



Creating a Juniper Lab with EVE-NG - Part 1

CREATING A JUNIPER LAB WITH EVE-NG!

Part 1: Wednesday, 15. July 2026 17:00 - 18:30 GMT+2	Part 2: Wednesday, 19. Aug. 2026 17:00 - 18:30 GMT+2	Part 3: Wednesday, 9. Sept. 2026 17:00 - 18:30 GMT+2
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ZOOM
Do not miss this opportunity

GET READY TO BUILD!

What to expect?

Session 1: This webcast will cover the installation of EVE-NG v7, the features available, and some tips and tricks. The session will also cover the concept of EVE-NG, explain the setup basics (what to check first), and feature a installation process to show exactly how to set up the server as a foundation (Proxmox) for your labs.

Session 2: This webcast will cover the fetching of the vJunOS-Devices (Router, Switch, Evo) for daily labbing. It will cover the installation of the images (nodes) and show how to use the images (nodes) to create simple labs. The session will also cover the currently available templates (vendors and devices) for EVE-NG, show you how templates work in EVE-NG and how values can be changed, and explain how to obtain the needed images and how to install them.

Session 3: This webcast will cover some advanced topics such as EVE-NG clustering, deploying virtual campus-fabrics for Mist, connect your Hardware via MIST-Edge to your virtual Lab, and how to connect EVE-NG to your multiple physical labs for advanced use cases. We'll also cover how to create and use custom templates for images that are not yet supported by the EVE-NG template system and cover some more advanced labs with huge resources.



Today

The road so far...

► Session 1:

Fetches the EVE-NG OS (iso File) (Community and Pro), Installed EVE-NG on a Bare Metal Server via bootable USB, Changed initial password (Web-UI) and Install-Wizard (CLI)

► Session 2:

Fetches images, Uploads images (nodes), created basic labs

► Current State: EVE-NG Server (Prov7) with Juniper images; vSRX, vJunOS-Switch



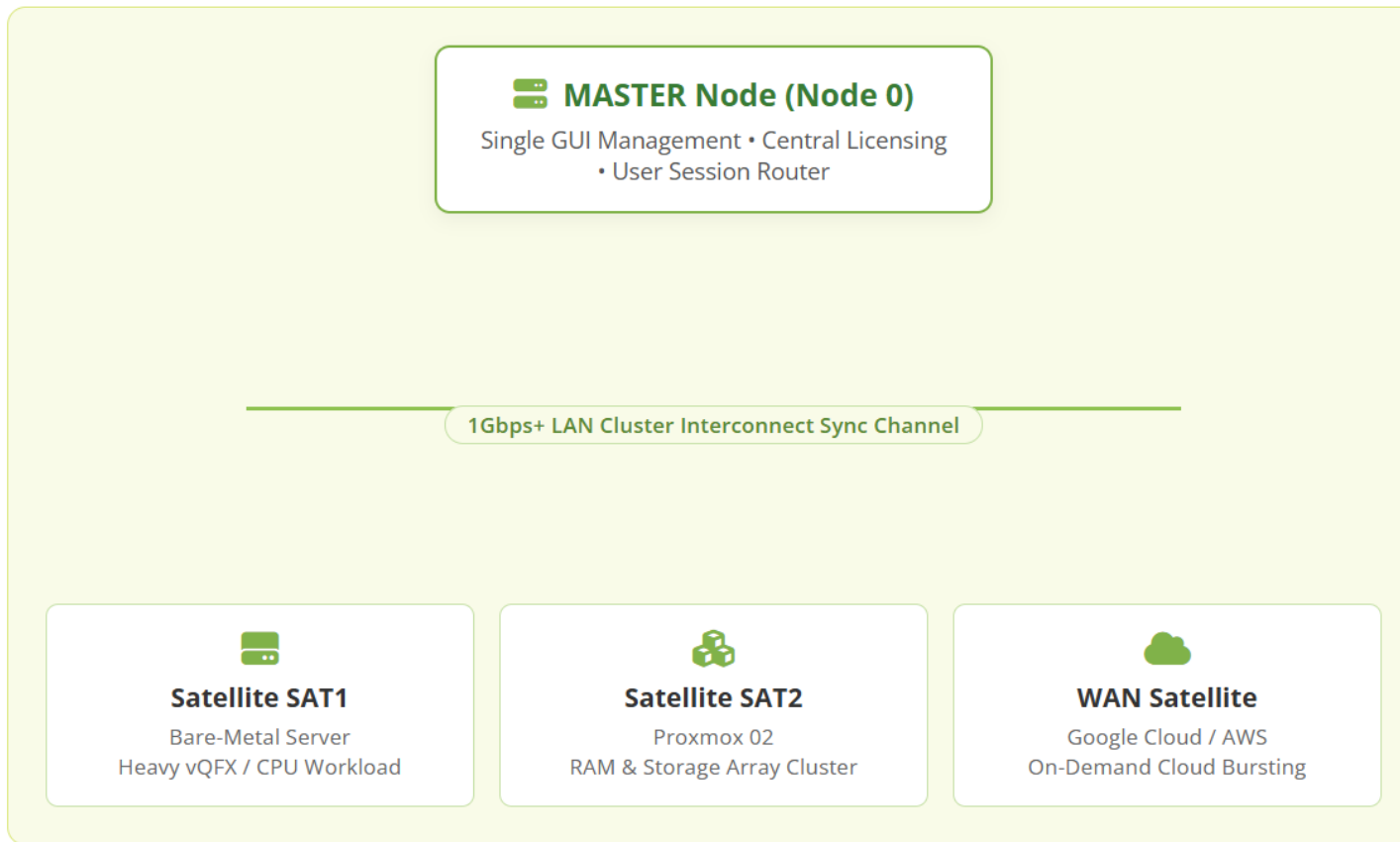


Our Goal for today

- ▶ Look at Clustering / Load Sharing
 - ▶ Check mixed Environments (Bare, VM, Cloud)
 - ▶ Talk about Pro Features for Troubleshooting / Testing (Link-Loss, Latency)
 - ▶ Create a custom Template
 - ▶ Look at HUGE Labs and how to deal with them
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Clustering / Load Sharing

