

# HOMELAB ON NIXOS

DECLARATIVE AND REPRODUCIBLE 

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<https://blog.thym.at/glt24>

# WHO AM I?

- Student at Graz University of Technology 
- DevOps Engineer/Automation Specialist at smaXtec  

- Linux Advocate and Avid User of FOSS 
- Daily Driving NixOS since 2020 

# WHAT IS A HOMELAB?

# WHAT IS A HOMELAB?



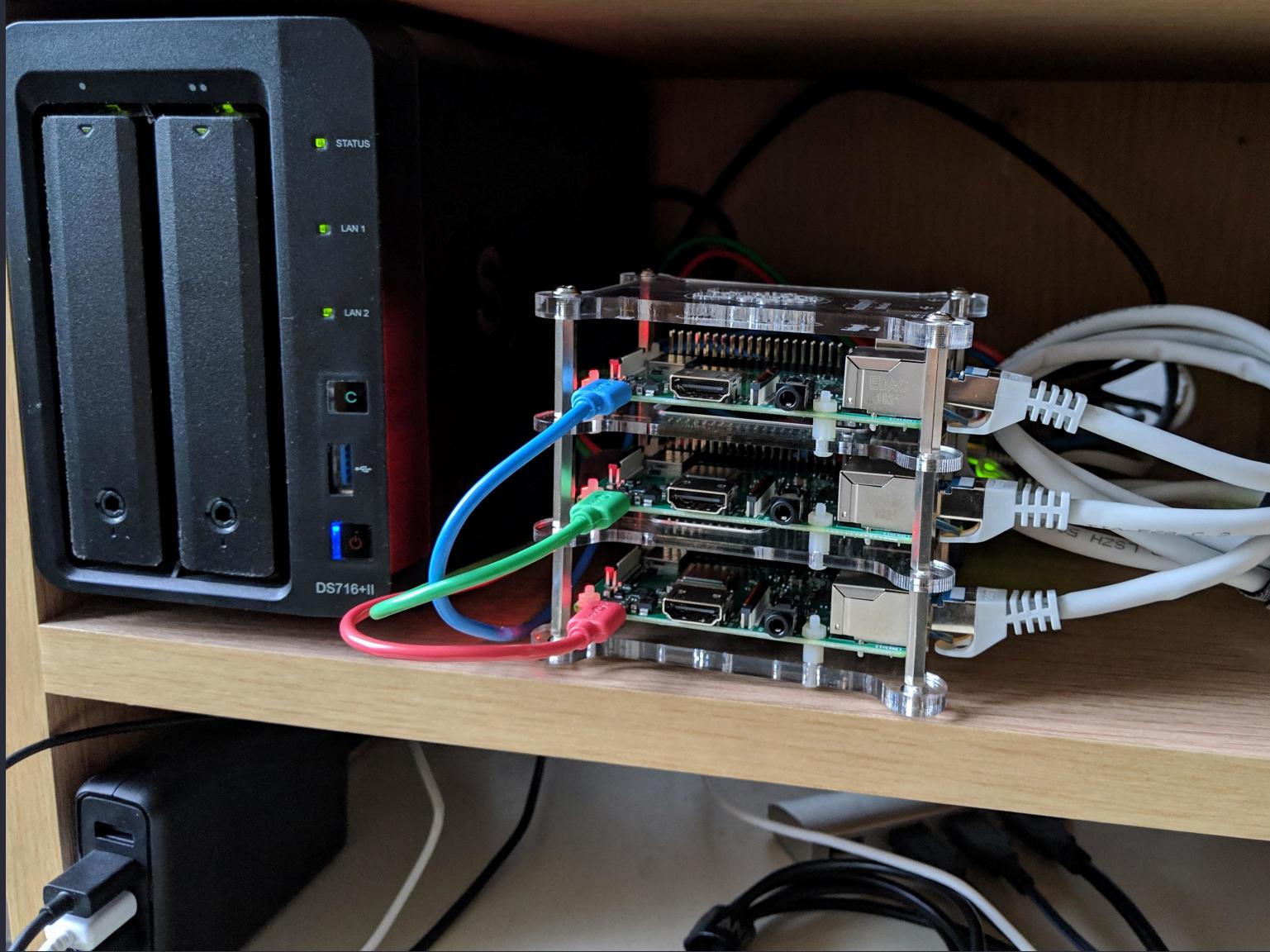
Photo by National Cancer Institute on Unsplash

# WHAT IS A HOMELAB?

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# WHAT IS A HOMELAB?



# WHAT IS A HOMELAB?



# WHAT IS NIX?

Not to be confused with \*nix

# WHAT IS NIX?

- Nix Language
- Nix Package Manager
- Nix Package Library - Nixpkgs
- Nix Operating System - NixOS
- ...

# WHAT IS NIXOS?

- Started as research project by Eelco Dolstra in 2003
- Took off after first stable release branch in 2013 (13.10)
- Stable releases in May and November (e.g. Raccoon - 22.11)
- Receive bugfixes and security updates for 7 months

# NIXOS



```
services = {

    # Start a systemd service for each incoming SSH connection
    openssh.startWhenNeeded = true;

    # Enable periodic SSD TRIM to extend life of mounted SSDs
    fstrim.enable = true;

    # Suspend when power button is short-pressed
    logind.extraConfig = ''
        HandlePowerKey=suspend
    '';
};

};
```

# LANDING PAGE

```
{ ... }:

{
  services.homepage-dashboard = {
    enable = true;
    listenPort = 8082;
  };
}
```



# LANDING PAGE

3% CPU 51.3 GB Free 17.8 GB Free Search...

