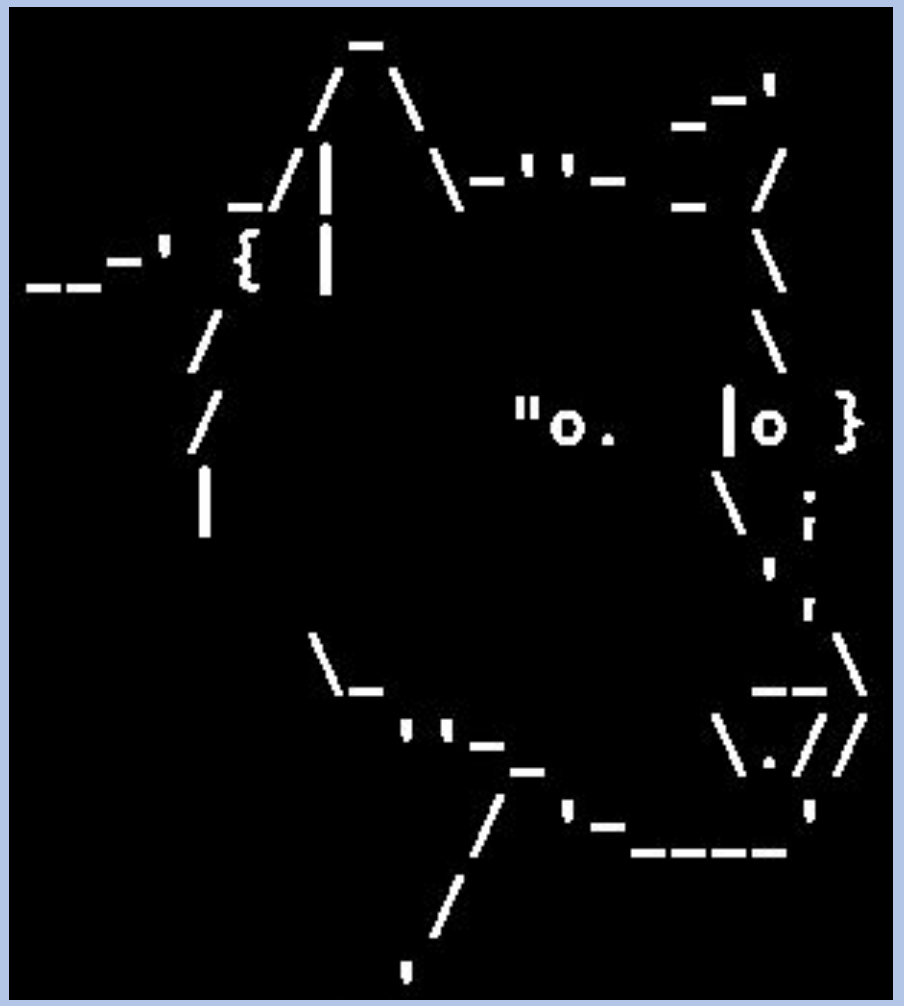


Data Infrastructure Management

Samuel Kudrna, Jinun Kim, Ryan Baik, Alexander Kotelnikov, Mattias Dorey

Objectives

- Gaining Linux skills
- Manage our servers via remote connection
- Create Linux diskless systems for installation and provisioning with Warewulf

Connection to the Infrastructure

WireGuard
SSH
WEB

Firewall

Node('s)

