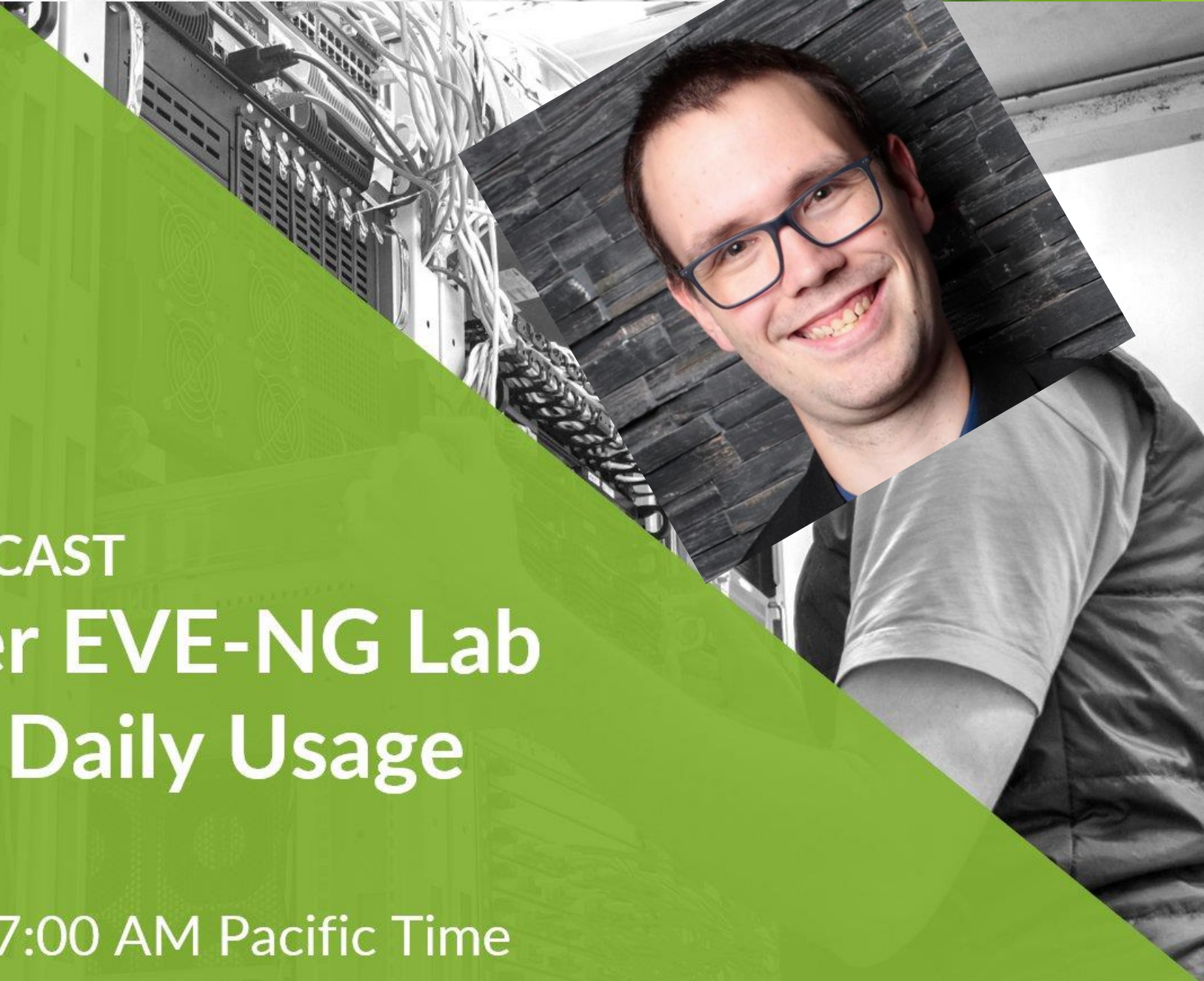# JUNIPER
NETWORKS®

Juniper Open Learning

TECHNICAL SERIES WEBCAST

Building a Juniper EVE-NG Lab Environment for Daily Usage Part 1/3

Wednesday, February 9th, 7:00 AM Pacific Time

About:

Christian Scholz (🐦 @chsjuniper)

„That guy who loves Juniper and IPv6"

Sr. Consultant - Network & Security
[Axians Networks & Solutions]