---

My First Group My Second Group My Third Group

My First Service  
Homepage is awesome

My Second Service  
Homepage is the best

My Third Service  
Homepage is 😊

---

Developer Social Entertainment

GH Github github.com RE Reddit reddit.com YT YouTube youtube.com

---

⚙️ ⚡️ ⚡️ ⚡️

v0.6.6 (29e0b30, Feb 2, 2023)



# NOTIFICATIONS

```
{ ... }:

let
    domain = "mydomain.at";
    ntfyPort = 6780;
    ntfyMetricsPort = 9095;
    ntfyHost = "notifications.${domain}";
in
{
    services.ntfy-sh = {
        enable = true;
        group = "ntfy";
        user = "ntfy";
        settings = {
            base-url = "https://${ntfyHost}";
            ...
```



# NOTIFICATIONS

The screenshot shows a notification interface with a green header bar. The header bar contains the text "phil-backups" and three icons: a bell, a gear, and a refresh symbol.

The main area is titled "Subscribed topics" and lists the following topics:

- All notifications
- announcements
- phil-alerts (7 notifications)
- phil-backups (3 notifications) - This topic is selected, as indicated by the highlighted background.
- stats

Below the topics, there are sections for "Account" and "Settings".

The interface displays three notifications:

- Backups completed, some failed** (4/23/23, 1:12 PM)
  - plup succeeded, took 101s
  - ntfy.sh succeeded, took 49s
  - archive succeeded, took 280s
  - schnitzel FAILED: Connection refusedTags: backups, failure
- Offsiting backups successful** (4/23/23, 1:12 PM)

Uploading backups to Hetzner storagebox completed. Took 30m29s.

Tags: backups, offsite, success
- Backup completed successfully** (4/23/23, 1:12 PM)

At the bottom, there is a text input field with the placeholder "Type a message here" and a send button icon.



# NOTIFICATIONS

Notifications

---

 ntfy • now 



**ntfy.sh/myhome**  
You left the house. Turn down the A/C?

**OPEN PORTAL**    **TURN DOWN**

# HOME ASSISTANT

```
{ ... }:

let
  port = 7901;
  version = "2023.12.2";
in
{
  virtualisation.oci-containers.containers = {
    home-assistant = {
      image = "ghcr.io/home-assistant/home-assistant:${version}";
      volumes = [
        "/var/lib/home-assistant:/config"
        "/etc/localtime:/etc/localtime:ro"
      ];
      extraOptions = [
        "-v /var/run/docker.sock:/var/run/docker.sock"
      ];
    };
  };
}
```

# HOME ASSISTANT

HOME



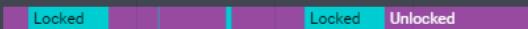
## Occupancy Controls

Guest Mode



Office Door Lock

LOCK



## Office Sensors

Couch Window Open

Skylight Open

Door Closed

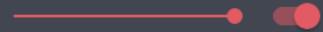
Couch Window Motion Off

Door Motion Off

Office Motion Detected

## Interior Lights

Desk



Couch

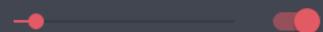


Ceiling

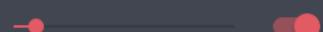


## Exterior Lights

Porch



Side



## Other Office Devices

Ceiling Fan



TV



Office Echo Dot

Local Spea... ▾



Text to speech... ▶ ▶ ▶

Send

Plex on Office Echo Dot  
Knights Of Shame - AWOLNATION



▶ ▶ ▶

## Thermal Controls

Boost Heat (10 min)



Override (30 min max)



Low Heat Mode (LHM)



## Heating Usage



## Temps - Last 5 Days

83.2 °F

74 °F

Min

69.7 °F

Max

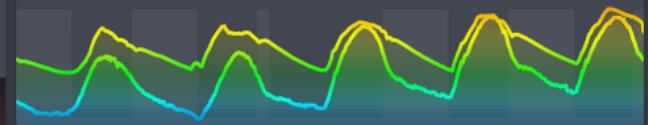
90.8 °F

10 Sat, 6:26 AM

14 Wed, 1:44 PM

Office

Outside



# SOME SERVICE MODULES



# NIXOS USER GROUP AUSTRIA



<https://nixos.at>

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## Nixos & Disks: nixos-anywhere, disko, impermanence

April 9, 2024 · Paul Härle | Suggest Changes

### Event

- Date: **2024-04-09**
- Time: **from 18:00**
- Location: **Metalab, Rathausstraße 6, 1010 Vienna** (at least one person will wear a NixOS-themed hoodie or shirt and you can also ping us on matrix if you find it hard to locate us)
- Language: English and/or German, depending on who's present.
- Presenters:
  - @phaer will do a introduction on nixos-anywhere and disko, explain why they are useful & roughly how they work.
  - @Krezzlu will do a demo on impermanence (with disko), explain why you might want to use it and give pointers to further resources.

# MENTIONED RESOURCES

- My modular, messy NixOS configuration
- Awesome Self-Hosted - Community-maintained list of Free Software network services and web applications which can be hosted on your own servers
- Awesome Nix - Community-maintained link list with helpful resources

# ATTRIBUTIONS

- Image of mini homelab of Reddit user buster072 - [Reddit](#)
- Image of sizeable homelab of Reddit user lusid1 - [Reddit](#)
- Image of large homelab of Reddit user JaredBanyard - [Reddit](#)
- Image of production-grade “homelab” - [EPM](#)
- Brand Logos - [Simple Icons](#)

# THANKS!

curl -sL <https://matthias.thym.at/card>

<https://blog.thym.at/p/glt24>