PROXMOX		
WWCT01	WWCT03	WWCT05
WWCT02	WWCT04	WWCT06

WAREWULF

Gaining Necessary Skills

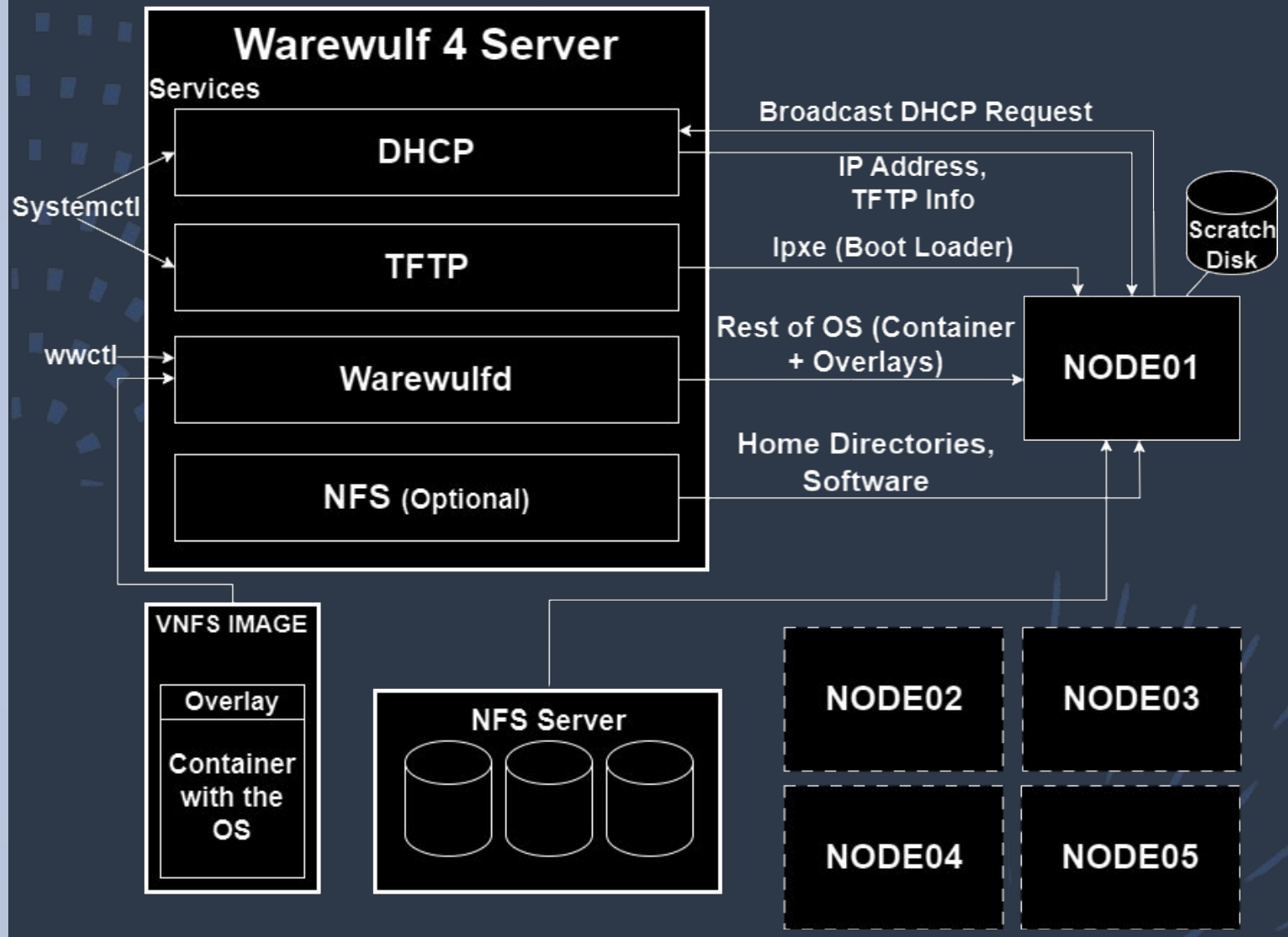
- Learned:
  - Basic Linux commands
  - Python/Shell scripting
  - Network File Systems (NFS)
  - How to troubleshoot
  - Node reinstallation
  - Start/stop services
  - Basic networking procedures

https://linuxcourse.rutgers.edu/Winlab_Internship_2024/html/index.html

Definitions

- SSH: Secure shell - The connection to the linux workspace
- NFS: Network File System
- DHCP: Dynamic Host Configuration Protocol
- IPXE: Open source network-boot firmware
- TFTP: A protocol that allows users to transfer to and from a remote machine