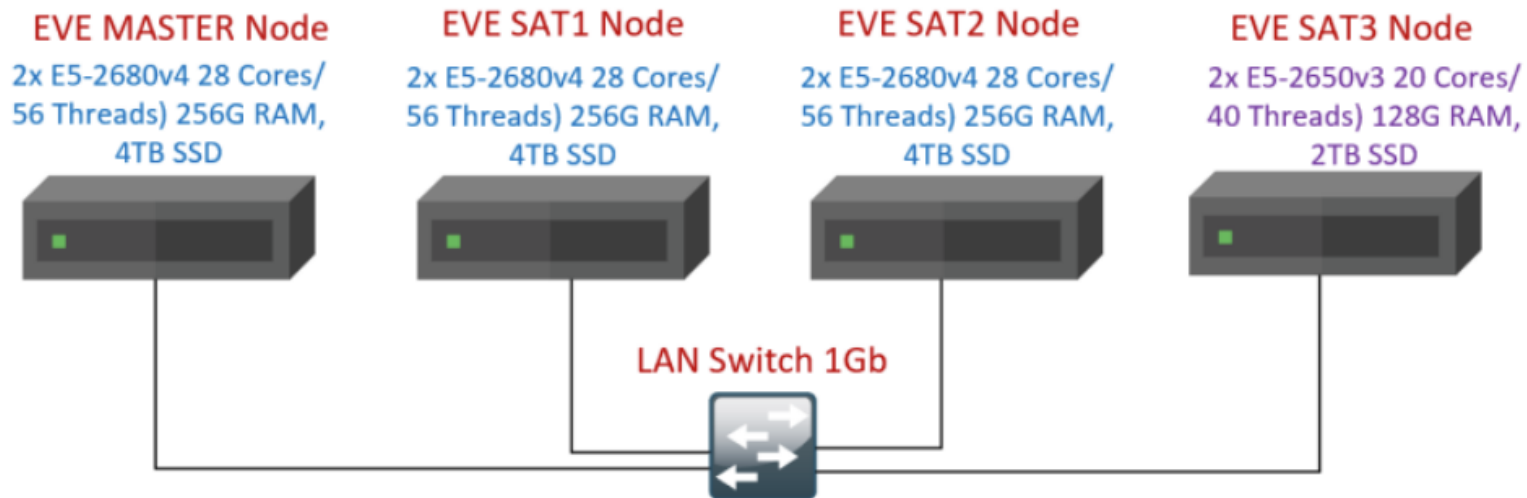
EVE-NG v7 Cluster Topography



Clustering / Load Sharing

Design 1 EVE-NG Cluster Bare HW servers, recommended

EVE Cluster 208 vCPU, 896GB RAM, 16TB SSD. Cluster members can be different HW configuration.
The 1GB LAN connection or better is required



Clustering / Load Sharing



Clustering allows for scaling / load sharing



Mix and match what's best for your Devices (Bare, VM, Cloud)



Number of CPU-Cores, HDD-Speed - choose what type of load you have
vJunOS-Switch hungry for RAM, JSA Hungry for Disks



Add more satellites if needed

What do I need?

- ▶ Valid Pro License (Clusters are Pro only)
- ▶ Network Ports opened between the master and the satellites

Node	Protocol	Port	Direction	Source	Destination
MASTER	TCP	22	ingress and egress	MASTER node IP	SATELLITE nodes IPs
MASTER	UDP	60569	ingress and egress	MASTER node IP	SATELLITE nodes IPs
SATELLITE	TCP	22	ingress and egress	SATELLITE node IP	MASTER Node IP
SATELLITE	UDP	60569	ingress and egress	SATELLITE node IP	MASTER Node IP



An EVE Cluster for internal management is using network 172.29.130.0/24.
Please avoid use it in your network.

How to install it?

- Use the iso from eve-ng.net

- Satellite == Agent

- EVE-Cookbook

- Follow every step!



Step 1: Power ON EVE VM. Chose Install EVE-NG Satellite and confirm with Enter.



Adding a Satellite

The screenshot shows the EVE-NG Professional interface. The top navigation bar includes 'Main', 'Management', 'System', 'Information', 'Licensing', and '©2025 EVE-NG'. The 'System' menu is open, showing options: 'System settings', 'Cluster settings' (highlighted with a red arrow), 'System status', 'System logs', and 'Stop all nodes'. Below this, the 'Cluster Settings' page is displayed. It features a table with columns: ID, Name, CPU, CPU Usage(%), Memory, RAM Usage(%), Swap, Swap Usage(%), Disk, Disk Usage(%), and Actions. A red arrow points to the '+ ADD MEMBER' button in the top right corner of the table.

ID	Name	CPU	CPU Usage(%)	Memory	RAM Usage(%)	Swap	Swap Usage(%)	Disk	Disk Usage(%)	Actions
0	master	8	20%	31.3 MB	2%	8.0 MB	0%	193.3 GB	10%	

+ Add New Member

Member Name

IP Address
 . . .

Member's Root Password

≡ Add Member Log

```
Starting adding Sat sat001...
Generate Private Key for new Sat... OK
Get Public Key for new Sat... OK
Get EVE Public Key... OK
Generate SSH Key pair... OK
Cleaning host key for the new sat... OK
Copy rsa key the new sat... OK
Testing ssh connection to the new sat... OK
Check if wireguard config already exists... OK
Adding wireguard to sat... OK
Activate wireguard config locally... OK
Generate new client SSL certificateOK
Copying SSL cert to sat... OK
Restart remote agent... OK
Checking running remote agent... OK
```

Adding a Satellite

eve

Professional

Home

Management

System

Information

Licensing

©2025 EVE-NG

Version: 6.2.0-58-PRO

02:07

admin

Sign Out

Cluster Settings

+ ADD MEMBER

ID	Name	CPU	CPU Usage(%)	Memory	RAM Usage(%)	Swap	Swap Usage(%)	Disk	Disk Usage(%)	Actions
0	master	8	3%	31.3 MB	9%	8.0 MB	0%	193.3 GB	15%	
1	sat001	8	1%	15.6 MB	5%	4.0 MB	0%	193.3 GB	10%	

Items per page: 10 1-2 of 2

Startup configuration

None

Delay (s)

0

Console

Satellite

master

master

any

Adding a Satellite

The screenshot shows the EVE-NG Professional File Manager interface. On the left, a file list table is visible:

	Name	Modified
☐	Running	
☐	Shared	20 Jun 2026 09:22
☐	Users	21 Jun 2026 14:10
☐	My Labs	21 Jun 2026 10:00
☐	001-Release-Lab-Filter.unl	21 Jun 2026 14:01
☐	First Lab.unl	21 Jun 2026 09:47

A red arrow points to the file '001-Release-Lab-Filter.unl'. The main area displays a detailed view of this file, including a network diagram and a list of components. Below the diagram, the following information is shown:

- Lab Path: /001-Release-Lab-Filter.unl
- Version: 2
- UUID: 208e559f-d1bf-4981-a98e-27c9270ceabf
- Author:

Buttons for 'OPEN', 'EDIT', and 'DELETE' are at the bottom. A red arrow points to the 'EDIT' button.

