM

- Type: Linux, Fedora 37, 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?

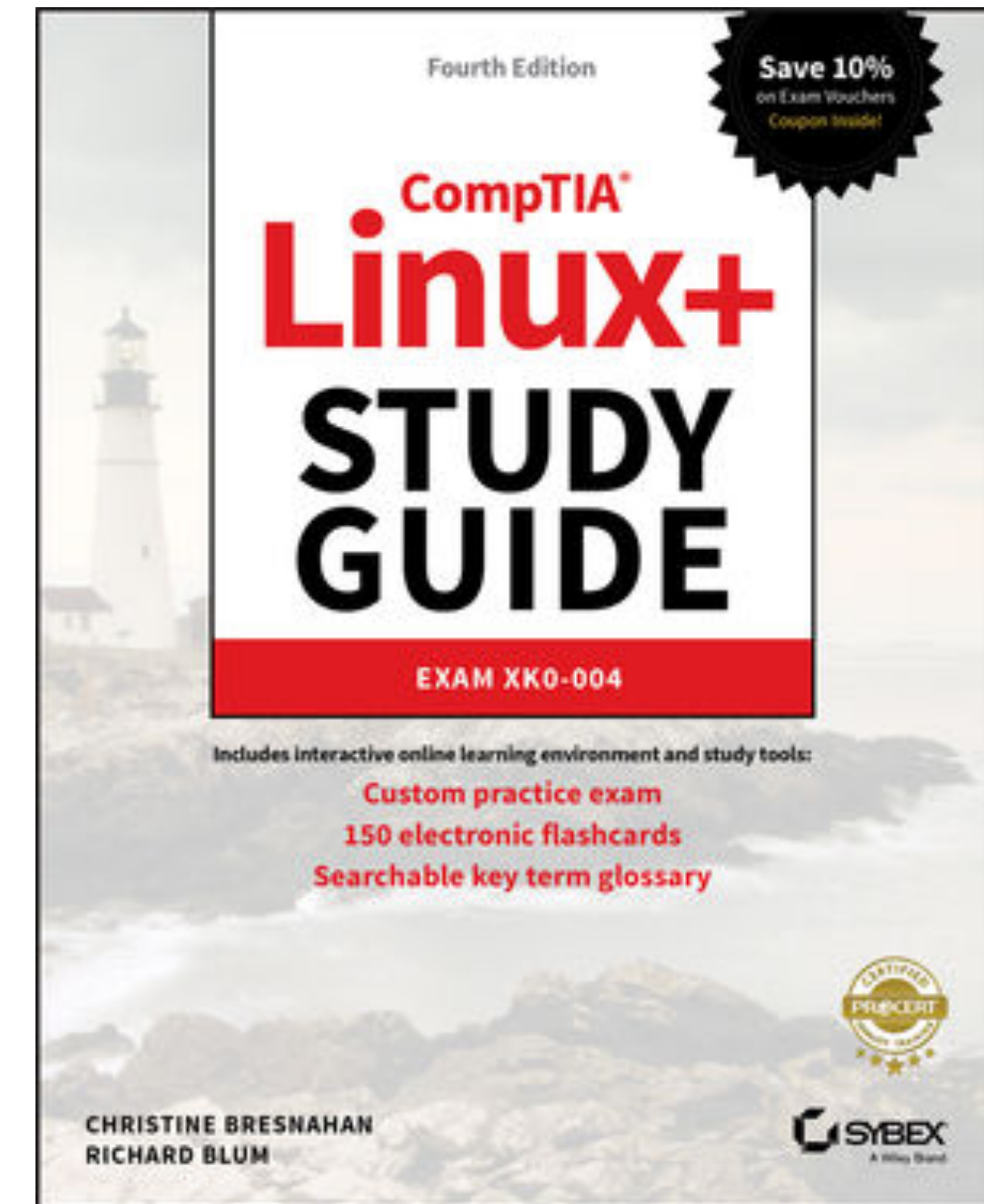
Closing

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”?

Optional homework

- If you want to try the official RHEL, you can!
 - Red Hat offer a free “developer” license.
 - Register at <https://developers.redhat.com/register>
- The Red Hat Developers site also has free books!
 - And they’re *good books*!

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](#)