JNPR Ambassador | JNCIE-SEC #374
Blog: www.jncie.eu
Mail: chs@ip4.de
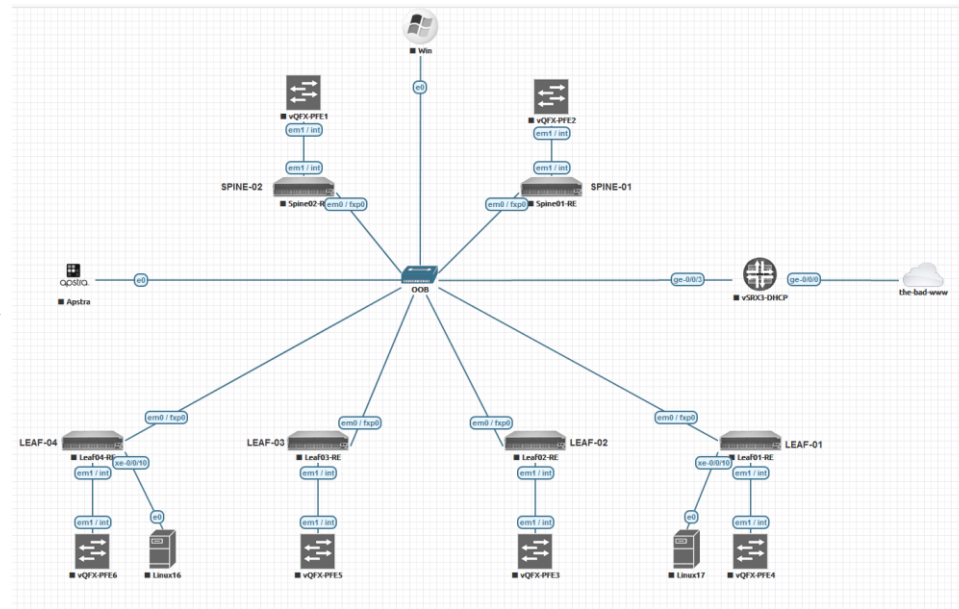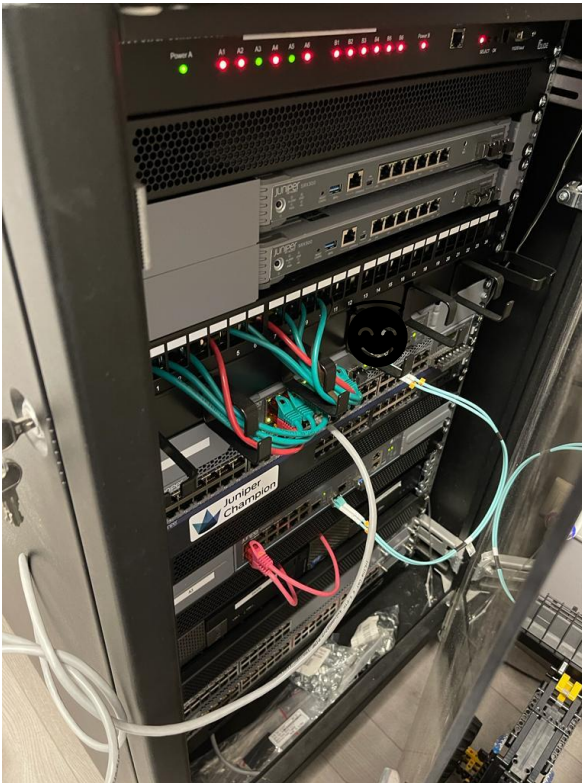Youtube: www.youtube.com/netchron/

Why EVE-NG? | Why Virtual Labs?

Why EVE-NG | Why Virtual Labs

Save Power / Rackspace

Why EVE-NG | Why Virtual Labs

- Quickly Lab / Test a new Design
- GREAT for Certification ☺ → Combine with vLabs and AATP

- Get started for free with the Community Edition
- Vendor-Neutral! No Focus on a particular Vendor
- Extremely Flexible (Bare-Metal, VM | On-Prem | Colocation | Cloud)