Lab properties

Path: /001-Release-Lab.unl

Name: 001-Release-Lab

Version: 1

Author: UD

Satellite: any

Shared with: any

Config Script: master

Lab Count: sat001

Default link: sat001

Display Grid: ☒

Lab Description:

Lab tasks:

SAVE CANCEL

Adding a Satellite

Configured Nodes						
Filter by Status: All						
Lab Assigned Resources (Running/ Total) vCPU: 10/ 16 RAM: 47/ 59 GB HDD: 10.44 GB						
ID	NAME	SATELLITE	TEMPLATE	BOOT IMAGE	CPU	CPU USAGE
1	R-XE2	master	io1	x86_64_crb_linux-adventerprise9-ms.bin	n/a	0.0%
2	R-XE1	master	io1	x86_64_crb_linux-adventerprise9-ms.bin	n/a	0.0%
3	NXOS-01	master	nxosv9k	nxosv9k-9300v64-10.3.3F	2	49.5%
4	NXOS-02	master	nxosv9k	nxosv9k-9300v64-10.3.3F	2	27.0%
5	SW-INT	master	io1	x86_64_crb_linux_l2-adventerprise9-ms.bin	n/a	0.0%
6	ASAv01	master	asav	asav-9-20-2-21	1	26.0%
7	ASAv02	master	asav	asav-9-20-2-21	1	26.0%
8	Mgmt	any	docker	eve-gui-server:latest	2	0.0%
9	Win11	SAT01B	win	win-11-x64-23H2v2A	4	0.0%
10	WS2022	SAT01B	winserver	winserver-S2022-x64-21H2AL	4	0.5%

Adding a Satellite

Once you have assigned certain lab device to use cluster Satellite node and start it, the automatic rsync process is initiated from Master node copy necessary image to the Satellite cluster member. During rsync process between Master and Satellite lab device will display “**Clock**” sign beside device. After image rsync process is completed, Lab device will turn sign to “**Play**”, running state.



On EVE Master:
Cluster System CLI Commands:

Check Cluster status:

```
root@eve-ng:~# unl_wrapper -a showcluster
Jan 31 23:56:52 Jan 31 23:56:52 Online Check state: Valid
Cluster Status:
#####
0 master Online ( Local )
1 sat1 Online
2 sat2 Online
#####
```

Adding a Satellite

- ▶ Single-Point Upgrade: Updating the Master Node automatically orchestrates and updates all connected Satellites.
- ▶ Zero Manual Intervention: Satellites pull matching EVE-NG Pro packages, core binaries & kernel drivers seamlessly.
- ▶ Guaranteed Version Parity: Eliminates package drift and protocol version mismatch across nodes.
- ▶ Central Progress Tracking: Real-time update status and node health monitored directly from the Master Web GUI.

🔄 Automated Master-to-Satellite Update Sequence:

1. Upgrade Master

`apt update & upgrade`



2. Broadcast Signal

Encrypted cluster RPC push



3. Satellites Auto-Sync

Packages updated & verified

Mixed Environments

- ▶ Ubuntu (EVE) installed on BMS (**MOST PERFORMANT**)



- ▶ ESXi installed on BMS and EVE as VM inside ESXi

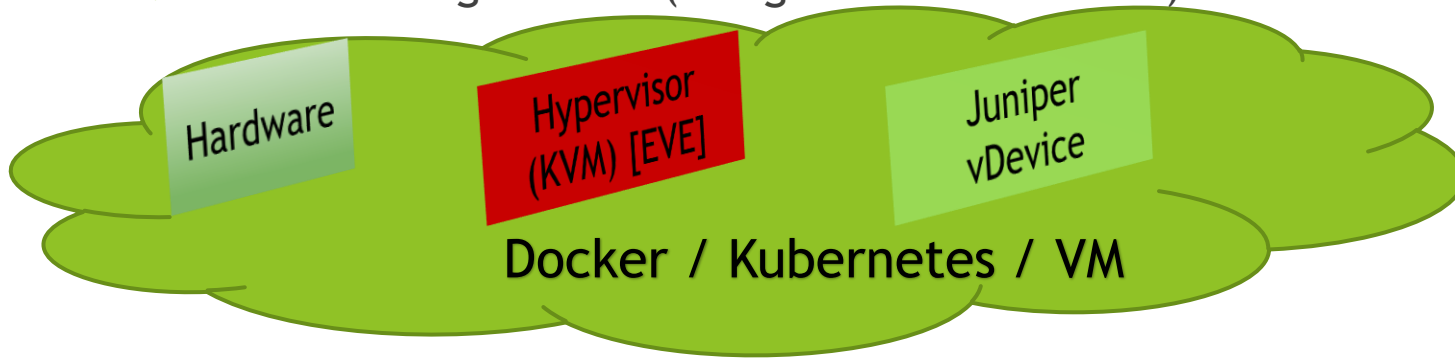


- ▶ Windows Client running VMwareWorkstation, running EVE (EVEception)



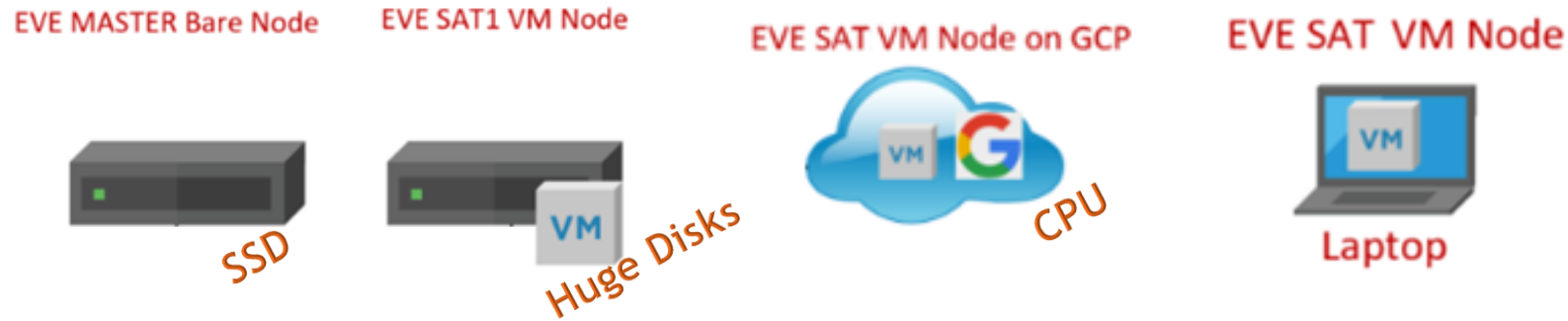
Mixed Environments

- ▶ EVE running on GCP (Google Cloud Platform)