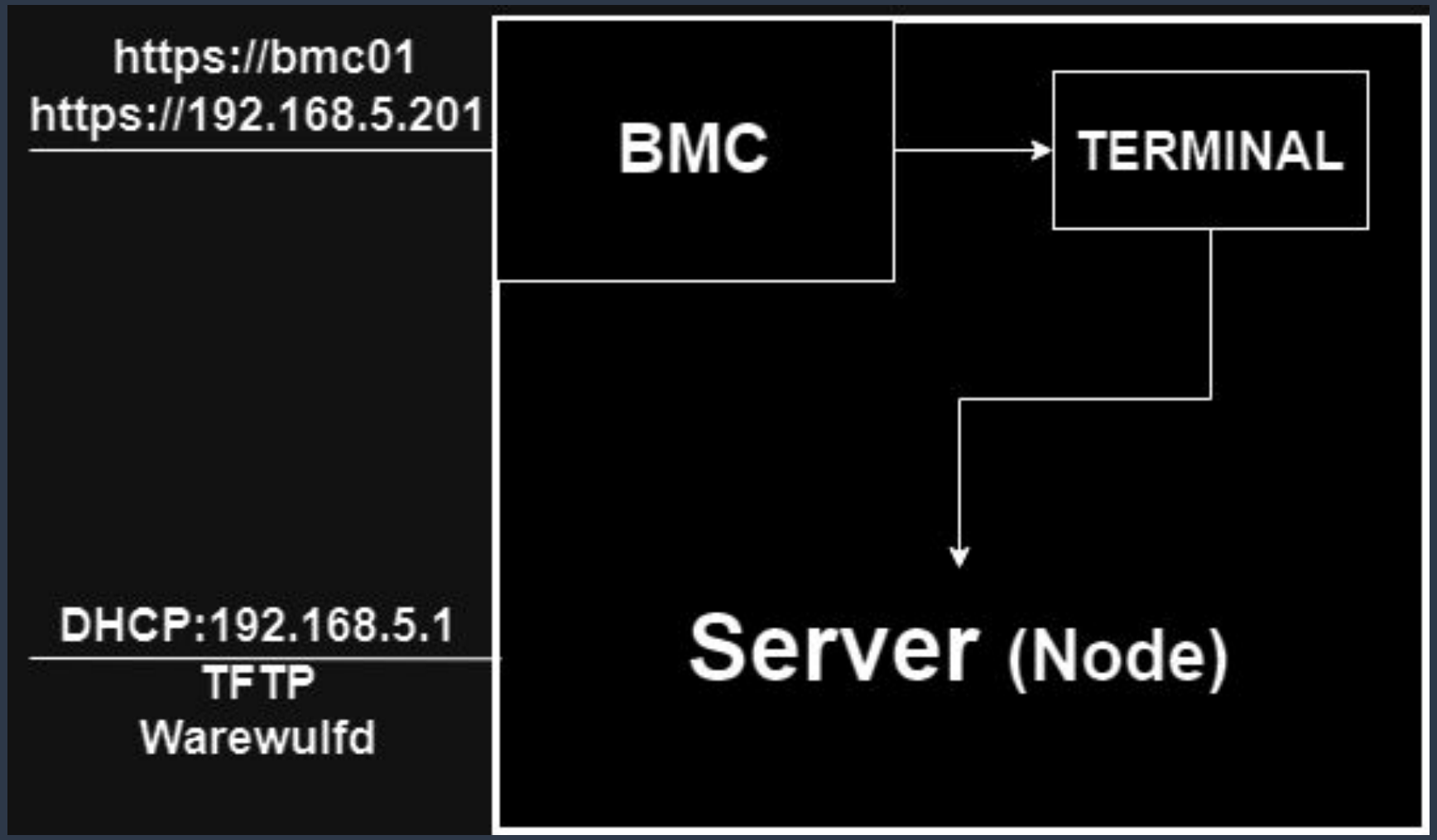
Warewulf Workflow



Warewulfd Commands

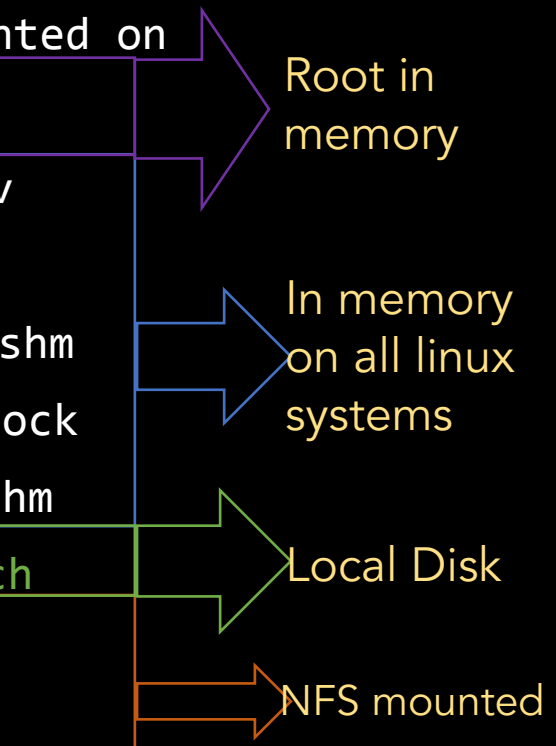
- wwctl container (import, shell, list)
- wwctl profile (set, list)
- wwctl node (add, set, status, delete, list)
- wwctl overlay build

Booting into Warewulf



Diskless Node File Systems

```
hostadm@node08:~$ df -h
Filesystem                Size      Used     Avail    Use%     Mounted on
rootfs                    126G      773M     125G     1%       /
devtmpfs                  126G      0        126G     0%       /dev
tmpfs                     126G      1.8M     126G     1%       /run
tmpfs                     126G      0        126G     0%       /dev/shm
tmpfs                     5.0M      0        5.0M     0%       /run/lock
tmpfs                     126G      0        126G     0%       /run/shm
/dev/sda1                 440G      28K      417G     1%       /scratch
192.168.5.127:/opt        49G       4.4G     43G      10%      /opt
192.168.5.127:/home       49G       4.4G     43G      10%      /home
```



Conclusion

Learned:


Linux


Shell scripting


Python


Networking


And deployed the warewulf4 installer

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- Thank you:
  - Ivan Seskar, for managing the internship
  - Jenny Shane, for leading the groups
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