Design Considerations – Planning a Lab

▶ Number of nodes (CPU, RAM, HDD):
For each node, eve „copies" the image and therefore needs harddisk ☺
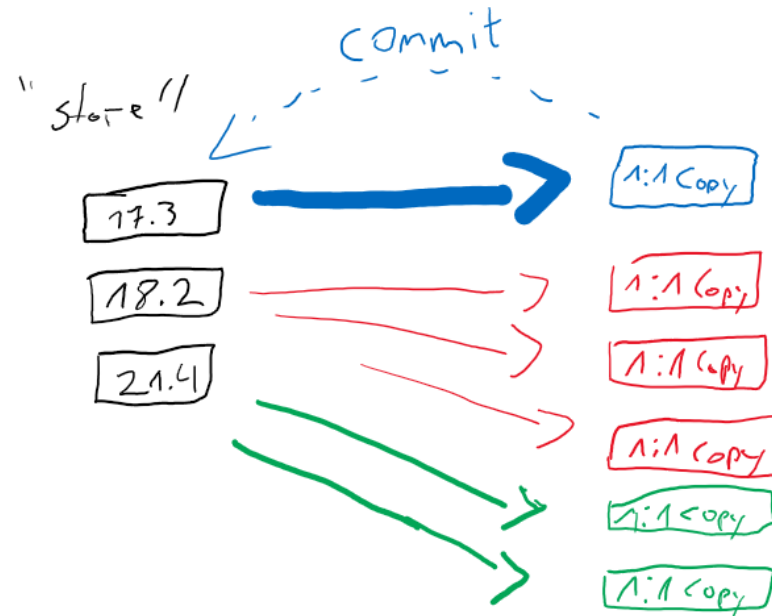
Design Considerations – Planning a Lab

▶ Number of nodes (CPU, RAM, HDD):
For each node, eve „copies" the image and therefore needs harddisk ☺

▶ Number of images on EVE host | „Data Grave" | Clean Policy

▶ Number of needed satellites – are any needed? Clustering needed?
Pro needed? VM or Bare?

Flavors?

▶ Ubuntu installed on BMS

Hardware   Hypervisor (KVM) [EVE]   Juniper vDevice

▶ ESXi installed on BMS and EVE as VM inside ESXi

Hardware   Hypervisor (ESX)   Hypervisor (KVM nested) [EVE]   Juniper vDevice

▶ Windows Client running VMwareWorkstation, running EVE (EVEception)

Hardware   OS (Windows)   Hypervisor (Workstation)   Hypervisor (KVM nested) [EVE]   Juniper vDevice

Flavors?

▶ EVE running on GCP (Google Cloud Platform)
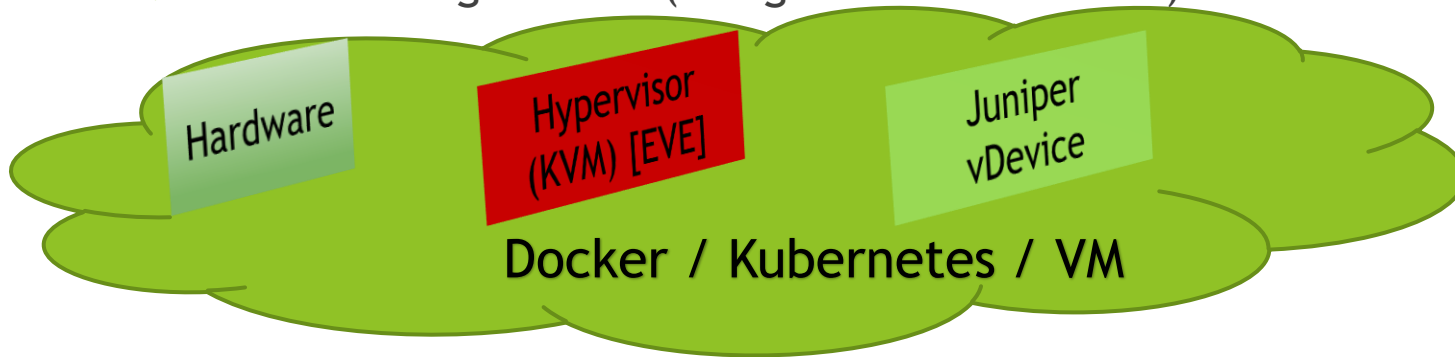
What is the EVE Cluster?

- ▶ Group of EVE-Servers „sharing" resources for Labs / Topologies

- ▶ Master instance and Satellites

- ▶ Satellites are controlled Master node

- ▶ Login via master-node

- ▶ No „drive-by listeners" - Secured by wireguard

- ▶ Running vxlan-tunnels between nodes

What do I need?

▶ Valid Pro License (Clusters are Pro only)

▶ Network Ports opened between the master and the satellites

15.2.1 Firewall rules between Master and Satellite nodes

Node	Protocol	Port	Direction	Source	Destination
MASTER	TCP	22	ingress and egress	MASTER node IP	SATELLITE nodes IPs
MASTER	UDP	all	ingress and egress	MASTER node IP	SATELLITE nodes IPs
SATELLITE	TCP	22	ingress and egress	SATELLITE node IP	MASTER Node IP
SATELLITE	UDP	all	ingress and egress	SATELLITE node IP	MASTER Node IP

▶ Working DNS

Flavors?