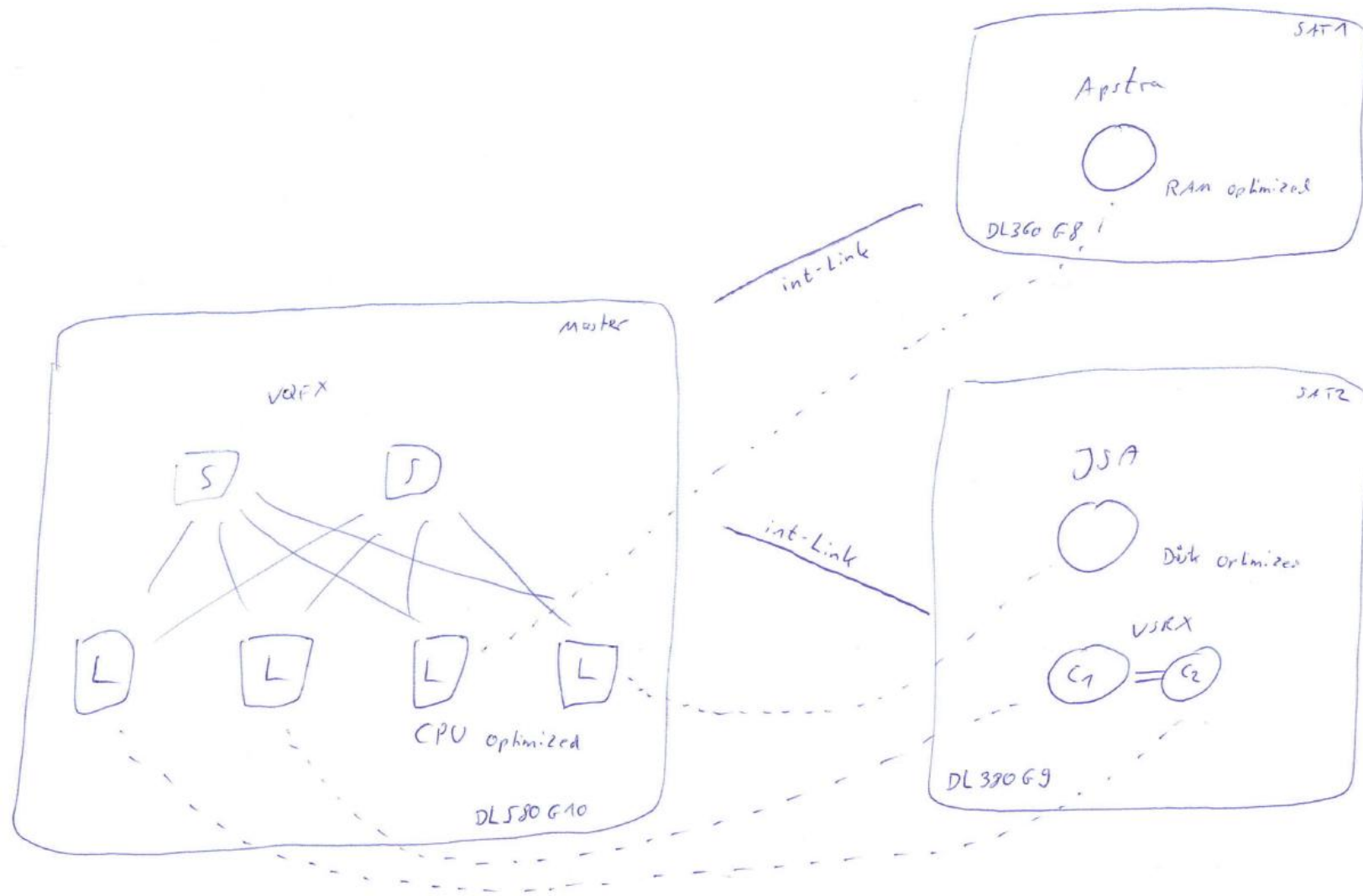
Flavors?

