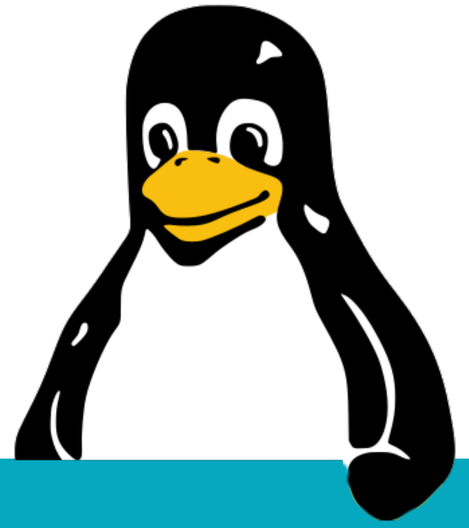
# Linux, day 6



# Objectives covered

| Objective | Summary | Book |
|---|---|---|
| **1.4** | System services | 6 |
| **1.5** | Interface management, name resolution | 7 |
| **1.7** | Configure common system services | 6 |
| | | |
| | | |

# LAB: Linux networking

# Assignment

- Add a second NIC to your VM (in Virtualbox).
  - You can put it in the NAT network.

- Bring the new NIC under NetworkManager control.
- Configure it using "*nmtui*".

# Solution (RHEL)

- *sudo dmesg | grep -i network*
- *sudo nmcli device set eth1 managed yes*
- *sudo nmtui*
  - Set up the new device, similar to *eth0*.
  - Devices names may differ, like *enp0s3*.

# Solution (Debian)

- *sudo vi /etc/netplan/00-installer-config.yml*

```
# Should only contain these lines:
network:
  version: 2
  renderer: NetworkManager
```

- *sudo netplan generate; sudo netplan apply*
- *sudo nmcli device set eth1 managed yes*
- *sudo ip link eth1 up; sudo nmtui*

# What will we do today?

- ~~Recap~~
- ~~Linux networking~~
- Network services
- Configuring network services
- Closing: homework and Q&A

# LAB: FTP Server

# Assignment

- Install the "*vsftpd*" package on Ubuntu.
  - On Fedora WS, the firewall will block you.
- Check for the latest changes (*ls -lrt*) in:
  - */lib/systemd/system/*
  - */etc/systemd/system/*
  - */etc/systemd/system/multi-user.target.wants/*

# Assignment

- Enable the *"vsftpd*" service.
- Again, check for the latest changes (*ls -lrt*) in:
  - */lib/systemd/system/*
  - */etc/systemd/system/*
  - */etc/systemd/system/multi-user.target.wants/*

# Assignment

- Check the status of the "*vsftpd*" service.
- Start the "*vsftpd*" service.
- Check the status of the "*vsftpd*" service again.
  - Can you FTP into the server?
- Finally, disable and mask the "*vsftpd*" service.

# LAB: NTP Client

# Assignment

- Install, enable and run "*chrony*".
- Configure "*chrony*" as NTP client.
  - Find the configuration file, verify the settings.
  - Can you confirm your time is synchronized?

# LAB: SSH keys, ssh-agent

# Setup

- Ensure that you have two Linux VMs.
- And that you have an account on both.

- Plus, let's take a short sidestep to the whiteboard!
  - What are SSH keys?!

# Assignment

- Double-check that SSHd runs on both servers.
- Generate a new key pair on one of the accounts.
  - Make it type ECDSA, with a password.

# Assignment

- Configure your public key for access on the other VM.
  - Copy it to the other VM,
  - It needs to go into *~/.ssh/authorized_keys*.

# Assignment

- Start "*eval $(ssh-agent)*".
- Load your private key with "ssh-add" command.
  - This should ask your password once.

- Try SSH-ing to the other VM again.
  - This should not ask your password.

# Assignment

- Reconfigure "*sshd_config*" on one of the VMs,
  - So it will only allow group "*sshusers*" to login.
- Give your own account the new group "*sshusers*"
- Restart the SSH daemon and test that you can login.
  - Also make sure that another user cannot.

# Closing


# Homework

- Reading:
  - Chapter 5.
  - Chapter 14.

# Homework

- Go do:
  - On Ubuntu, setup a *httpd* webserver.
  - Create a simple "index.html" to serve up.
  - Make sure you can browse to the site:
    - Both from your Fedora VM
    - And from your laptop (setup a port forward!)

# Reference materials

# Resources

- ifconfig vs ip
- netplan vs networkmanager vs networkd
- Have a plan for netplan
- Bonding with NetworkManager
- Bonding with configuration files
- Bridged network connections

# Resources

- Bug in Ubuntu and Network Manager
- Learning to love systemd
- SysVinit and systemd service mgt cheatsheet

# Resources

- Does Not Compute:
  - Let's look at some big, expensive servers.
  - Let's check out a blade server (32 CPUs).
- Others:
  - Inside a Google data center
  - Rackmount server anatomy 101