▶ EVE Hybrid (run multiple flavors of eve in a cluster)

EVE MASTER Bare Node   EVE SAT1 VM Node   EVE SAT VM Node on GCP   EVE SAT VM Node
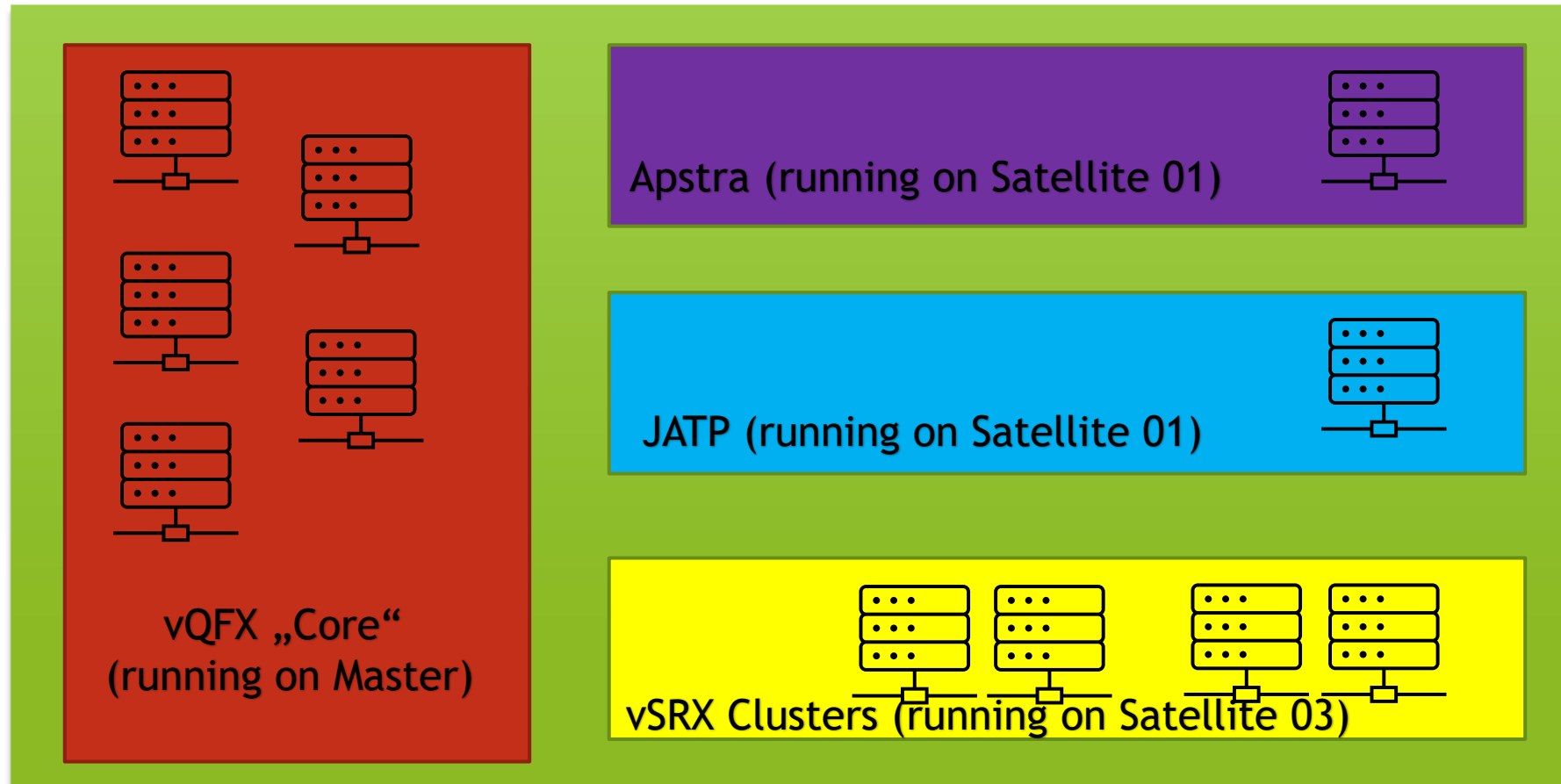
Laptop

▶ Allows for easy scaling the Lab (need more resources? Throw more servers in)

▶ Allows part of your huge nodes to run on different servers (Space, Apstra, JATP)

Example Topology

Design Considerations

- Number of nodes (CPU, RAM, HDD):
  For each node, eve „copies" the image and therefore needs harddisk ☺

- Number of images on EVE host | „Data Grave" | Clean Policy

- Number of needed satellites – are any needed? Clustering needed?
  Pro needed?