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

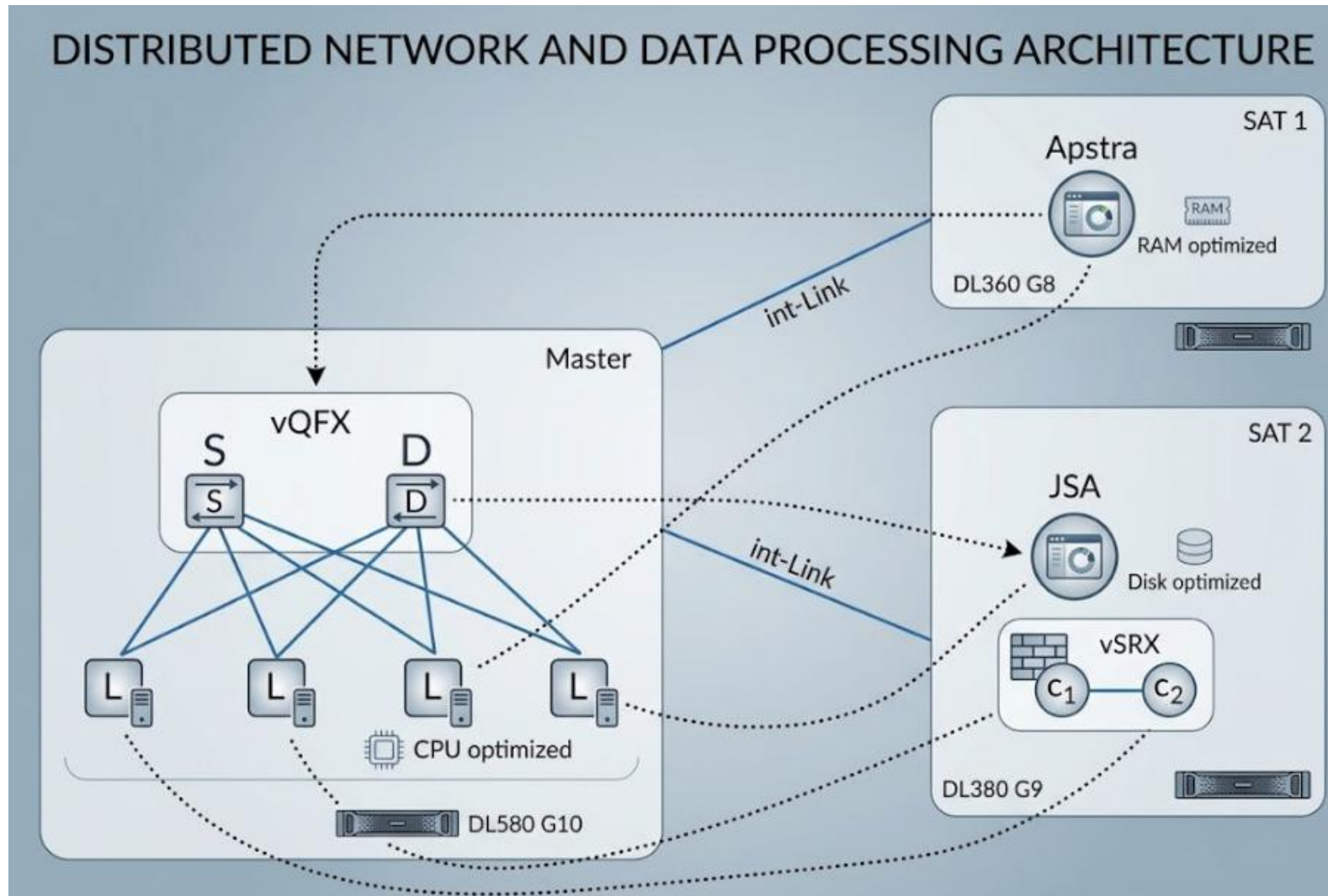


- ▶ Allows for easy scaling the Lab (need more resources? Throw more servers in)
- ▶ Allows part of your huge nodes to run on different servers (Space, Apstra, JATP)

