



Berner Fachhochschule  
Haute école spécialisée bernoise  
Bern University of Applied Sciences

# Linux Containers

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IT System Engineers, Team Infrastructure Services

# Overview

## **Part 1**

- ▶ Terminology

## **Part 2**

- ▶ Current Setup

## **Part 3**

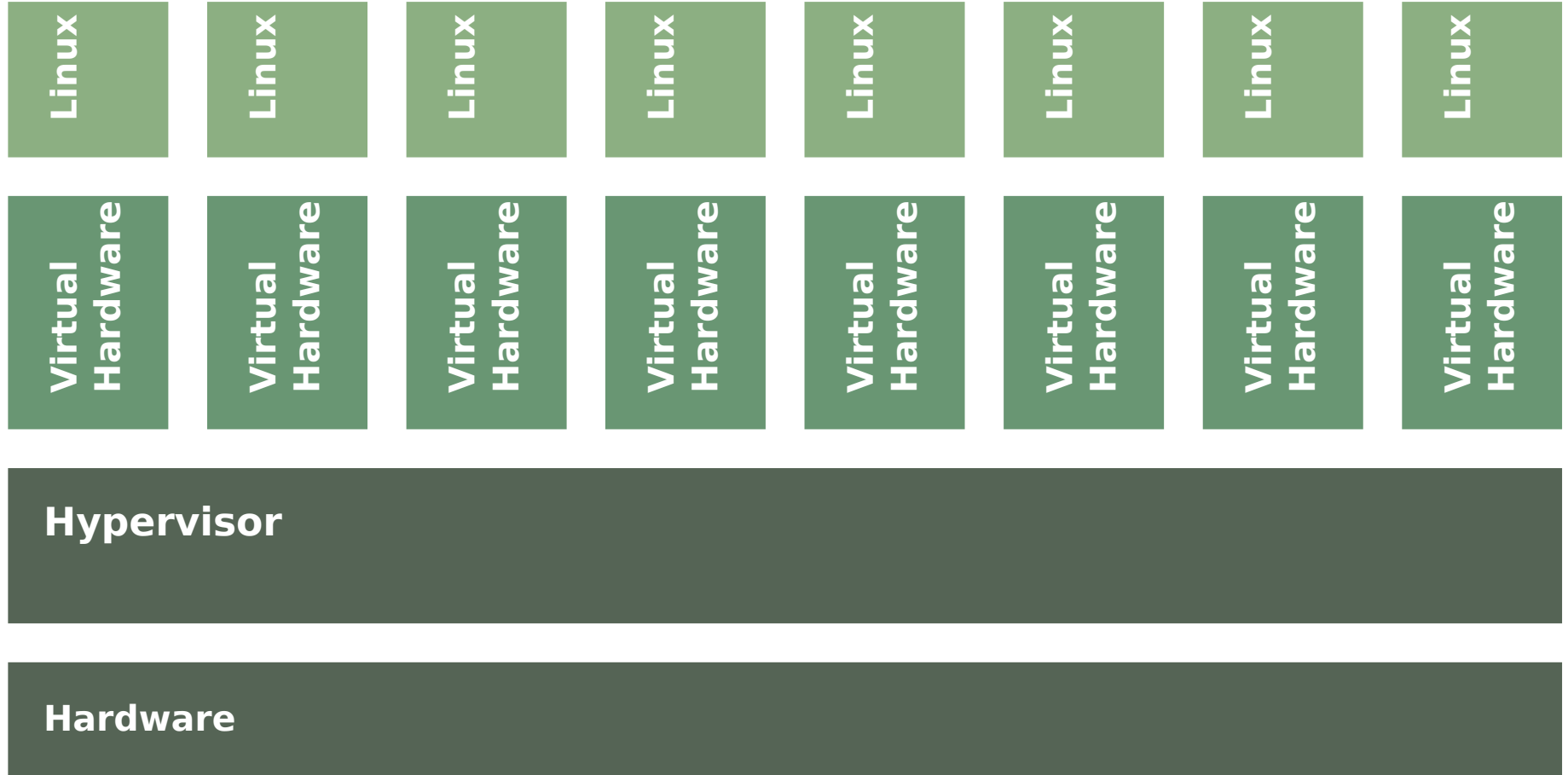
- ▶ Future Setup and Best Practise

## **Note**

- ▶ there's much more introductory information available at [\*\*https://linux.bfh.ch\*\*](https://linux.bfh.ch)

# Part 1

# Virtualization



# Isolation

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Container)

Linux (Host System with LXC)

Hardware

# Terminology

- ▶ Namespaces
- ▶ Control Groups (Cgroups)
- ▶ unshare

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- ▶ Namespaces
- ▶ Control Groups (Cgroups)
- ▶ unshare
  
- ▶ Host
- ▶ Container

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- ▶ Namespaces
- ▶ Control Groups (Cgroups)
- ▶ unshare
  
- ▶ Host
- ▶ Container
  
- ▶ System and Application Containers
- ▶ Privileged and Unprivileged Containers



## Part 2

# Isolation

Service

Service

Service

Service

Service

Service

Service

Service

Isolation

Virtualization

# Separation

Data

Data

Data

Data

Data

Data

Data

Data

Service

Service

Service

Service

Service

Service

Service

Service

Isolation

Virtualization

# Current Setup

## **Setup**

- ▶ Host System: Debian stable with relevant backports
- ▶ Virtualization: VMware ESX
- ▶ Storage: NetApp NFS

# Linux Container (1)

Data

Data

**Host:**  
`/srv/lxc/data/$fqdn`

**Container:**  
`/srv/$fqdn`

Service

Service

**Host:**  
`/srv/lxc/containers/$fqdn`

**Container:**  
`/`

Isolation

**Host:**  
`/`

**Container:**  
`n/a`

Virtualization

**Host:**  
`n/a`

# Linux Container (2)

Data

Data

**Storage:**

bfhfilerbe01.bfh.ch:/vol/lx\_data\_01\_v0\_sata\_enge

Service

Service

**Storage:**

bfhfilerbe02.bfh.ch:/vol/lx\_containers\_01\_sas\_enge

Isolation

**Storage:**

becenter.bfh.ch

Virtualization

**Storage:**

becenter.bfh.ch

# Current Setup

## **Setup**

- ▶ Host System: Debian stable with relevant backports
- ▶ Virtualization: VMware ESX
- ▶ Storage: NetApp NFS

## **Problems and Trouble Areas**

- ▶ VMware dvSwitch with Bridges (and Cisco Nexus FEX)
- ▶ Host System Integration and LXC Templates

## Part 3



# Future Setup

## **Future**

- ▶ LXC Alternatives
- ▶ systemd and Canonical Rant
- ▶ systemd-nspawn FTW!

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- ▶ LXC Alternatives
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## **Questions regarding Best Practise**

- ▶ When to use Container?
- ▶ When to use which Container (System vs. Application)?
- ▶ Daily Business: Provisioning, Updates, Monitoring, Backup
- ▶ Host System Specification and RAM Usage
- ▶ Infrastructure Requirements in order to run Containers
- ▶ Recommendation? Sure, if...

Thank You for Your Attention.

♥ Source Code is freely available

```
git clone git://git.bfh.ch/git/staff/bad9/other/talks.git
```