- How to Access your EVE-NG Server? VPN in Front? IP-Whitelisting?

- How many concurrent Users needed?

- Hardware that needs to talk to EVE / Separate Management Network?

- Backup?

Separate Link for Management Network
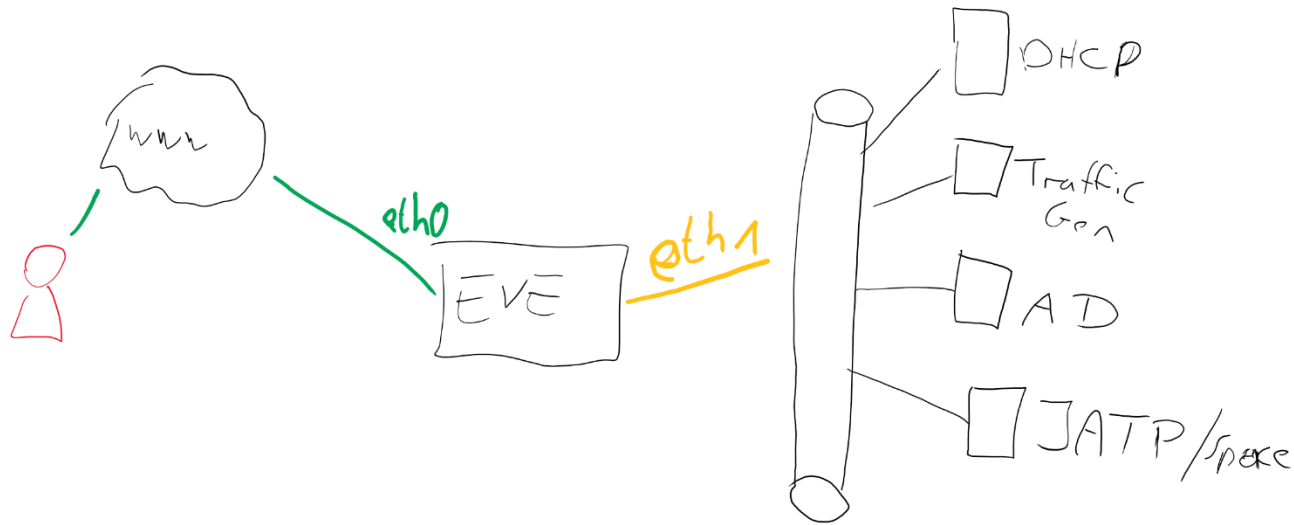
Design Considerations

- Number of nodes (CPU, RAM, HDD):
  For each node, eve „copies" the image and therefore needs harddisk ☺

- Number of images on EVE host | „Data Grave" | Clean Policy

- Number of needed satellites – are any needed? Clustering needed?
  Pro needed?

- How to Access your EVE-NG Server? VPN in Front? IP-Whitelisting?

- How many concurrent Users needed?

- Hardware that needs to talk to EVE / Separate Management Network?

- Backup?

Strike Plan for Today

- ▶ Get Console Access
- ▶ Mount iso
- ▶ Install Ubuntu / EVE-NG
- ▶ EVE-NG initial Setup

Our Scenario for the sessions

▶ Bare-Metal-Server „Master" (HP)
Cheap eBay Server

▶ Nothing installed so far

▶ Access to virtual Console (to mount the iso-File)

▶ EVE-NG iso (Community Edition for this Session, Pro Edition for Sessions 2+3):
→ https://www.eve-ng.net/index.php/download/

▶ Minimum of 1 connected wired Port to access the EVE-NG repository

More Infos

- Youtube Video Series covering EVE-NG and Juniper:
  https://www.youtube.com/netchron

- EVE-NG Youtube Channel:
  https://www.youtube.com/channel/UCh-RxHfEpYzo2Sgflq4_vAA/videos

- EVE-NG Website:
  https://www.eve-ng.net/

- EVE-NG Forum:
  https://www.eve-ng.net/forum/

- EVE-NG Helpdesk (Live-Chat):
  https://www.eve-ng.net/index.php/live-helpdesk/

Q&A

Christian Scholz (🐦 @chsjuniper)

„That guy who loves Juniper and IPv6"

Sr. Consultant - Network & Security
[Axians Networks & Solutions]

JNPR Ambassador | JNCIE-SEC #374
Blog: www.jncie.eu
Mail: chs@ip4.de
Youtube: www.youtube.com/netchron/