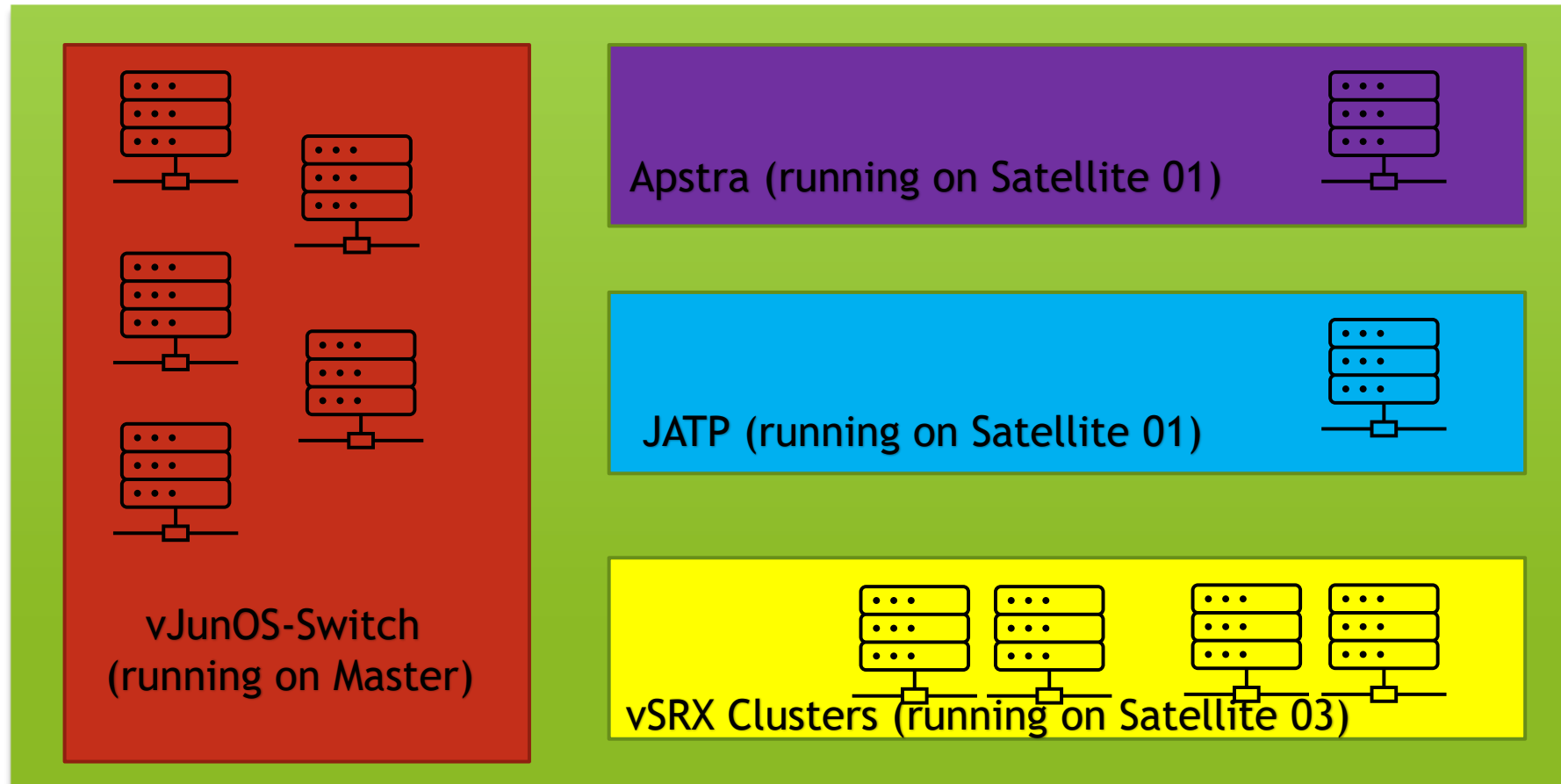
Load Sharing - Optimizing the Servers



Load Sharing - Optimizing the Servers

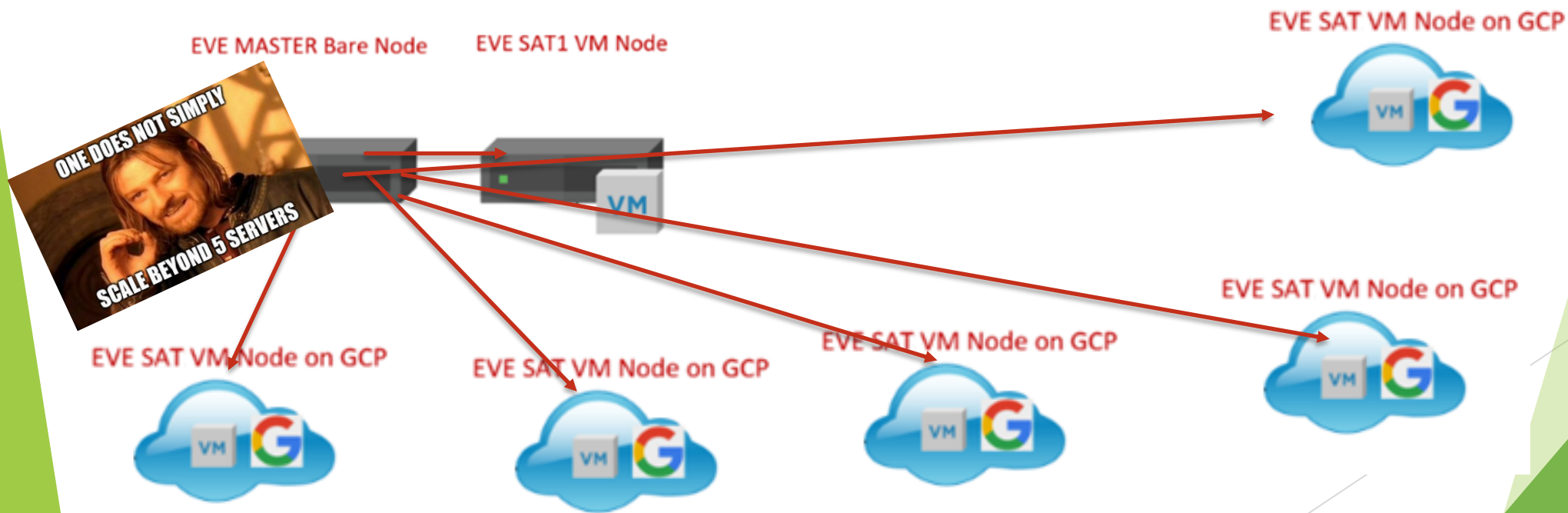


Load Sharing - Optimizing the Servers



How many nodes / satellites?

- ▶ Should not go above 5 satellites - master should have „spare resources“
→ Master talks to all satellites for traffic, statistics and such



Our Goal

- ▶ Talk about Clustering / Load Sharing ✓
- ▶ Look at mixed Environments (Bare, VM, Cloud) ✓
- ▶ Talk about Pro Features (Link-Loss, Latency, integrated Wireshark)
- ▶ Create a custom Template (vSRX 3.0, Apstra)
- ▶ Look at HUGE Labs and how to deal with them

Pro Features - great for everyday usage

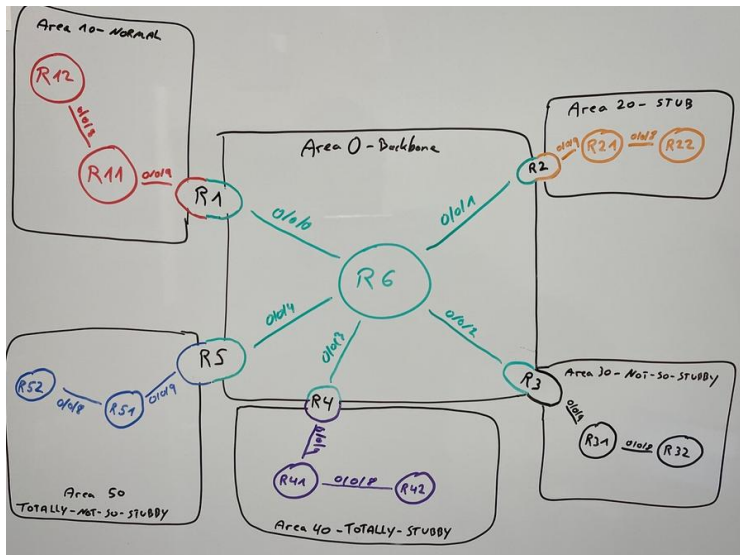
- ▶ Hot-Link-Add
- ▶ Upload PDF Files
- ▶ Packetloss / Jitter / Delay

Link Quality: VMX-VFP29 - VMX-VFP28

Interface	Delay (ms)	Jitter (ms)	Loss (%)	Rate(kbps)	Interface	Delay (ms)	Jitter (ms)	Loss (%)	Rate(kbps)
ge-0/0/8	0	0	0	0	ge-0/0/8	0	0	0	0

Apply Save Close

- ▶ Logical Maps



Our Goal

- ▶ Talk about Clustering / Load Sharing ✓
- ▶ Look at mixed Environments (Bare, VM, Cloud) ✓
- ▶ Talk about Pro Features (Link-Loss, Latency) ✓
- ▶ Create a custom Template (vSRX 4.0)
- ▶ Look at HUGE Labs and how to deal with them

Custom Template



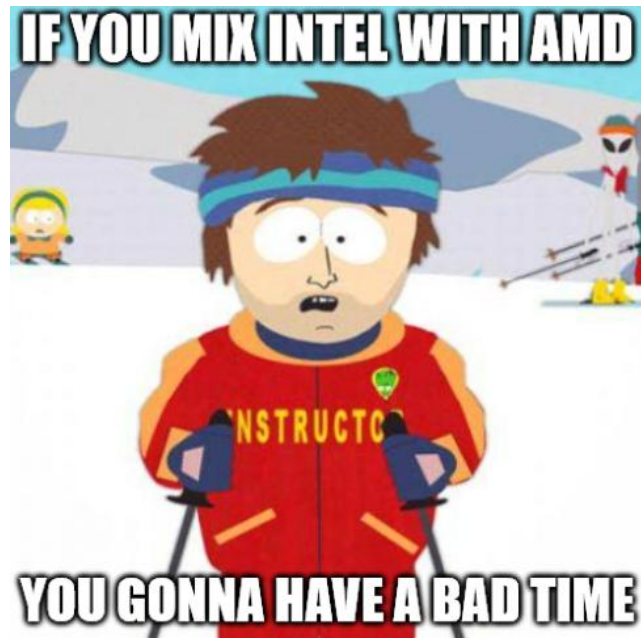
Custom Template

- ▶ Modify with sanity and care! Don't go „too low“ on Resources
Weird side effects - not supported - hassle, oh the hassle...
Always follow the Docs!
- ▶ You can copy templates to create a „new“ Device
- ▶ For JunOS Space PolicyEnforcer, JSA, Apstra, JATP: Start with Linux Template
- ▶ Creating a template alone is not enough!
also modify the yml for the custom templates!



Custom Template

- ▶ `/opt/unetlab/html/templates/intel/` (for Intel CPUs)
- ▶ `/opt/unetlab/html/templates/amd/` (for AMD CPUs)

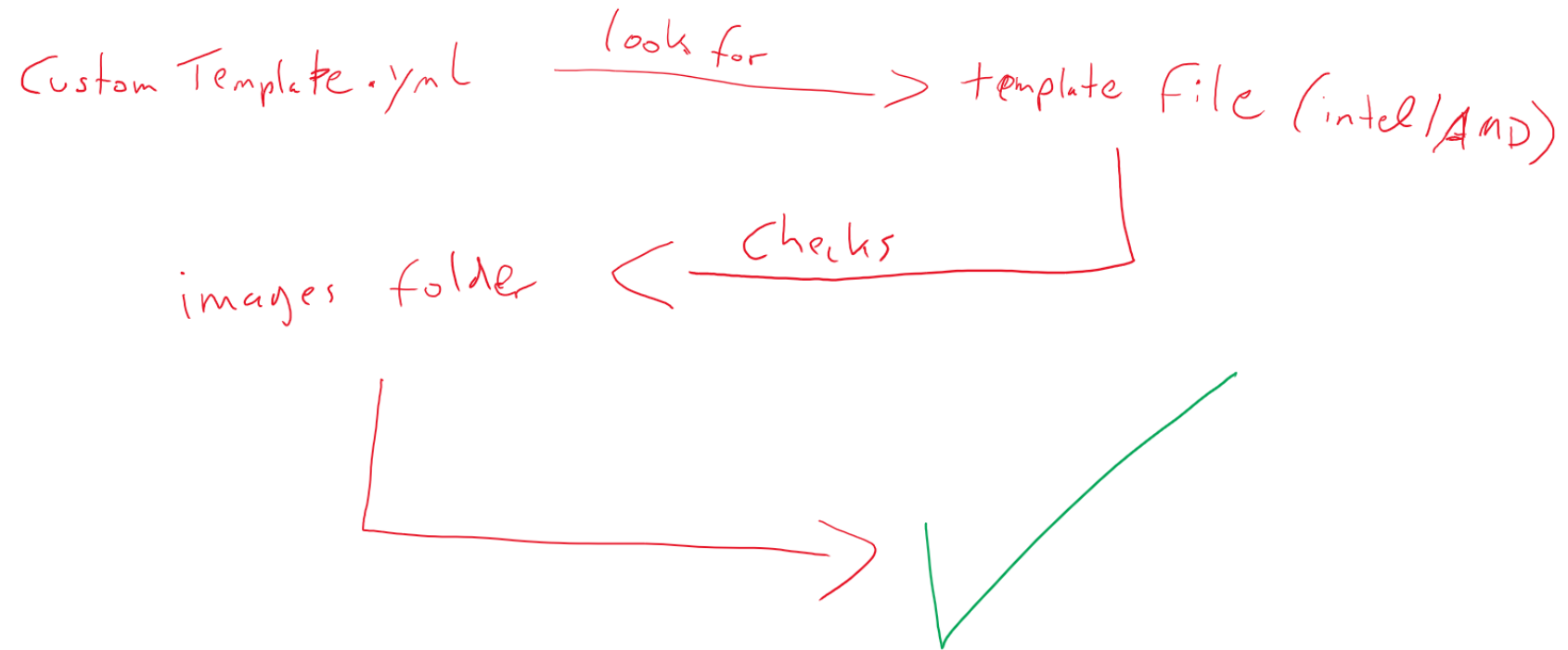


Custom Template - Paths

- ▶ /opt/unetlab/html/includes/custom_templates.yml → your config file

```
root@eve-ng:/opt/unetlab/html/includes# vim custom_templates.yml
--
custom_templates:
- name: JATP
  listname: 'EVE-BETA :: Juniper JATP Appliance (SkyATP on Premise)'
- name: PACKETFENCE
  listname: 'EVE-BETA :: PacketFence OpenSource NAC'
- name: CSRX
  listname: 'EVE-BETA :: Juniper cSRX'
- name: vsrx30
  listname: 'EVE-BETA :: Juniper vSRX3.0'
- name: jspacecollector
  listname: 'EVE-BETA :: JunOS Space Log Collector'
- name: riverbedSCM
  listname: 'EVE-BETA :: Riverbed SteelConnect Manager (on Premise)'
- name: riverbedSC
  listname: 'EVE-BETA :: Riverbed SteelConnect VM'
- name: ucopia
  listname: 'EVE-BETA :: Ucopia'
...
```

Custom Template - Checks



Our Goal

- ▶ Talk about Clustering / Load Sharing ✓
- ▶ Look at mixed Environments (Bare, VM, Cloud) ✓
- ▶ Talk about Pro Features (Link-Loss, Latency) ✓
- ▶ Create a custom Template (vSRX 4.0) ✓
- ▶ Look at HUGE Labs and how to deal with them

How to handle HUGE Labs

► Delay Start

Startup configuration

None

Delay (s)

0

Console

Satellite

master

master

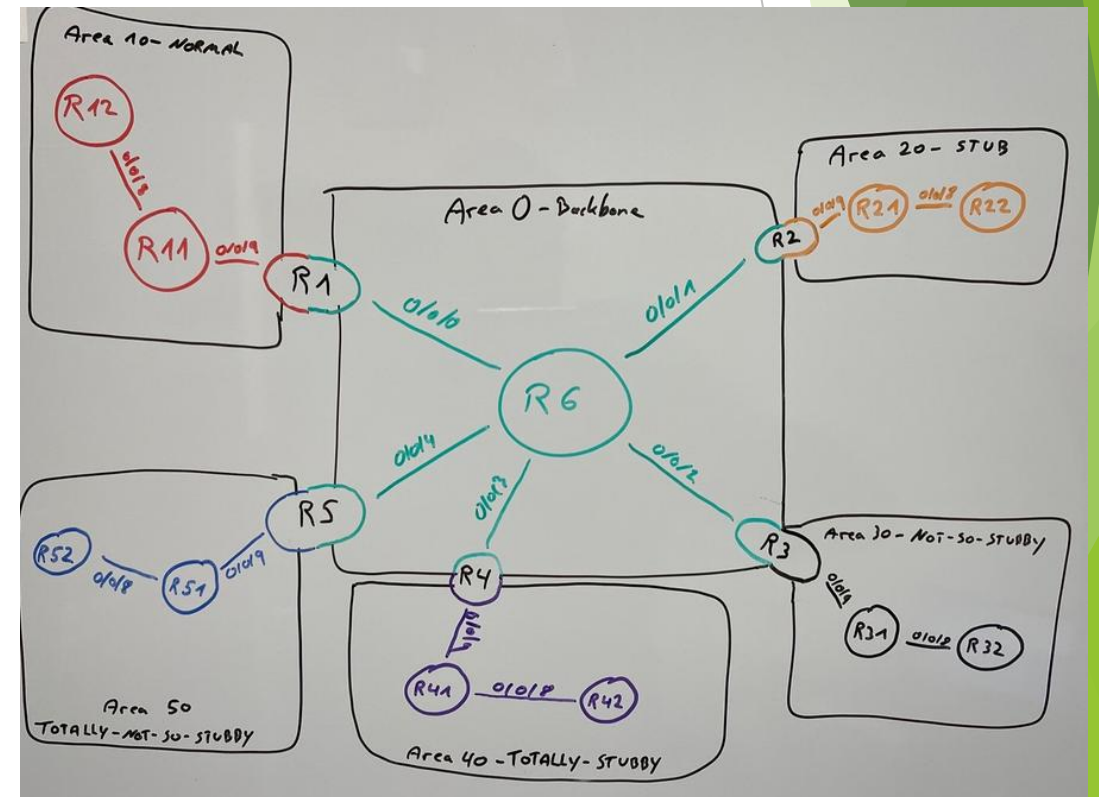
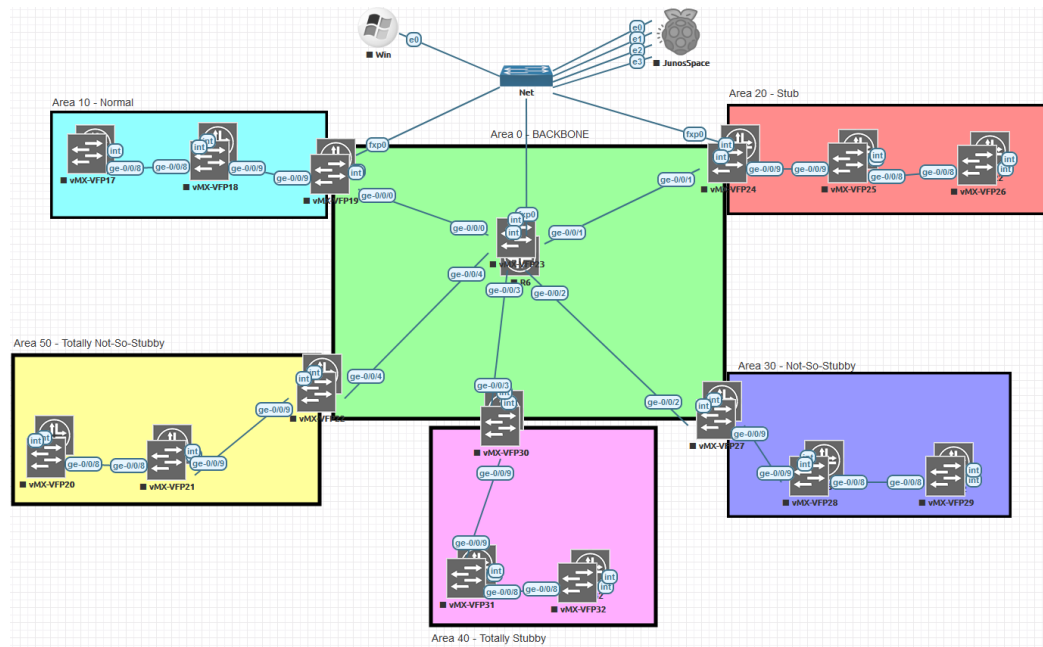
master

any

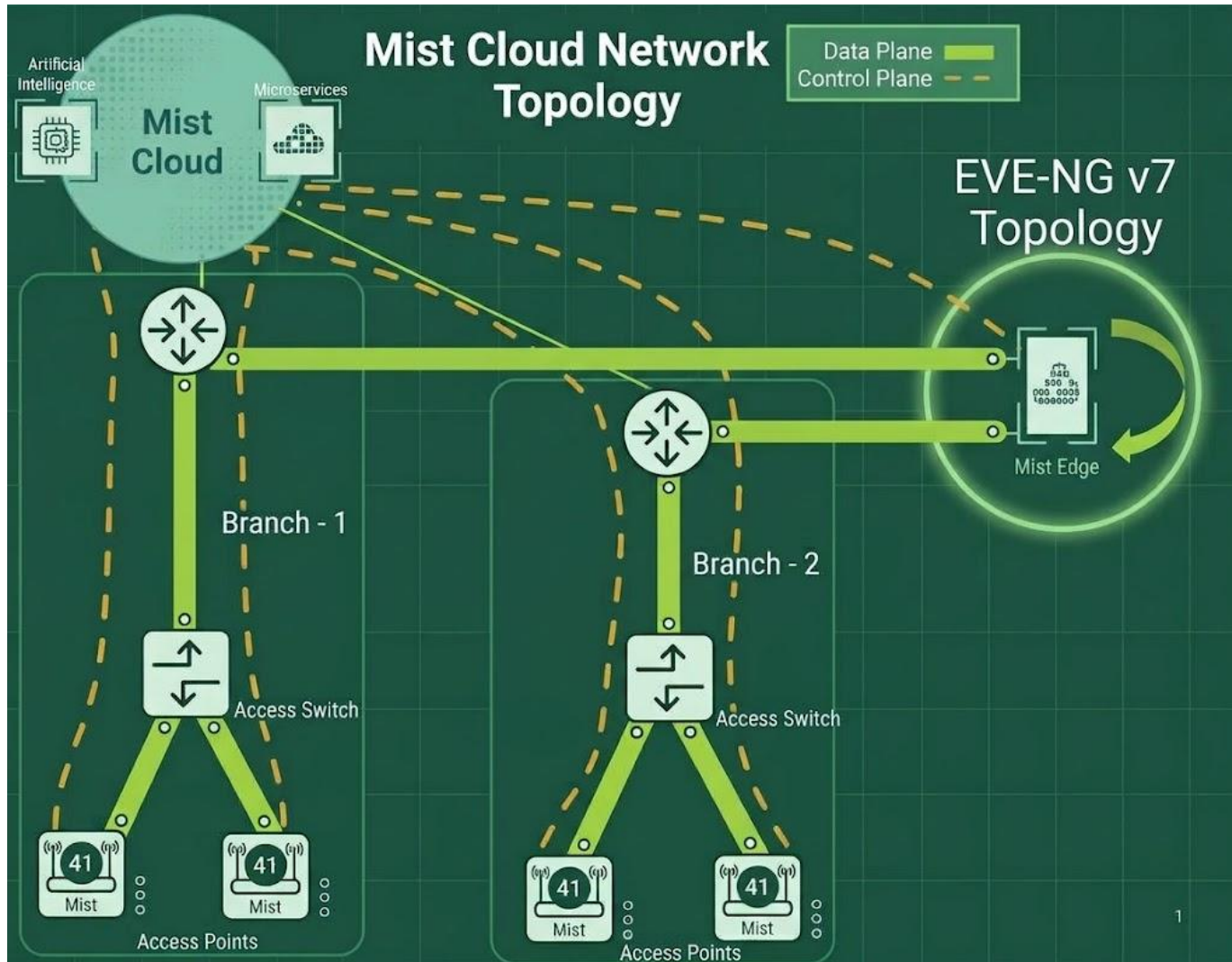
► Use Logical Maps

How to handle HUGE Labs

► Use Logical Maps



MIST-Edge - Physical Devices to v-Topology



Q&A

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„That guy who loves Networking,
EVE-NG and IPv6“

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